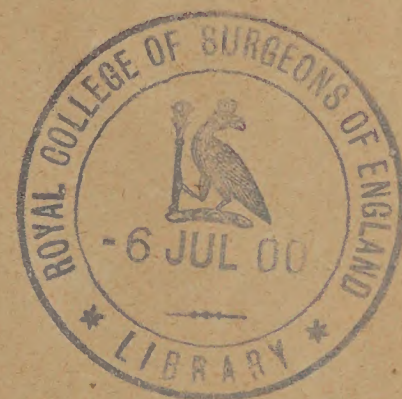


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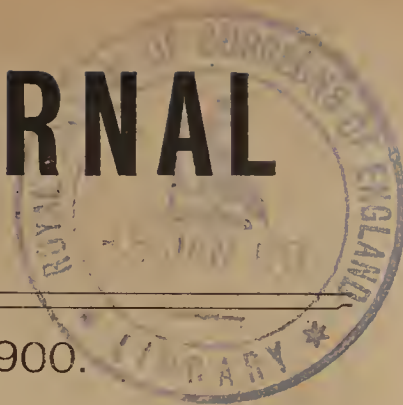
The following is a list of the contractions and the corresponding full titles of Journals from which abstracts are most frequently prepared for the "Pharmaceutical Journal." The titles prefixed by an asterisk () are those of official Journals.*

- Amer. Journ. Pharm.* = American Journal of Pharmacy. Philadelphia. Monthly.
- Annalen* = Justus Liebig's Annalen der Chemie. Leipzig. Monthly.
- * *Apot. Zeit.* = Apotheker-Zeitung. Organ of the Deutsche Apotheker-Verein. Berlin. Twice a week.
- * *Apot. Zeit. Rep.* = Repertorium der Pharmacie. Supplement to the Apotheker-Zeitung.
- * *Archiv* = Archiv der Pharmacie. Berlin: J. Greiss. Monthly.
- * *Berichte* = Betichte der deutschen chemischen Gesellschaft. Berlin. Once or twice a month.
- * *Brit. Med. Journ.* = British Medical Journal, London. Weekly.
- Bull. Com.* = Bulletin Commercial. Supplement to L'union Pharmaceutique. Paris: Pharmacie Centrale de France. Monthly.
- * *Can. Pharm. Journ.* = Canadian Pharmaceutical Journal. Toronto Monthly.
- Chem. News.* = Chemical News. London. Weekly.
- Chem. Zeit.* = Chemiker Zeitung. Cöthen. Twice a week.
- Chem. Zeit. Rep.* = Chemisches Repertorium. Supplement to the Chemiker Zeitung.
- * *Comp. Rend.* = Comptes rendus des séances de l'Académie des Sciences. Paris: Gauthier-Villars. Weekly.
- Deuts. Am. Apot. Zeit.* = Deutsch Americanische Apotheker Zeitung. New York.
- Int. Photo. Monats.* = Internationale Photographische Monatschrift für Medizin. Düsseldorf. Monthly.
- * *Journ. Chem. Ind.* = Journal of the Society of Chemical Industry. Monthly.
- * *Journ. de Pharm.* = Journal de Pharmacie et de Chimie. Paris: G. Masson. Twice a month.
- Journ. Pharm. Elsass-Loth.* = Journal der Pharmacie von Elsass Lothringen. Strassburg. Monthly.
- Journ. Zahnheil.* = Journal für Zahnheilkunde. Berlin.
- Med. Press* = Medical Press and Circular. London: A. A. Tindall. Weekly.
- Mod. Med.* = Modern Medicine and Bacteriological Review, Battle Creek, Mich., U.S.A. Monthly.
- Mon. Seient.* = Moniteur Scientifique. Paris. Monthly.
- Münch. Med. Woch.* = Münchener Medicinische Wochenschrift. Munich. Weekly.
- Now. Rem.* = Les Nouveaux Remèdes. Paris. Twice a month.
- Pediat.* = Pediatrics. London and New York. Twice a month.
- Petit. Mon. Pharm.* = Petit Moniteur de la Pharmacie. Paris. Fortnightly.
- Pharm. Centralh.* = Pharmaceutische Centralhalle. Dresden. Weekly.
- Pharm. Post* = Pharmaceutische Post. Vienna. Weekly.
- Pharm. Woch.* = Pharmaceutische Wochenschrift. Berlin. Weekly.
- Pharm. Zeit.* = Pharmaceutische Zeitung. Berlin: J. Springer. Twice a week.
- Pharm. Zeits. für Russ.* = Pharmaceutische Zeitschrift für Russland. = St. Petersburg. Weekly.
- Photo. Arch.* = Photographisches Archiv. Düsseldorf. Monthly.
- * *Proe. Chem. Soc.* = Proceedings of the Chemical Society. London. About twice a month.
- Répertoire* = Répertoire de Pharmacie, Archives de Pharmacie et Journal de Chimie Médicale Réunis. Paris. Monthly.
- Seient Amer.* = Scientific American. New York. Weekly.
- Schweiz Woch.* = Schweizerische Wochenschrift für Chemie und Pharmacie. Zurich. Weekly.
- Therap. Monats.* = Therapeutische Monatshefte. Berlin.
- Union Pharm.* = L'union Pharmaceutique. Paris: Pharmacie centrale de France. Monthly.
- Wiend Klin Rund.* = Wiener Klinische Rundschau. Vienna: A Hölder.
- Zahn. Rund.* = Zahnaertliche Rundschau. Berlin.
- Zahnteeh. Reform.* = Die Zahntechnische Reform. Berlin: R. F. Funcke.

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Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

PATHOGENIC ORGANISMS IN THE AIR.

By exposing plates to the air, washing off the colonies when those have developed, and injecting the washings intravenously into a rabbit, pathogenic organisms when present can be readily detected, according to Deeleman (*Centr. f. Bak.*, xxvi., 492). The pathogenic organisms which are found in the air are, in the order of their frequency, the *Staphylococcus pyogenes aureus*, the *Staphylococcus pyogenes albus*, the colon bacillus, and the *Diplococcus pneumoniae*. The pathogenic organisms occur in the air much more numerous in dirty surroundings than in clean ones.

PRODUCTION OF PROTEIDS IN-SOLUBLE IN THE GASTRIC JUICE.

W. Palladin continues his investigations on the connection between the formation of "living albumin" and the process of respiration in plants. The amount of nitrogen in the indigestible residue is used as a rough test for the amount of living albumin. The formation of fresh substances at the expense of sugar takes place much more energetically in the light than in the dark; and this is also the case with the regeneration of the proteids. The more refrangible rays of the spectrum favour the regeneration of albumin more than the less refrangible rays. Undigestible proteids are abundantly formed, even in the dark, when sugar is present, but in still greater quantities in the light. In the blue half of the spectrum a larger quantity of undigestible proteids is formed than in the yellow half. The energy of respiration in leaves supplied with sugar is twice as great in the light as in the dark. The proportion between the amount of carbon dioxide produced, and the amount of undigestible proteids is nearly constant. The experiments were made on etiolated leaves of *Vicia faba*.—*Bot. Centralblatt*, 79, 193.

CARBOLIC ACID POISONING.

Dr. J. Austin Kelly reports the following case:—A child twenty-one months old accidentally swallowed at least one ounce of Schering's carbolie acid. It was hurried to a drug store and there was given olive oil.

The doctor arrived five minutes later; he first gave an emetic of zinc sulphate to remove the oil, and then gave six to eight drachms of pure alcohol, following this in six minutes with a hypodermic injection of apomorphine, $\frac{1}{30}$ grain. When the apomorphine had produced emesis, one drachm of undiluted whiskey was administered every ten minutes for eight doses. "Pain was relieved immediately upon the administration of alcohol, in thirty minutes the patient rallied, and the next day the little fellow was playing about as usual with very slight destruction of tissue resulting from the ingestion of the acid." From this and other cases Dr. Kelly concludes that:—(1) Alcohol is undoubtedly the best antidote in all cases of carbolie poisoning, and, indeed, is an absolute antidote; (2) Where possible, lavage of the affected tract and stomach

with alcohol should be resorted to in preference to all other methods; (3) Where lavage is not practicable then give alcohol or whiskey, preferably the former, followed by apomorphine as an emetic.—*Merck's Archives*, through *Bulletin of Pharmacy*, 13, 517.

MERCUROUS NITRITE AND ETHYL IODIDE.

Dr. P. C. Rây finds that when mercurous nitrite acts upon ethyl iodide, about equal quantities of nitroethane and its isomeride, ethyl nitrite, are formed. The yield is, however, somewhat poorer than when silver nitrate is used, owing to the formation of very compact lumps of mercurous iodide, which prevents the reaction from becoming complete.—*Proc. Chem. Soc.*, 15, 239.

ARROW-POISON OF THE WAKAMBA.

Von Brieger has investigated this heart poison, the action of which closely resembles that of digitalis. Its toxicity is extraordinary, 0.05 Mgm. of the pure substance being fatal to guinea-pigs of 300 Gm. weight, in fifty minutes, while 0.3 Mgm. to each kilo. of body weight was fatal to dogs. Analysis points to the formula $C_{20}H_{46}O_{19}$. The active principle crystallises in anhydrous needles, melting at 182-184° C., but crystals containing 20 per cent. of water separate in larger plates, which melt at 93°-94° C. It is insoluble in ether, acetic ether, chloroform, and benzene; soluble with difficulty in cold, more soluble in hot, alcohol or water. The solution is laevogyre. The pure substance does not reduce Fehling's solution. By long heating with mineral acids, a yellow, amorphous, non-poisonous body separates, which is easily soluble in alcohol. The aqueous solution after the removal of this body reduces Fehling's solution, and gives an amorphous glucosone. The glucoside dissolves in concentrated sulphuric acid with a reddish-brown colour and green fluorescence. With tannic acid and the usual alkaloidal reagents the substance gives no precipitate.—*Chem. Zeit. Repert.*, 23, 315, after *Deutsch. med. Wochenschrift*.

IDENTIFICATION OF NICOTINE.

Nicotine is one of the few alkaloids which give no distinctive colour reactions, and is, therefore, distinguished from conine with great difficulty. J. Schindelmeiser proposes the following reaction, which may be obtained with 0.0005 Gm. of nicotine, and does not occur with conine. A trace of the alkaloid is treated with a drop of 30 per cent. formaldehyde solution, free from formic acid, and allowed to stand for several hours, when, on the addition of a drop of nitric acid, the solution is coloured crimson; if from 0.005 to 0.01 Gm. of nicotine be taken, the colour is dark red. The amount of formaldehyde indicated should not be exceeded, as with an excess, the solution becomes green, and the addition of nitric acid causes violent decomposition; nor should the mixture of nicotine and formaldehyde be heated. In place of formaldehyde, the author has tried concentrated formic acid, which reacts very well, also acetaldehyde and concentrated acetic acid; the last two require more nicotine, and give less definite reactions. Neither piperidine, trimethylamine, pyridine, chinoline, picoline, nor aniline gives the reaction.—*Pharm. Centralhalle*, 40, 704.

THE PHARMACOPŒIA IN ITS RELATIONS TO PHARMACISTS.

BY CHARLES UMNEY.

Dr. Nestor Tirard, a member of the General Medical Council, and a prominent worker in connection with the compilation of the British Pharmacopœia, has recently delivered a series of lectures on "Pharmacy and the British Pharmacopœia" before the Society of Apothecaries of London. His last lecture (*vide British Medical Journal*, Dec. 30, 1899, page 1785), entitled "The Pharmacopœia in its Relation to Pharmacists," is an excellent and concise commentary on the important changes that were made in the Pharmacopœia, 1898.

Dr. Tirard in summarising, asks "how the changes affect the chemist, the dispenser, and the manufacturer?" and follows with extracts from various journals, giving individual opinions as to the value of the work, then alludes to the dissatisfaction of the Irish representatives at the lack of opportunity they had of taking part in the production of the pharmacy portion of the work, and finally asks a question as to whether it is not desirable that the compilation of the Pharmacopœia should be in the hands of medical men. The lecturer concluded his third and last lecture with the following:—

If we consider the way in which trade interests are affected by the Pharmacopœia, if we consider that the volume deals with things bought and sold, it is impossible not to realise the risks of trade competition, of trade influence and the constant danger of introducing a standard which might create a monopoly. I would ask you whether, with this in view, it is not better that the compilation should be in the hands of those whose motives cannot be assailed, that the final responsibility should rest with those whose interests are not at stake?

As a pharmaceutical chemist, a manufacturer, and a member of the Pharmacopœia Revision Committee, I decline to believe, notwithstanding the official position Dr. Tirard holds on the General Medical Council in connection with the Pharmacopœia, that he is acting as the mouthpiece of the Pharmacopœia Committee of the General Medical Council. One would have fancied that a new era would not have dawned so late in the nineteenth century, and that the pharmacist, who the century thought had been accredited with honesty, would not in these latter days have so degenerated that such whisperings should be heard concerning him as "let no such man be trusted."

What a forlorn hope, too, for the Council of the Pharmaceutical Society when called upon to elect its Pharmacopœia Revision Committee from such material. Possibly those who knew their *confrères* best thought "Peradventure ten shall be found" that would not (as Dr. Tirard says), "introduce standards which might create a monopoly."

To comment in detail upon the several points embodied in the lecturer's concluding paragraph would probably be unprofitable and assuredly irritating, and I will dismiss the subject by saying that there are pharmacists out of Great Britain—and that in all civilised countries (England only excepted) pharmacists have a well-defined and important share in pharmacopœia publication and revision.

Having dissented thus much from the suggestions of Dr. Tirard, I venture to state that in my opinion there will always continue to be an unsatisfactory and incomplete revision and publication of our national Pharmacopœia, from a pharmacist's point of view, until a well-planned scheme be agreed upon, and the devising of such scheme should not, as on previous occasions, be put off for another seven years, but should be taken in hand at once. There should be no secrecy in pharmacopœia making—each new year should find us "up to date," aided by the editor's annual report—but such a report in perfection is impossible without proper equipment and thorough organisation. My suggestions are sub-joined.

1. That there should be a decennial revision of the British Pharmacopœia.

2. That the next edition should be published January 1, 1910, and that prior to its publication there should be an attempt to make such issue "Statute Law."

3. That six months prior to its publication (July 1, 1909), the book in its entirety should be exhibited at ten centres in Great Britain and Ireland (say five in England, three in Scotland, and two in Ireland).

4. That the General Medical Council should appoint an editor of the Pharmacopœia, and retain his additional services as reporter.

5. That the General Medical Council should request the Pharmaceutical Societies of Great Britain and Ireland to nominate a committee of ten pharmaceutical chemists, five to be nominated for England, three by Scotland and two by Ireland. Such committee to be a permanent one, and have a secretary.

6. That the Pharmacists' Committee should meet at not less than three-monthly intervals, and furnish annually complete data to the editor, who should be empowered to report on the same and publish and circulate such report in a manner to be agreed upon by the Medical Council.

7. That once in six months, at least, and at such time as the Medical Council may think fit, a sub-committee of the Pharmacists' Committee should have a conference with the Medical Council Pharmacopœia Committee and the editor. The Pharmacists' sub-Committee referred to should not consist of more than four, two of such sub-Committee to be representatives of England and one each of Scotland and Ireland.

8. That no fees be paid to pharmacists for any research or other work, and that particulars of all material used in Pharmacopœial work be furnished annually to the Committee's secretary, all charges for the same being at cost price.

9. That the General Medical Council pay all travelling expenses of members of the Committee meeting in London quarterly or oftener, also the salary of the permanent secretary of the Committee, and all amounts disbursed by the secretary for material used.

10. That the Pharmaceutical Society of Great Britain do undertake to give the Committee every facility to carry on its work in its buildings free of charge, and if requested, place its Research Laboratory at the Committee's service.

If the General Medical Council would deal with the whole subject and in its deliberations give due weight to the entire conditions under which the pharmacopœias of Germany and United States of America are produced, it would rid itself at once and for all time of that objectionable friction that has been going on more or less for a generation and would do justice to pharmacy, no injustice to medicine, and cause no loss of dignity to the medical profession.

MERCURIOL.—Broomquist, of Stockholm, has applied this name to an amalgam of aluminium, magnesium, and mercury, the last-named being present to the extent of 40 per cent. It forms a very fine greyish amorphous powder, from which the mercury readily volatilises under the influence of warmth, air and moisture. It is recommended for the treatment of syphilitic affections, the patient wearing a small sachet containing 5 Gm. of mercuriol next to the skin for five to ten consecutive days, during which one sachet suffices. The absorption of the mercury is effective, and its elimination very active. It is also useful for mercurial inhalations.—*Nouv. Rem.*, 15, 497, after *Arch. für Derm. und syph.* [Care should be taken not to confound the preparation mercuriol with mercuriol, a combination of mercury with nuclein. The close resemblance of those names well illustrates the danger which may arise from the use of similar empirical titles for totally diverse specialties.—Ed. P.J.]

FACTS AND FANCIES,

BY AN ORDINARY PHARMACIST.

The President and the Companies Bill.

Mr. Martindale's move, in placing before the President of the Board of Trade a general expression of the views of the pharmacists of Great Britain with regard to the company pharmacy problem, must be described as being decidedly diplomatic, more especially in view of the difficulty he has apparently experienced in keeping what Mr. Carteighe would call his "team" well in hand. Whilst necessarily lengthy, the letter is a skilfully drafted summary of the whole position, committing the President and Council to no particular policy so far as details are concerned. At the same time, it is a dignified protest

(1) Against the assumption and use of pharmaceutical titles by other than duly registered individuals;

(2) Against the retailing, dispensing, or compounding of poisons by unregistered persons.

It will be noticed that the wording of the essential paragraph in Mr. Martindale's letter—printed in bolder type at page 607 of the *P.J.* of December 23—is almost identical, so far as it goes, with the text of the resolution suggested in my article of November 25 (see *P.J.*, p. 503). Greater weight would probably have attached to it if it had been in the form of a resolution adopted by the Council, especially if there had been unanimity on the subject. But, I imagine, Mr. Ritchie may rest assured that not a single member of the executive body will dissent from the views expressed by Mr. Martindale; that being so, the fact of a formal protest against the existing state of affairs having been officially placed on record should suffice for all practical purposes. It is now matter of history that the pharmacists of Great Britain, as represented by the President of the Pharmaceutical Society, have formally protested against the misuse of their titles and the consequent prejudice of public interests which were supposed to be protected by the provisions of the Pharmacy Act of 1868. The Government must now act or be further spurred on to do its duty.

The Inaccurate on Accuracy.

It is amusing to note, by the way, that a trade journal which published an incorrect version of the Lord Chancellor's speech delivered on August 3, ventures to chide Mr. Martindale for adopting what it is pleased to term "an uncorrected version" of that same speech. As a matter of fact, there is no published report of the Lord Chancellor's speech, for the simple reason that the reporters in attendance at the House of Lords on the occasion referred to found it utterly impossible to hear what was said. Subsequently, however, when his Lordship's attention was directed to the inconvenience likely to result from that unfortunate occurrence, Lord Halsbury kindly dictated the gist of his remarks to the reporters, and a fully and authoritatively corrected version of that statement appeared in the *P.J.* of August 12. That was the version quoted by the President in his letter to Mr. Ritchie, and whatever any trade journal may say "authoritatively" on the subject, its assertions must be regarded as inaccurate and unconvincing unless they accord with what is stated there. Whilst on this subject, it may not be amiss to remark that, in my opinion, since the *P.J.* is the official gazette of the Pharmaceutical Society, only such records of matters connected with the Society as appear therein can be regarded as strictly official, and beyond question. Other newspapers are doubtless welcome to copy those records, though I have observed that they do not always acknowledge the source of their information; but—judging from what personal observation teaches me with regard to the circulation of the different journals in London and the provinces—there is not the slightest occasion to publish anything of importance to British pharmacists elsewhere than in the Society's official organ. It cir-

culates more widely amongst "persons who are entitled to practise pharmacy in Great Britain" than any other newspaper devoted chiefly to pharmaceutical topics, and it is not too much to assert that it is carefully read, week by week, by every chemist on the Register who has a soul above that of a mere trader. For the rest, anything will serve.

Mr. Hills on the Situation.

It has been whispered that the paper read by Mr. Walter Hills at the meeting of the Western Chemists' Association a fortnight ago embodied what he would have liked to say when addressing the same body at its annual dinner thirteen months earlier. What he did say then was virtually to the effect that, unless 90 per cent. of the trade belonged to the Pharmaceutical Society, he would not take the lead in any attempt to suppress company trading in pharmacy. The number required to make up the 90 per cent. did not join the Society; perhaps they are not likely to do so, lack of public spirit and superabundance of small-mindedness being sadly too prominent in the ranks of the outsiders. Meanwhile Mr. Hills has burnt his boats, as irrevocably as Messrs. Atkins and Glyn-Jones, and committed himself to the proposal that the use of pharmaceutical titles should be restricted to duly qualified individuals and that all open pharmacies owned by companies should be *bona fide* under the control of persons registered under the Pharmacy Act, 1868. It is true that he has stated his preference for the prohibition of company trading in pharmacy, but only to follow up what he said on that point by an expression of utter hopelessness with regard to anything of the kind being feasible. I would direct special attention to the fact that the somewhat despairing position now taken up by Mr. Hills is the direct outcome of the lack of support which he might reasonably have expected to receive, when he occupied the position of President of the Pharmaceutical Society. The members of the Western Chemists' Association appear, generally to have inclined to the views expressed by Mr. Hills, and, so far, no protests have been heard, not even from Lancashire, where dwell the sternest opponents of the policy of surrender. Can it be that all the local pharmaceutical volcanoes are played out? or is it only somnolence, such as accompanies much Christmas fare, which is responsible for the refreshing sense of quietude that pervades the columns of all the journals at present.

The Pharmaceutical Qualification.

I must confess to a feeling of considerable sympathy with the view recently expressed by a writer in these columns (see *P.J.*, December 16, p. 578), to the effect that, so far as the best interests of pharmacists and the public generally are concerned, the essential thing to aim at is for each separate establishment where pharmacy is practised to be personally controlled by a duly registered person. That controlling person, as I understand the suggestion, would be expected to give his undivided attention to a single place of business, and he would in all respects be absolutely responsible—in relation to the public—for everything that occurred in connection with the conduct of the business. Many registered chemists—possibly Mr. Lord Gifford among the number—may be expected to object to that method of securing acceptance of the principle of "qualified proprietorship," because it would interfere to a considerable extent with the present free and easy methods of carrying on branch establishments and possibly also with that even worse practice—the supply by registered chemists of drugs and galenicals to hucksters. More than that, it might even, in many instances, have the effect of compelling the actual proprietor of a business to attend to it personally. But the public interest must be considered before personal convenience, and even though Dinneford and Co., John Bell and Co., Savory and Moore, and other firms should be compelled to put up the names of the pharmacists actually in charge of the business at each of their establishments, "just like a common public house," I quite fail to see that any loss of professional prestige or business profit need follow. And, after all, is not the pharmaceutical qualification one and indi-

visible? Medical men and lawyers cannot throw the mantle of their qualification over the shoulders of unqualified individuals, nor mask it under the name and style of long defunct predecessors, why, therefore, should pharmacists wish to do so? As professional men their chief capital is in themselves as legally-qualified individuals; let the individuality be manifest at all times, and the worst that unqualified competition can then do will be to show that there is quackery which apes pharmacy as well as other professions, and that medicine which is low-priced is not cheap unless accompanied by the personal guarantee of an individual who is fully alive to the fact that he has a professional reputation to lose.

Shall the Qualifying Examination be Divided?

Division of the qualifying examination, as recently suggested by Mr. Peter Boa (see last volume, p. 524), is, doubtless, a very desirable thing, in view of the great pressure now put upon candidates in having so much to prepare for a single test. But, as Mr. Lennox pointed out in last week's Journal, in a letter which reveals an unduly perturbed state of mind on the part of the writer, very little interest has been manifested in the subject recently, except by a few individuals. The fact of the matter is that the question of dividing the examination can hardly yet be regarded as coming within the sphere of practical politics. When it does there will be much more to consider than the method of division or how best the students' burden can be lightened; the candidate's knowledge will naturally require to be more deeply probed, the manner in which he has acquired it will need to be considered, and it is doubtful if a hard-and-fast line should be drawn between the subjects to be taken in the two parts of the altered examination. Bearing in mind that, shortly after August next, all who present themselves for the qualifying examination may be assumed to possess a knowledge of mathematics, which is not now required, it is easy to recognise in what direction the examination in physics and physical chemistry may develop. How others may be affected if the examination should be divided remains to be seen. The method of division would probably be, broadly speaking, as Mr. Boa indicates, the scientific subjects being taken first and the technical subjects, with practical work based thereon, subsequently. But the scientific subjects must also be treated practically, and it would not be advisable to separate the examinations in theory and practice more than at present. It might be found desirable, therefore—not less than three years after passing a preliminary examination, and on production of proof that a proper course of study has been followed—to permit candidates to enter for an intermediate examination—oral and practical—in prescription Latin, chemistry, physics and botany, the standard for the scientific subjects approaching, if not equalling, that of the present Major examination. A period of six months might then elapse before the successful candidate was permitted to enter for the final examination—covering at least two days—in practical dispensing, prescription-reading, pharmacy, pharmacography (including the histology of drugs), and advanced chemistry; possibly it might be found desirable to add a written paper in advanced chemistry and physics. In that case, the way would be prepared for conferring the title of "pharmaceutical chemist" on the successful candidates at the final examination, if even the rearrangement suggested did not at once justify such a course. But that is another story; for the present it must suffice to educate pharmaceutical opinion up to the point of deciding that division of the qualifying examination is a desirable and a necessary step.

The Botanical Incubus.

The perusal of Dr. Bryan's paper in last week's *P.J.*, on the crippling of botanical science by words, has given me much satisfaction, for of all the possible ways of making the study of natural science inexpressibly wearisome commend me to the overloading of facts with technical terms and especially terms derived

unnecessarily from other languages than English. The average pharmacist finds the study of botany sufficiently troublesome under any circumstances; he thinks his examinations are unduly burdened with the subject, finds botanical examiners more or less unreasonable in their estimate of what a pharmacist ought to know of their particular science, and probably ends by arriving at the conclusion that the study of botany by pharmacists is altogether a mistake. Such being the state of affairs it would appear desirable to make the study as little repulsive as possible, and, as a first step in that direction, Dr. Bryan's proposals for simplifying the descriptive terms used in botany might well be acted upon. There is no sound reason why an English-speaking student should be compelled to learn Latin and Greek before he studies botany, and as little reason why he should be troubled to memorise what are to him more or less meaningless terms of foreign derivation when his own language is quite capable of furnishing self-explanatory terms every whit as suitable. The study of classical languages tends to diminish rather than increase, and it is simply absurd to keep up a restriction that can only end by reducing the number of all-round botanical students to a minimum. The somewhat drastic remedy proposed by Dr. Bryan should, therefore, be applied as promptly as opportunity may permit, foreign technical words in botany being replaced, as far as possible, by self-explanatory English words, and those which cannot be so replaced treated in such a manner as to distinguish their component parts. The brief list given as an illustration by Dr. Bryan suffices to show how readily a large number of terms can be replaced by simple equivalents, and I am quite of his opinion that a very large number can be similarly replaced without loss of accuracy in description and with much gain in point of time.

Pharmacists and the War.

The proposal in last week's *P.J.* (see p. 640) that a School of Pharmacy Drill and Rifle Corps should be formed, is based on a totally inadequate idea of the necessities of the situation, but, nevertheless, it comes opportunely, in view of the fact that the Earl of Mount Edgcumbe has just suggested a novel scheme for drilling and arming men who would like to receive some military training, yet find it inconvenient to spare the amount of time required of those who join a volunteer corps. It is proposed that in the neighbourhood of a garrison or volunteer headquarters, classes might be formed for instruction in drill and rifle practice, arms being lent to those attending the classes, and instruction given by non-commissioned officers capable and willing to undertake the duty. The idea underlying the scheme is that a large number of men might thus be preparing themselves for military service, without cost to the country or leaving their employment, and so become better fitted at short notice to join some corps and fill the place of those who have been sent abroad. Before any further steps are taken in the direction of constituting the proposed School of Pharmacy Corps, it might be well to ascertain what prospect there is of the Earl of Mount Edgcumbe's scheme being taken up. It is worthy of note that his Lordship is brother-in-law of the Minister for War, and that he says he has been "unofficially encouraged" to publish his suggestions. With regard to the enlistment of army compounders, it will be interesting to know how many properly qualified individuals enlist in that capacity for service in South Africa. Assuming that the campaign does not last longer than a year, each compounder of medicine will receive rather more than seventy-four pounds in cash, plus any general gratuity that may be granted to the troops, possibly about eighty pounds altogether. Free rations, kit, and passage to and from South Africa are also promised, but it may be anticipated that the out-of-pocket expenses incurred by each individual during the campaign will be far from trifling, since famine prices may be expected to prevail

in South Africa for some time to come. On the whole, therefore, the post of compounder of medicine for the army cannot, even with the present exceptional terms, be regarded as a tempting one—except to adventurous or ultra-patriotic spirits—but the advice offered to pharmacists by a correspondent whose letter appeared in last week's *P.J.* (see p. 639) is not likely to be acted upon generally, for it is reported that there has been quite a rush of applications from both Minor and Major men, many more applications having been received, in fact, than there are vacancies.

DIRECTIONS FOR CERTAIN ALKALOIDAL ASSAYS.

BY H. M. GORDIN AND A. B. PRESCOTT.*

A General Method for the Extraction of Alkaloids in Assays.

I.—AS A METHOD¹ BY PERCOLATION.

One to 4 Gm. of the finely powdered drug is weighed into a low, wide-mouthed vessel, with a round bottom, holding eight or ten ounces, and having a well-fitted cork, such as a screw-top ointment-jar.² The powder is rubbed up with a small pestle to a fine paste, by adding a little of a solvent mixture, composed of stronger ammonia water and alcohol each 5 C.c., chloroform 10 C.c., and ether 20 C.c.³ Then a few more cubic centimetres of this mixture are added, so as to have the drug well covered with the liquid, using in all about five times the amount of the drug taken. The vessel is corked, with the pestle inside, and is set aside for about four or five hours, taking care to agitate by circular movement very frequently during that interval. After that time the cover is removed, and the vessel kept in a current of air, stirring frequently till all odour of ammonia has disappeared. With a good draught and frequent stirring, the powder will be almost perfectly dry in about one hour. The vessel is then put into a vacuum desiccator over sulphuric acid for about four or five hours.

An amount of powdered sodium chloride,⁴ equal to about five or six times the amount of drug employed, is carefully mixed in, with use of the pestle, and the whole thrown into a small percolator, one provided with a glass stop-cock and having a plug of cotton at the bottom.⁵

The vessel is then cleaned out several times with small quantities of sodium chloride, and the cleanings added to the percolator. The mixture in the percolator is then covered with a little of the cotton, which is pressed down with a piece of glass, and a suitable menstruum, usually chloroform, is poured slowly into the percolator

NOTE.—Analytical results in support of these directions are given in an accompanying paper, "Further Work Upon the Estimation of Alkaloids and the Assay of Alkaloidal Drugs," presented in this Association at this date. Also in the paper entitled, "Certain Alkaloidal Periodides, and the Volumetric Estimation of Alkaloids as Higher Periodides," by the same authors, *Proc. Am. Pharm. Assoc.*, 1898, p. 340; *Pharm. Arch.*, i., p. 121; *J. Am. Chem. Soc.*, 1898, p. 724. A paper on "Hydrastine Hexiodide and Assay of Hydrastis," *Am. J. Pharm.*, 1899, p. 257. Further, see the article, "The Periodides of the Alkaloids as Molecular Forms for Estimation," etc., by A. B. Prescott, 1897; *Pharm. Review*, vol. xv., and other papers since 1895.

* In the work of Research Committee D, Section 2, Committee on Revision and Publication of the Pharmacopoeia of the United States, 1890—1900. Read before the *American Pharmaceutical Association*, September, 1899.

¹ These directions were published, nearly as here given, by the authors, in an article, "Emetine Octoiodide," etc., *Pharm. Review*, vol. 17, 1899. This general method is not applicable to Ipecacuanha. See under "Assay of Ipecacuanha" further on.

² An ordinary teacup fitted with a specie cork answers well.

³ In the case of *Hydrastis canadensis* the chloroform is replaced by an equal volume of ether.

⁴ In the case of hydrastis the sodium chloride is replaced by barium nitrate.

⁵ A suitable percolator is easily made out of an ordinary piece of glass tubing fitted with a perforated cork, through which passes a tube having a glass stop-cock.

till the menstruum reaches the stop-cock. The latter is then closed, the percolator covered, and set aside for five or six hours. After that time the stop-cock is opened, and the drug exhausted with the menstruum, percolating until, ten drops of the percolate being evaporated on a watch-glass and the residue taken up with a few drops of acidulated water, the solution shows no turbidity whatever on adding a few drops of the solution of iodine. When finished, the percolate, which is received in a flat evaporating dish, is placed in a good draught at a temperature of about 30° C. When the liquid is reduced to a very small volume, 10 C.c. of acidulated water⁶ is added, and then a few cubic centimetres of ether, or petroleum ether, so as to have an ethereal liquid cover the aqueous solution,⁷ when the whole is stirred with a glass rod until all the ethereal liquid is driven off. The liquid is then filtered, and the evaporating dish and filter washed several times with acidulated water. In this way is obtained a colourless solution of the alkaloid which can be worked up for any method of determination.⁸

II.—AS A HOT EXTRACTION METHOD.

Instead of the cold percolation, as above directed, hot extraction in any suitable apparatus may be used, all other features of the operation being the same. If a Soxhlet tube is used, care should be taken that the syphon works intermittently, as otherwise the extraction is very incomplete; if Dunstan and Short's apparatus⁹ is used, the boiling of the solvent should be so regulated as to have always a layer of about two centimetres of it on the top of the drug. Our experience has taught us that for quantitative work cold extraction by percolation requires less skill and care than hot extraction in a Soxhlet tube, though with careful operation the latter method is preferable.

Volumetric Assay of Alkaloids by Precipitation with Free Iodine.*

In this method so far applied to Atropine, Morphine, Strychnine, Brucine, Emetine, Hydrastine and Caffeine, the determination depends upon the formation of a Periodide.—For opium assay, the assay of nux vomica with separation of strychnine from brucine, assay of ipecac., and determination of berberine in assay of hydrastine, see below. For determination of caffeine, the alkaloid solution must be invariable acidulated (Gomberg, 1896). For assay of kola, see Knox and Prescott, 1896-7, *Proc. Am. Phar. Assoc.*, 44, p. 128, and 45, p. 131; *J. Am. Chem. Soc.*, 19, p. 63; 20 p. 34.

REAGENTS AND UTENSILS REQUIRED.—(1) A standardised solution of iodine dissolved in water with potassium iodide to be of about decinormal strength (12.653 Gm. of free iodine in 1,000 C.c.). The solution may be made as the volumetric test solution of iodine of the U.S.P., and used with the exact decinormal factor of iodine if preferred.

(2) A solution of sodium thiosulphate, of about decinormal strength, standardised to known ratio with the iodine solution. The volumetric test solution of thiosulphate of the U. S. P. may be used.

(3) The starch test solution of the Pharmacopoeia.

(4) The burettes and centesimal measuring vessels for any volumetric work in analysis.

* These directions were given in substance in an article entitled, "Emetine Octoiodide and the Estimation of Alkaloids Generally," by the authors of this paper in *J. Am. Chem. Soc.*, 21, p. 234, March, 1899; *Pharm. Review*, vol. 17, 1899.

⁶ If an alkalimetric assay is intended, the acidulated water in the operation should be closely standardised and taken in definite quantities.

⁷ If the menstruum is all evaporated off it is sometimes difficult to dissolve out the alkaloids with the acidulated water. If chloroform be used, coming below the aqueous layer, it evaporates too slowly.

⁸ The method of extraction described above presents particular advantage in those cases where several alkaloids soluble in different menstrua are present in the drug, as by using these menstrua successively, a separation of the alkaloids can be easily effected. This principle we have applied to the assay of opium, and to that of *Hydrastis canadensis*.

⁹ *Pharm. Journ.* [3], 13, p. 664.

THE VOLUMETRIC OPERATION.

The final alkaloidal solution obtained by whatever mode of extraction ^{9a}, but always representing a definite quantity of the drug to be assayed, is poured slowly and with constant stirring into a flask holding 100 C.c., in which has been previously drawn 20 to 30 C.c. of the standardised solution of iodine, and 1 or 2 C.c. of dilute hydrochloric acid¹⁰ (U. S. P.). The flask is then filled up to 100 C.c., stoppered, and well shaken till the periodide has separated out. The supernatant liquid is to be perfectly transparent, but of a red iodine colour. Fifty C.c. is then filtered off, and in this portion the excess of iodine determined by means of standard sodium thiosulphate. The amount of iodine consumed, multiplied by the proper factor, gives the amount of alkaloid present in the quantity of drug taken.¹¹

In case more than one alkaloid be present in the drug, a mean iodometric factor can be drawn, as shown for strychnine and brucine in the list of factors. In alkalimetric determinations a mean factor is often used in assay for total alkaloids, and the same is equally justifiable in iodometric work, when the data are known.

Should there be no precipitate with iodine, but only a slight turbidity, then the drug is extremely poor, and for the assay a much larger quantity than has been used should be taken. On the other hand, should the supernatant liquid, after adding the alkaloidal solution to the solution of iodine and separating the periodide by shaking, have very little colour, or be almost colourless, then it is certain that the drug is very rich, and either a smaller quantity of the drug or a larger quantity of the iodine solution must be employed in the assay.

Generally, if the drug contains as much as 3 per cent. of the alkaloid, 1 Gm. should be taken for the assay; if it contains less than the above amount, but not less than two-tenths of 1 per cent. of alkaloid, then a quantity between 1 and 5 Gm. should be

THE IODINE FACTORS.

The precipitate formed	Quantity of alkaloid to 1·0000 iodine consumed.	Quantity of alkaloid to 1 C.c. decinormal solut. iodine. ¹²
Atropine, C ₁₇ H ₂₃ NO ₃ ·HI·I ₈	0·285	0·00361
Morphine, C ₁₇ H ₁₉ NO ₃ ·HI·I ₃	0·749	0·00948
Strychnine, C ₂₁ H ₂₂ N ₂ O ₂ ·HI·I ₆	0·439	0·00556
Brucine, C ₂₃ H ₂₆ N ₂ O ₄ ·HI·I ₆	0·518	0·00655
Mean of strychnine and brucine	0·478	0·00605
Emetine ¹³ , C ₂₈ H ₄₀ N ₂ O ₅ ·HI·I ₇	0·55	0·006
Hydrastine, C ₂₁ H ₂₁ NO ₆ ·HI·I ₅	0·604	0·00764
Caffeine, C ₈ H ₁₀ N ₄ O ₂ ·HI·I ₄	0·383	0·00485

Assay of Opium.

THE MATERIALS AND UTENSILS FOR THE ASSAY.

Opium in very fine powder; powdered sodium chloride, such as is used for the table; an ethereo-ammoniacal mixture composed of stronger ammonia water (U. S. P.) and alcohol, of each 5 C.c.;

^{9a} Directions for extraction are given further on. Other procedure for extraction is given in Lyons' 'Handbook of Assaying,' 1899. Detroit: Nelson, Baker and Co. Pp. 24 to 30.

¹⁰ It is always to be remembered, that this estimation by formation of higher periodides, requires the alkaloid to be added slowly to the iodine, with excess of the latter. Except in the case of morphine an excess of acid is not hurtful, and even promotes the separation of the periodide. Hydrochloric is to be preferred to sulphuric acid.

¹¹ For example: If operating upon two Gm. of powdered ipecac root, the iodine consumed be 0·957764, then the percentage of emetine in the drug equals $0·957764 \times 0·55 \times 100 \div 2 = 2·63$.

¹² If the analyst prefers to standardise his volumetric solution of iodine to exact decinormal strength, or to adjust the consumption of iodine to this strength by use of a correcting factor, then he will multiply the C.c. of iodine solution consumed by the proper factor in this column. (1 C.c. decinormal solution contains 0·012653 Gm. of iodine.) The more simple way, however, is to register the actual quantity of iodine in 1 C.c. of the solution, be the same above or below the 0·012653 Gm., and multiply this actual quantity by the number of C.c. used up, so as to get the weight of iodine consumed. This, multiplied by a factor of the first column above, gives the quantity of alkaloid estimated in grammes.

¹³ That is, a provisional representative of the total alkaloids of ipecacuanha.

chloroform (U. S. P.) 10 C.c., and ether 20 C.c.; benzol boiling at about 80° C.; a mixture of one volume of absolute alcohol and five volumes of chloroform; twentieth-normal sulphuric acid and twentieth-normal potassium-hydrate solution; neutral methyl-orange paper; standard solution of iodine, of any known strength in the neighbourhood of 1 per cent.; and standard solution of sodium thiosulphate of about twentieth-normal strength.

A 4- or 6 ounce screw-top ointment jar, having a bottom concave within; a small pestle, just long enough to rest half upright within the jar when it is closed; a small glass percolator provided with a stop-cock, and of the length of about 22 centimetres and inner diameter of about 1·3 centimetres.¹⁴

DIRECTIONS FOR THE ASSAY.

Weigh out 3 Gm. of the opium into the ointment jar, rub it up by means of the pestle with a few C.c. of the ethereo-ammoniacal mixture to make a fine paste, taking care not to smear the sides of the jar unnecessarily; then add about 2 C.c. more of the same mixture, so as to have the opium well covered with liquid; screw down the top, leaving the pestle inside, and set the jar aside for five or six hours. After that time the jar is opened, about 10 Gm. of the sodium chloride thoroughly mixed in with the opium, and the open jar placed in a good current of air, stirring frequently with the pestle in order to prevent formation of lumps. In about an hour the powder will be nearly dry. The jar is then placed in a vacuum desiccator containing, besides sulphuric acid, a vessel of paraffin, and left there over night. The jar is then taken out, any lumps in the powder carefully crushed with the pestle, and the mixture transferred first to glazed paper, and then to the percolator, in the bottom of which a plug of cotton has been placed. The jar is rubbed out several times with small quantities of the sodium chloride, the rinsings added to the percolator, and, having placed a plug of cotton and a piece of glass on the top of the powder, the opium is extracted with benzol by percolating very slowly, until, upon evaporating ten drops of the percolate on a watch-glass, and taking up the residue with ten or twelve drops of very slightly acidulated water, no turbidity appears by the addition of two drops of the iodine test solution. After the narcotine, thebaine, codeine, and most other alkaloids have in this way been completely removed by the benzol, the receiver is taken away¹⁵ and a shallow evaporating dish placed under the percolator.

The percolation is now continued slowly with the mixture of alcohol and chloroform,¹⁶ until ten drops of the percolate tested as above give no reaction for alkaloids. The evaporating dish is now put into a good current of air, and left overnight,¹⁷ or until the solvent has disappeared. The bottom of the dish will then be found to be covered with a good crop of crystals intermixed with a little resinous matter.

DETERMINATION IN THE ALKALIMETRIC WAY.

Fifty C.c. of the twentieth-normal sulphuric acid is now carefully run out from a burette into the evaporating dish, the contents rubbed well with a pestle till everything is detached from the bottom and sides of the dish, and then, without filtering, poured into a tall, narrow measuring cylinder. The dish is then carefully washed several times with small quantities of water, the washings added to the cylinder, and the latter filled up to make 90 C.c. After shaking well a few minutes, and setting aside till solid particles have settled down,¹⁸ 75 C.c., representing 2½ Gm. of the opium, is filtered off into a beaker holding some 250 or 300 C.c.,

¹⁴ The lower part of a burette cut in two answers very well.

¹⁵ The benzol, of course, can be recovered by distillation and over and over again.

¹⁶ See Burg., *Ztschr. anal. Chem.*, **19**, p. 222.

¹⁷ This makes the whole assay occupy about two days and two hours be started in the morning.

¹⁸ The filtration is much accelerated if the waxy particles are prevented from entering the filter.

about 50 C.c. of water added, and then 35 or 40 C.c. of the twentieth-normal potassium hydrate run out from a burette into the beaker. Twentieth-normal sulphuric acid is now carefully added, 1 C.c. at a time, stirring with a glass rod and testing the liquid after each addition by immersing for about fifteen seconds small strips of neutral methyl-orange paper. As soon as the paper becomes reddish, 1 C.c. of the potassium hydrate solution is added, and then again of the sulphuric acid, adding now one-tenth of a C.c. of the latter at a time, till the paper becomes reddish. In order to get exact results, the acid and alkali solutions should be standardised in nearly the same conditions under which the titration of morphine takes place; that is, using about 175 C.c. of liquid, and noting the appearance of the reddish tint upon the test paper at the point of neutrality. The strips of reagent paper should, of course, be wet with the wash bottle before immersion in the beaker. Though the solution of morphine has a yellow colour from some extractive matter, so that the end reaction cannot be found by adding a liquid indicator to the solution, there is not the slightest difficulty in noting the appearance of the reddish tint upon the cream-coloured methyl-orange paper. Of course, other indicators, like iodo-eosine in ethereal solution, etc., might be found to give equally good results, but having found the dip test with methyl-orange paper to give sharp and definite results with this alkaloid, we have not experimented upon other indicators.

One C.c. of twentieth-normal acid being equivalent to 0.0142 Gm. of anhydrous morphine, the number of C.c. of the acid consumed by the alkaloid from $2\frac{1}{2}$ Gm. opium, multiplied by 0.568 (= 0.0142, $\frac{1.00}{1.75}$), gives the percentage of morphine in the opium.

DETERMINATION IN THE IODOMETRIC WAY.—When it is desirable to control the alkalimetric assay with an iodometric one, the contents of the beaker are emptied in a 250 C.c. measuring flask, washing the beaker two or three times with small quantities of water, the flask filled up to 250 C.c. about 3 or 4 Gm. calcium hydrate added, and the mixture shaken for about an hour. This treatment removes a good deal of the colouring matter, but keeps the morphine in solution. Fifty C.c., which represents $\frac{1}{2}$ Gm. of opium, is now filtered off into a 100 C.c. flask, and the liquid slightly acidified with hydrochloric acid. The liquid will now be only slightly coloured. Twenty C.c. of the standard iodine is now run out from a burette into the flask, the latter filled up to 100 C.c., and the flask well shaken till the supernatant liquid becomes perfectly transparent, but has a dark-red iodine colour.¹⁹ Fifty C.c. is now filtered off and the excess of iodine determined by the standard sodium thiosulphate, using starch as indicator. The amount of iodine consumed by the $\frac{1}{2}$ Gm. of opium, multiplied by $149.8 = 0.749 \times 100 \times 2$,²⁰ gives the percentage of morphine in the opium.

If only an iodometric assay be desired, but 1 Gm. of opium need be taken for the assay, and the latter conducted exactly as described above up to the point where the chloroform-alcohol has been removed by evaporation. At this point the residue is taken up with good lime water by rubbing the evaporating dish thoroughly with it, pouring the mixture in a 100 C.c. flask, filling the latter up with lime water to make 100 C.c., shaking the flask about an hour, filtering off 50 C.c. into another 100 C.c. flask, acidulating and then finishing up as above.

Assay of Nux Vomica.

The acidulated-water solution of the total alkaloids of the drug, as obtained by the directions on page given above, or other method of extraction, is made up to a definite volume, say 100 C.c. If 4 Gm. of the drug has been taken, then 25 C.c. will represent 1 Gm.

¹⁹ See our article in *J. Am. Chem. Soc.*, 1893, p. 722; *Proc. Am. Phar. Assoc.*, 1898, p. 368.

²⁰ 0.75 is here taken instead of 0.74914, which is the factor for morphine (*loc. cit.*, p. 724).

of the drug, and will be sufficient for one estimation. This volume, then, is run from a burette into a 100 C.c. flask in which has been placed 20 C.c. of the decinormal iodine solution and 2 C.c. dilute hydrochloric acid, when the amount of iodine consumed by the total alkaloids in that 1 Gm. of nux vomica is reached in the way described above. Let that amount be *a*. If only the amount of total alkaloids in the nux vomica is desired, it is sufficient to multiply *a* by 47.8, which is equal to 100 times the mean factor of strychnine and brucine, and the percentage of total alkaloids is at once obtained.

For the separate determination of strychnine and brucine a modification of Dunstan and Short's²¹ method of separation by ferrocyanide, we have found to work fairly well as follows: Another portion of the alkaloidal solution, representing 2 Gm. of the nux vomica, that is, 50 C.c. is run out from the burette into an Erlenmeyer flask of the capacity of about 300 C.c., and to the contents of the flask 10 C.c. of a 2 per cent. solution of sulphuric acid is added, and then water enough to make in all about 200 C.c. Then pour in 25 C.c. of a 5 per cent. solution of potassium ferrocyanide, stopper the flask, and shake continuously for about half-an hour. Now filter, wash the precipitate on the filter repeatedly with water containing 1 per cent. of sulphuric acid till a few drops of the filtrate diluted with a little water have no bitter taste. The filter is then pierced, and the precipitate rinsed with use of the wash-bottle into a 100 C.c. flask. To the contents of the flask is then added 20 C.c. of a 5 per cent. solution of zinc sulphate, and the flask kept on a boiling water-bath for about fifteen minutes. The zinc sulphate decomposes the strychnine ferrocyanide, zinc ferrocyanide is precipitated, and strychnine sulphate remains in solution. The flask is then completely cooled, and water enough added to make 100 C.c. Of this 50 C.c. representing again 1 Gm. of nux vomica, but deprived of the brucine, is then filtered off and run out from the burette into a 100 C.c. flask containing 20 C.c. of decinormal iodine solution and about 2 C.c. of dilute hydrochloric acid. The amount of iodine consumed by the strychnine alone is then determined as above. Let it be *b*. Then $b \times 43.9$ (100 times the strychnine factor) gives the percentage of strychnine, and $(a-b) \times 51.8$ is the percentage of brucine in the nux vomica.²²

Assay of Ipecacuanha.

For extraction of the drug use one of the methods given in Lyons' 'Assaying.' The cold percolation process of extraction previously directed, as already remarked, does not work well with this drug.²³

In iodometric estimation the total acidulated alkaloid solution is made up to a definite volume, an aliquot portion taken, and added to a measured excess of the iodine solution, as directed heretofore. The iodine factor of emetine is taken as fairly near the mean factor of the total alkaloids.

²¹ *Pharm. Journ.* [3], 14,290; *Am. J. Pharm.*, 1883, 579. Any other method of separation of strychnine and brucine may be used with the iodometric estimations.

²² To test the exactness of this method, we prepared a solution containing known quantities of each of these alkaloids, and determined the same by the described method. The results, as can be seen from the following statement, are fairly satisfactory, if we consider the well-known difficulties of this separation. The solution contained 0.16 per cent. strychnine and 0.22 per cent. brucine (anhydrous).

Iodine consumed by 10 C.c. before removal of brucine.	Iodine consumed by 10 C.c. after removal of brucine.	Found Strychnine.	Contained Strychnine.	Found Brucine.	Contained Brucine.
1.....0.0843132	.. 0.032397	.. 0.14	.. 0.24	.. 0.16	.. 0.22
2.....0.0843130	.. 0.032397	.. 0.14	.. 0.24	.. 0.16	.. 0.22

²³ Ether, chloroform, and acetone were tried as menstrua in the cold percolation, but the results were too low. The ammoniated mixture fails to yield all the alkaloid. This possibly explains why Flückiger (*Pharm. Ztg.*, 1886, p. 30), extracting by ammoniated chloroform, obtained exceptionally low results. See also Guareschi, 'Alkaloide,' 1896, p. 527.

Assay of Hydrastis.

In the assay of *Hydrastis canadensis*, for berberine and for hydrastine, the directions for the assays are given in our other paper entitled, "Further Work Upon the Estimation of Alkaloids," etc. In the plan of the assay the hydrastine is dissolved with absolute ether, and estimated iodometrically, as a hexiodide. The berberine, undissolved by the absolute ether, is estimated volumetrically by precipitation as berberine hydriodide, the excess of the precipitant, potassium iodide, being determined by silver nitrate with sulphocyanate. But before the berberine is precipitated as hydriodide it is separated in its acetone compound. And before the alkaloids are acted upon by the reagents they are liberated from the powdered drug by maceration with an ethereo-ammoniacal mixture.

A FEW DIFFICULTIES OF THE BRITISH PHARMACOPŒIA, 1898.*

BY JOHN C. UMNEY.

ACIDUM ACETICUM GLACIALE.—The Pharmacopœia states that glacial acetic acid containing 99 per cent. by weight of hydrogen acetate should remain crystalline until the temperature rises above 15°·5 C., but acid having a melting point of 15°·5 C. will have a real hydrogen acetate strength of over 99 per cent., whilst an acid containing 99 per cent.—or 89·9 per cent., the amount actually indicated by the titration in the B.P.—will have a melting point of 14°·7 to 14°·8 C.

ACONITI RADIX.—In view of the fact that there is not sufficient *Aconitum napellus* cultivated in Britain to supply the root required for making pharmaceutical preparations, it is necessary to make use of foreign supplies, taking every possible precaution to insure the identity of the plants from which the root is taken, and that the drug contains a high percentage of crystallisable aconitine.

ATROPINÆ SULPHAS.—Considerable difficulty is experienced in obtaining atropine sulphate melting at 183° C., the removal of all traces of hyoseyamine sulphate being costly and of but little advantage. Practically all the atropine sulphate of commerce melts at 186° to 187° C., but otherwise it corresponds to the official characters and tests, and yields a base melting at 115° C.

ASAFETIDA.—There is little, if any, asafetida now in the market, which meets the B.P. requirements, the addition of earthy matters as adulterants in the country of collection prevailing to such an extent that in no instance could average samples be obtained during the past eight years which came up to the B.P. standard. When a whole case of asafetida was examined the ash was not usually less than 16 or 17 per cent., making due allowance for loss of weight (10 to 11 per cent.) in drying and powdering. As regards solubility in alcohol, that varied from 24 to 80 per cent. Though tears of asafetida answering the B.P. requirements could be picked, a case of the finest drug entering the port of London would not yield 5 per cent. of B.P. asafetida. To meet the difficulty, so far as concerns the tincture, nearly double the proportion of asafetida ordered in the B.P. should be used for preparing it, and the tincture should be standardised so that 100 C.c. would yield 12 Gm. of extractive. Otherwise, a purified strained asafetida should be used, though in that case there would be a considerable loss of the volatile constituents of the drug, and that would be a disadvantage, since the medicinal value of the drug depends largely upon those.

CREOSOTE.—The Pharmacopœia states that creosote should rotate a plane of polarised light to the left, but, as a matter of fact practically all the beechwood creosote found in commerce is either slightly dextro-rotatory or devoid of optical rotation.

EXTRACTUM CASCARÆ SAGRADÆ LIQUIDUM.—In order to keep this preparation, under all conditions of storage, it appears necessary to add to it 25 per cent. more alcohol.

GLUSIDUM.—The saccharin of commerce (of so-called 330 strength) does not comply with the official test for the absence of sulphamido-benzoic acid; in fact, it may contain as much as 40 per cent. Saccharin of so-called 550 strength, however, appears to answer all the B.P. tests.

IPECACUANHA.—Deterioration takes place in the alkaloidal value of the liquid extract of ipecacuanha, and even more rapid deterioration in the wine.

JABORANDI FOLIA.—At the present time the leaves of *Pilocarpus jaborandi*, Holmes, are not obtainable in commerce, the principal supplies consisting of the leaves of *P. selloanus* or *P. microphyllus*.

LIQUOR PANCREATIS.—This preparation retains its activity better when glycerin is present, but that addition is not officially ordered.

OLEUM AMYGDALÆ.—The B.P. test for distinguishing almond and peach kernel oils is somewhat at fault, as both oils will separate into a solid white mass and a nearly colourless liquid when treated with fuming nitric acid. Apricot kernel oil, however, behaves differently, and its possible presence as an adulterant of almond oil should be borne in mind.

OLEUM RICINI.—As castor oil of undoubted purity may assume a slight brownish colour on the application of the sulphuric acid test of the B.P., it is suggested that the wording of the test be altered from "brown" to "blackish brown," and that the percentage of potassium hydroxide required for saponification, viz., 17·6 to 18·5, should be added.

SCAMMONIUM.—The majority of samples of scammonium met with in the London market yield slightly more than three per cent. of ash on incineration, but that is a matter of very little importance so long as the correct proportion of ether-soluble resin is present, a requirement which is easily met, as the official standard is decidedly low.

SPIRITUS ÆTHERIS COMPOSITUS.—Difficulties arise in connection with the sale of so-called "oleum æthereum"; on account of its giving indications of contamination with methyl compounds, it appears desirable, therefore, to obtain a guarantee that only pure ethylic alcohol has been used in its preparation.

TEREBENUM.—It is difficult to obtain terebene which is optically inactive—or which, if so when freshly made, will remain so—and it might be well to allow a limit of 1 to 1·5 degree, in either direction, provided stringent requirements as to limit of boiling point were maintained. Portions of terebene boiling over the maximum seem to originate through the use of turpentine which has been kept for a long time.

UNGUENTUM CONIL.—It seems desirable to continue to use boric acid in this preparation, as required by the B.P. Addendum, 1890.

PHARMACEUTICAL SOCIETY.

MAJOR EXAMINATION QUESTIONS.

PHYSICS.

Thursday, December 28, 1899.—From 10 a.m. to 1 p.m.

[Six questions only to be attempted.]

1. Describe the necessary apparatus and give an account of the procedure to be followed in determining the vapour density of a substance by Hofmann's method. State clearly the way in which the results of vapour density determinations are employed in fixing the molecular weights of substances.

2. Explain the difference between "sensible" heat and "latent" heat. What are the general effects of heating a body? Describe these effects (a) on heating water from 3° C. to 5° C., (b) when a bar of iron is heated in air, (c) when a gas is heated in a cylinder with a movable piston.

3. Describe carefully the construction of any form of secondary battery, and state the chemical changes which take place within the cells during charging and discharging.

4. Define "specific heat." A piece of platinum of specific heat 0·32 is heated to 1000° C. and dropped into eight times its weight of water at 12° C.; what will be the final temperature?

5. Instance three illustrative cases of the chemical influences of light, and discuss the chemistry of the changes that occur in each of the cases you select.

*Abstracted from "Notes on Current Chemical and Pharmaceutical Topics," published January 1, 1900.

6. Calculate the focal distance of a crown glass meniscus lens, the radius of curvature of the concave face being 45 M.m., and that of the convex face 30 M.m., and the index of refraction being 1.5.

7. Explain the construction of the electric furnace, and describe the carrying out in actual practice of any manufacturing process in which it is employed.

8. Explain with the aid of a diagram the refraction of a beam of white light by a glass prism. Show what observations would have to be made in order to deduce the refractive index of the glass for a particular coloured ray.

CHEMISTRY.

Thursday, December 28, 1899.—From 2 p.m. to 5 p.m.

[Six questions only are to be attempted, and of these at least two must be taken from Part II.]

PART I.

1. Explain and illustrate the sense in which the word *equivalent* is employed in modern chemistry. In what other chemical senses has this word also been employed?

2. Write in order the symbols of the elements which form the first two small periods in the natural system and discuss the consequences of this arrangement.

3. What are the natural sources from which the various lithium compounds are derived? Describe how lithium carbonate can be prepared in quantity from lithium compounds which occur in nature.

4. How would you prepare specimens of the following substances, common materials, with the exception of the salts named, being placed at your disposal? Potassium iodate, cuprous chloride, sodium hydrogen sulphite, dipotassium hydrogen phosphate.

5. What products are obtained upon the decomposition of each of the following substances by the aid of heat:—Potassium ferrocyanide, potassium bichromate, ammonium bichromate, hydrogen sodium ammonium phosphate (micro-cosmic salt), arsenic acid, oxalic acid?

6. Describe two methods for the separation of arsenic from antimony, using equations to express all the important chemical changes which occur.

PART II.

7. State the various steps that it would be necessary to take in order to prepare synthetically a specimen of oxalic acid.

8. Write an account of the properties and principal reactions of ethylamine and describes three methods by which this substance could be obtained.

9. What is uric acid? How does it differ from an ordinary carboxylic acid and why does it form salts from basic hydroxides?

10. A hydrocarbon derived from benzene has the molecular formula C_8H_{10} . Give the possible constitutional formulæ of such a compound and indicate a method by which its constitution might be determined.

MATERIA MEDICA.

Friday, December 29, 1899.—From 10 a.m. to 11 a.m.

By what chemical or physical characteristics could you identify the following substances:—Almond oil, cod liver oil, codeine, podophyllum resin, salicin, thymol, jalapin, and benzoic acid? State what you know about the mode of preparation of each.

BOTANY.

Friday, December 29, 1899.—From 11 a.m. to 1 p.m.

1. Describe fully the phenomenon of transpiration in plants, and point out the various conditions which govern it.

2. What is Latex? Give some account of its occurrence in plants.

3. Write a detailed account of the morphological differences between Gymnospermæ and Angiospermæ.

PRACTICAL MATERIA MEDICA.

Friday, December 29, 1899.—From 2 p.m. to 3.30 p.m.

1. Prepare a transverse section of the Calumba root. Draw and describe your section, pointing out anything characteristic observed.

2. Report on the two samples of powdered Calumba root.

PRACTICAL BOTANY.

Friday, December 29, 1899.—From 3.30 p.m. to 5 p.m.

1. Make preparations to demonstrate the microscopic structure of the leaf provided (A).

2. What is B? Give a drawing of its internal features and indicate by references on your drawing the value of its various parts.

3. Refer the plants C and D to their natural orders, giving reasons for your references.

LETTERS TO THE EDITOR.

The Society's Examinations.

I noticed with pleasure the letter from Mr. Lennox on the above subject. It strikes a chord which must find response in the hearts of all those who are interested in the future of our calling. I take it for granted that the only true aim of pharmaceutical as of all other examinations is that we may send out a body of men thoroughly capable of the duties which they have in hand, and of lending dignity to a calling which has already been dragged in the mire too long. If this be so, it would seem that our inaction as a Society on the subject of examination reform is almost inexplicable, for while I am ready to admit that examinations at their best are but faulty, still I think there is no parallel to the methods of our pharmaceutical system. I should never be one to advocate the lowering of our examination standard, rather the reverse, but to anyone who will give it thought our system must appear as absurd as it is unjust. It is not so much the stiffness as the unfairness of our qualifying examination which frightens young men who enter the pharmaceutical arena to-day. There is something more than the usual element of chance about it. I have sometimes wondered whether there could be any moral sense or real personal kindness about our examining board, that they can treat so lightly a matter of such importance to those aspiring pharmacists, many of whom find it unusually difficult to acquire funds for repeated failures.

Now, allow me to emphasise a few points which have already been suggested as reforms. A man presents himself and, having been successful in his practical examination, finds that on the second day, perhaps in his last subject, he is "plucked." He is now required to plod all through the work already done successfully, and in which the examiners have expressed themselves as satisfied. It is no uncommon thing to meet with a man who has passed in the same subject three or four times and then been "plucked." Surely it makes the position of an examiner very absurd, to express satisfaction as to a man's capabilities in a subject to-day and three months hence declare him unfit to pass, but it has a much more serious side for the unlucky student, who is, perhaps, better up in his work the second time than the first, but by a series, it may be, of quite unusual questions, is staggered, and loses his head. I am certainly of the opinion that a subject once passed should stand to the candidate's credit. Make the examination searching, more so than at present if you will, but do not compel a man because he is weak in botany to pass in practical dispensing half-a-dozen times. This is not a new idea. I believe it obtains in most professional examinations but our own, and it seems to me the only common-sense method. I regard the idea of dividing the examination into two parts as a decided move in the right direction. The Minor covers far too wide a field for one examination; to divide it, I think, would ensure greater thoroughness in work and at the same time remove a strain from the minds of students, which is not due to reading but to cram in its worst form.

One other point and I have done. It has always seemed to me that a system of oral examination by one individual examiner is a mistake. Without venturing a word against the Society's choice of examiners, I think it often happens that the examiner, be he the highest authority on the subject with which he is dealing, is still quite without tact in dealing with candidates, and often puts his questions in such an obscure fashion as to muddle the unhappy victim before him. Again, the candidate is subject to the changing moods and temperaments of examiners, as well as to their pet theories. What I suggest, and what I believe is adopted by another examining body, is that a second examiner shall set

and hear the questions, and award the marks, and shall have the right to explain more fully any question that seems to him to be put in a somewhat obscure fashion. As one who has been through the mill, I offer these perhaps feeble suggestions, but this I feel strongly, that any effort made by the Society to make its examinations less of a bore and more a test of knowledge, and thus to place them on a more just footing, would be highly appreciated by students, and would conduce more than anything else to strengthen the Society. I do not believe a lower educational standard is wanted, but present-day students feel very keenly the injustice of the present system, and any effort the Society may take to remove that feeling will be amongst the most humane, as well as the most progressive, movements it has ever undertaken.

Newcastle-on-Tyne, January 1, 1900. THOS. HY. FLEMMING.

Liquor Bismuthi.

Whilst fully recognising the exhaustive manner in which Messrs. Cowley and Catford have treated the subject of liquor bismuthi in their recent paper, may I be allowed to point out that in a paper on the same subject by myself, read at the Plymouth Conference, and published in your report of that meeting, and in the 'Year-Book of Pharmacy,' p. 451, I described a method by which the loss of bismuth due to unneutralised nitric acid may be minimised, and the presence of oxy-nitrate, rendering the precipitated citrate partly insoluble, may be prevented. For this method I claim the advantages of more simplicity in manipulation, and less departure from the B.P. directions, as well as priority of publication, over the method devised by those gentlemen.

Newcastle-upon-Tyne, FRANK R. DUDDERIDGE.
January 1, 1900.

Pharmacists and the War.

Your correspondent of last week, Mr. J. B. Guyer, has done a useful service in drawing attention to the Government regulations for the employment of dispensers during the war. It is to be hoped that the Pharmaceutical Society will address a remonstrance on the subject to the War Office. The pay offered is about that of a "Sergeant (Corporal) Cook" in the Artillery, and not much more than half that of a sergeant-major. In position, I suppose, the dispenser would rank somewhere on a level with a corporal, and far below a sergeant. It is instructive to compare this pay and position with those accorded to the Volunteer medical men serving in the war. They receive £1 a day, more than a major's pay and more than that of an infantry lieutenant-colonel; in position they are ranked with captains. These anomalies are illustrative of what has long been one of the curious features of pharmacy—the position of dispensers. It is scarcely an exaggeration to say that the Pharmaceutical Society exists for little else than the promotion and protection of the dispenser's art. Take from the average pharmacist his ability to dispense and there is little to distinguish him from the ordinary tradesman. Dispensing is only purely professional side of his calling, yet it is a truth, and one which might furnish an ironical comment on the aims and position of the Pharmaceutical Society, that those of its licentiates whose sole business it is to dispense, and who cannot in any way be regarded as tradesmen, are the worst paid and the least regarded of the pharmaceutical community. It is needless to give facts in support of this statement. A glance at the pay-sheet of any public institution employing dispensers, or an appeal to the personal experience of any public dispenser, will satisfy the most sceptical of its truth.

London, January 2, 1900.

A. CAMPBELL STARK.

PRACTICAL NOTES AND FORMULÆ.

Apparatus for Filtering Liquids.

In the *Pharmaceutical Journal* for December 30, 1899 (p. 623), Mr. E. W. Lucas recommends the use of a special apparatus for the filtration of small quantities of liquids. I find it preferable to use an ordinary filtering flask and to fit a test tube to the stem of the funnel by means of a cork with sides grooved to allow free passage of air. This method is the simplest possible one; it has been in use in my pharmacy for some months past for filtering small quantities of animal substance solutions.—HAROLD E. MATTHEWS, Clifton.

The Assay Process for Ext. Cinchonæ Liq.

The analytical process given in the B.P. for standardising Ext. Cinchonæ Liq., as also Tinct. Cinchonæ, is far from being an ideal one. The benzolated amylic alcohol at once forms an emulsion when shaken with the alkaline liquid extract, and the various methods adopted to overcome this emulsification not only lead to loss of time, but, what is more important, to loss of alkaloid. The following method of assay, which has nothing very original about it, but which naturally suggested itself in view of the above trouble was found to work satisfactorily and gave concordant results; it may be found useful by many pharmacists wishing to standardise the aforesaid cinchona preparations, and who have difficulty in carrying through the benzolated amylic alcohol process:—Introduce into a separator 5 C.c. of the liquid extract or 10 C.c. of the tincture, mixed with 10 C.c. of water, add excess of ammonia, and shake the alkaloid out with three successive portions of ether-chloroform (9 of ether to 1 of chloroform). Dissolve out the alkaloids from their ether-chloroform solution by agitating in the separator with 20 C.c. of dilute sulphuric acid (5 p.c.), and twice more with 10 C.c. of acidulated water. The aqueous solution of acid sulphates of the alkaloids is then rendered ammoniacal, and the alkaloid removed by agitation with 3 × 10 C.c. of chloroform. The mixed chloroformic solutions are evaporated in a tared dish and the residue of alkaloid dried to constant weight at 110° C.—J. STENHOUSE, Edinburgh.

Dispensing Bromoform.

The following, which I have had to dispense recently, may be useful to W. R. K.:—

R Bromoform 1 drop.
Fiat Emulsio \mathfrak{z} i. To be given every three hours. Mitte \mathfrak{z} iv.

The bromoform (32 drops) was dissolved in \mathfrak{z} ss. almond oil and emulsified with mucilage of acacia, and \mathfrak{z} ss. syrup of tolu added to flavour the mixture. In another prescription, the doctor ordered the emulsifying agent.

R Bromoform \mathfrak{z} ss.
Tr. Senegæ \mathfrak{z} ii.
Syr. Aurantii \mathfrak{z} ss.
Aq. Chloroformi ad \mathfrak{z} vi.
Ft. Mist. \mathfrak{z} i. every ix hours.

In this case the bromoform was mixed with the tincture of, senega in the bottle, and the chloroform water added, the syrup of orange being added last.—W. JOSTY, London.

Coloured Gold Alloys.

Green gold—Fine gold, 2 to 3; silver, 1. Brass yellow gold—(1) Fine gold, 1; silver, 2. (2) Fine gold, 4; silver, 3; copper, 1. Pale red gold—Fine gold, 1; copper, 1. Grey gold—(1) Fine gold, 30; silver, 3; steel filings, 2. (2) Fine gold, 4 to 5; steel filings, 1.—*Pharm. Centralh.*, 40, 406, after *Journ. d. Goldschmiedek.*

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◊ 1899. ◊

THE year just closed will certainly be notable in connection with the history of pharmaceutical affairs in this country, as being the period when the original project of the Pharmaceutical Society was at length completely provided for. The conditions prevailing at the time when the Society was founded, did not permit of such a union of all persons engaged in business as chemists and druggists as the founders of the Society considered to be desirable. The exercise of the business was then free from any conditions, while it was a first principle with the founders of the Society that membership should be subject to the condition of being, in every instance an indication of capabilities to be trusted by the public and creditable to the general body. Identification of the trade with the Society was therefore impossible at that time, though that was the ideal of WILLIAM ALLEN, JACOB BELL, and all their colleagues, towards which their efforts were directed, and have been followed up by their successors even to the present day. To remove the obstacles that stood in the way of bringing about that great desideratum has been the work of nearly sixty years, and the present representative of the historic house of JOHN BELL and Co. may well be congratulated that in the previous year he was successful in carrying through the Legislature a Bill which provided eventually for the possible association of all legally recognised chemists and druggists, as members of the Pharmaceutical Society, upon terms of perfect equality. That was an achievement of which the present successor to JACOB BELL may well be proud, inasmuch as it is a worthy continuation of the work of his illustrious predecessor, which should be a source of satisfaction to every member of the pharmaceutical body—some reward for adherence to the sound principles of the Society and for the frequently difficult task of according those principles the support and justification rendered necessary by untoward circumstances, and a success of special importance in connection with impending questions.

As a result of the additional powers conferred upon the Society by the Pharmacy Act Amendment Act of 1898, the bye-laws relating to membership were altered, so that every person legally qualified to use the title of chemist and druggist in connection with the business was made eligible as a member of the Pharmaceutical Society without any of those reservations which had formerly been unavoidable. The objection to association with the Society which had previously been urged by many—not without some plausibility—viz., that they could not take any other than a subordinate position in the Society, has now been entirely done away with. The not unnatural claim of the pharmaceutical chemist to precedence has no longer the weight or the attention that it could formerly command, and whether that circumstance is to be matter of regret or not at the present time is merely a question to be determined by the action of those on whose behalf the preferential claim of the pharmaceutical chemist has been put into the background for the sake of ensuring thorough consolidation. The preparation that has been made for that desirable consummation during the preceding year may now be considered from the point of view of its efficacy, after a full twelve months have lapsed since the period at which association with the Society usually commences. Within that space of time the number of members joining the Society has been 2,196, exclusive of the number of those who were associates in business last year, and, of course, came to rank as members without election. That addition to the total number of members of the Society is considerable in itself, and it has been brought up very well by what might have been expected from associates not in business taking up a position as members. But when that accession of members is compared with the number of legally qualified persons, the effect of the legislation of 1898 appears in a less favourable light, since the addition to the Society appears to amount to only about one-tenth part of the number of legally qualified persons who were unconnected with the Society but were made eligible to the position of membership.

In directing attention to this effect of the long-deferred provision for according to legally qualified chemists and druggists, the full privileges of association with a Society incorporated by Royal charter and empowered by subsequent Acts of Parliament to promote the interests of persons engaged in that calling, the peculiarity of present conditions may be pleaded as some justification. Changes in the mode of conducting business of all kinds have, during the past twenty years, affected almost every occupation, and the business of the chemist and druggist has been no exception, either in its trade or professional aspects. Under the domination of free trade doctrines protection is obtainable only for public interests; classes and individuals must provide it for themselves. In view of the question that will probably be raised in Parliament as to the competence of companies to carry on the business of chemists and druggists, the need of agreement among the members of the body that is to some extent represented by the Pharmaceutical Society will become more imperative than ever it has been. The possibility of influencing action on their behalf, through the position of membership, should be more generally regarded as a privilege necessary for securing existence, if not for bringing forth more favourable conditions.

Members of the trade require to take cognisance of the possibility that has been presented to them for consolidated co-operation, in their own interests and for their mutual protection. To use the words of a German contemporary, which takes a sympathetic interest in our affairs, the main provision of the measure passed last year should be regarded as one for which there is the greatest necessity that chemists and druggists should take the fullest advantage of it, in order to prevent the ground from being taken from under their feet by the onward sweep of modern developments in trade and competition.

DEFINITION OF THE WORD "CONTROLLING."

AMONG the many suggested remedies for the "company" problem which have reached us from chemists and druggists' that one which advocates the compulsory qualification of the "controlling" shareholders of a company seems to have a fair measure of support. Perhaps there may be good grounds for this backing; but the thought will obtrude itself that a primary essential to favourable criticism is a clear definition of the word "controlling." When and how does a shareholder control the concern in which he has his holding? Take a concern with a capital of £10,000 in £1 shares; suppose three persons each held 500 of such shares, another person 1,000, and the remaining capital to be in the hands of say, 100 members of the general public—a not very improbable case to state. Who would be the controlling shareholder? The natural answer is, of course, "the man who holds the largest number of shares." But what sort of control can he exercise? The three holders of 500 each could swamp him if they acted conjointly, and the four principals could, in turn, be out-voted by the remaining proprietors.

The difficulty of devising a workable definition of the term that would be applicable to the kind of "control" to be exercised in the case of a pharmaceutical business, seems to be the weak point in the proposal, if not a fatal bar to its adoption. When one comes to consider in addition the subtleties of debenture capital, preference, deferred and ordinary shares, and their degrees of priority, the difficulties begin to thicken, and the task of finding the responsible individual becomes almost hopeless. Then, again, it must always be borne in mind that a responsibility based upon a financial holding is a most illusory form of security—the rottenest of hollow reeds; for shares may be, and very often are, manipulated to fit certain exigencies. They could and would be "rigged" without much difficulty to escape the consequences of the "controlling shareholder" proposal.

But perhaps financial control is not what our correspondents have in mind. They may intend to hit the person virtually conducting the business; if this be so they cannot logically withhold support from the thorough-going proposal of a compulsory proprietorship which must be both financially and pharmaceutically qualified. These observations are made in no carping spirit, but solely with a view to inducing those who take sufficient interest in pharmaceutical affairs to offer suggestions on the great problem of the day to meditate a little respecting the probable effect of their proposals if carried into practice.

ANNOTATIONS.

THE CONFERENCE BLUE LIST is no more, the Executive Committee of the B.P.C. having decided that sufficient publicity can be gained for its list of suggested subjects for investigation through the medium of the weekly press. The Research List, therefore, as it is now called, duly appeared in our pages last week (see page 628), and is there displayed for the benefit of all anxious investigators or would-be investigators. The number of subjects suggested has been reduced to thirty-eight, but those, if properly taken up, should suffice to keep all the regular pharmaceutical investigators in the United Kingdom busy until the Conference assembles in London. At least a fortnight would then be required to have the reports properly read and discussed. But, in addition, the President of the Conference has suggested an almost limitless subject, by asking pharmacists generally and members of the Conference in particular to keep records of all difficulties met with in preparing the galenicals of the British Pharmacopœia. Those records they are desired to communicate at the London meeting, with any suggestions for possible improvements in the official processes and tests. Assuming that this invitation, as well as that of the Executive Committee, is accepted as literally as it is given, and that new investigators also arise, whilst older ones bring up papers on subjects of their own, the business of the annual meeting of the Conference next year may quite conceivably require a full calendar month for its disposal. Fortunately, however, human nature is still an important factor in influencing the actions of pharmacists, and, after all, we may reasonably anticipate that all the communications will be crowded into the usual insufficient two days.

PROFESSOR NESTOR TIRARD has been lecturing before the Society of Apothecaries of London on "Pharmacy and the British Pharmacopœia"—his third lecture dealt with the Pharmacopœia in its relation to pharmacists, and appears to have been intended to show that the work is a success, as proved by its influence on prescribing and dispensing. As a matter of fact, so far as can be judged from the report in last week's *British Medical Journal*, the lecture was but little more than a running commentary on the alterations in nomenclature, strength and composition of official preparations. What there was beyond that was embodied in the lecturer's conclusions, wherein he attempted to show how all the changes in the Pharmacopœia affect "the chemist, the dispenser, the manufacturer." Apparently—but, we fear, without sufficient reason—everyone, or practically everyone, is assumed by the lecturer to be satisfied with the results. Referring to the suggestion published in the *Pharmaceutical Journal* for August 20, 1898 (p. 229), that, in future, pharmacists should decline to assist in the revision of the Pharmacopœia, unless they are to receive full recognition as co-workers on the Pharmacopœia Committee, Dr. Tirard ended his lecture with the following cryptic utterance:—"If we consider the way in which trade interests are affected by the Pharmacopœia, if we consider that the volume deals with things bought and sold, it is impossible not to realise the risks of trade competition, of trade influence, and the constant danger of introducing a standard which might create a monopoly. I would ask you whether, with this in view, it is not better that the compilation should be in the hands of those whose motives cannot be assailed, that the final responsibility should rest with those whose interests are not at stake?" Objection is rightly taken to this offensive passage by Mr. Charles Umney (see p. 2), and we do not hesitate to add our strong protest to his. It is much too late in the day for medical practitioners to claim superiority in this matter, and it would be equally out of place for them to pose as ethical examples to pharmacists.

THE ANSWERS TO QUERIES, which are published in the Journal most weeks, appear to be widely read by many besides those for whos

especial benefit they are intended, and, as a result, misconceptions seem occasionally to arise in the minds of some who are not addressed in those answers. The latest illustration of that is afforded by an answer in last week's issue, where a correspondent was informed that a particular certificate he inquired about would not be accepted by the Board of Examiners, from a candidate for the Minor Examination, after August next. The reply dealt with that particular certificate and nothing else, but immediately another correspondent wrote to ask if it referred to a certificate of the Pharmaceutical Society's First Examination, which he passed three years ago. In answer to that, it should hardly be necessary to explain that, having once been registered as a "Student," no one will be expected to show further proof of having passed an approved scholastic examination. Another inquirer asks a question about books for Major Examination work, a full list of which he will find in the "Students' Number" of the *Pharmaceutical Journal*, published on September 9 last. Whilst both willing and anxious to help readers in every possible way, the Editor must request those who are in need of information to refer to back numbers before giving themselves the trouble of writing a letter of inquiry. A little search through the very full indexes to back volumes will often save much time and trouble, both to the editorial staff and to those who require the information. In addition to that, the space which would be occupied by needless repetitions will frequently be saved.

THE CHEMISTS' BALL will be held at the Portman Rooms, Baker Street, W., on Wednesday, January 17, *i.e.*, less than a fortnight hence. As it will be the last ball of the nineteenth century, the Hon. Secretary is naturally anxious to establish a record for the century. He will therefore be glad to receive a further large number of applications for tickets at an early date. The tickets (lady's, 12s. 6d.; gentleman's, 17s. 6d.) are inclusive of refreshments, supper and wine, and can be obtained of Mr. Warren, at 24, Russell Street, Covent Garden, W.C. The profits of the ball, as is well known, are always devoted to charitable objects, the Benevolent Fund of the Pharmaceutical Society having profited largely in that way for many years past. In spite, therefore, of the many calls upon all and sundry at the beginning of the year—this last year of the century more particularly—it is hoped that one of the pleasantest pharmaceutical gatherings of the year will not suffer from lack of interest on the present occasion.

THE SALE OF INSECTICIDES is again referred to by the *Gardeners' Chronicle*, in its review of the past year. It is there suggested that an attempt has been made by the Pharmaceutical Society to restrict the sale of such substances as weed-killers, insecticides, and other compounds, containing in some cases enormous amounts of the most deadly poisons. It would be more correct to say that it is the law which restricts the sale of such things to persons who have been specially trained to deal in poisons, and the duty of enforcing the law is imposed upon the Society. We quite agree with our contemporary's remark that some people are so incautious that no regulations will save them from the consequences of their own want of care, but that other people may, nevertheless, fairly demand that the sale of such substances should be carefully regulated so that, although accidents cannot wholly be prevented, every reasonable precaution should be taken to avoid them. "Suppose a drop or two of some of these more potent insecticides were by accident to be introduced beneath the skin, or into an open wound, a mere scratch would be enough, the consequences would be most lamentable." So says the *Gardeners' Chronicle*, and that, we think, is ample reason why horticultural requisites of a poisonous nature should not be obtainable from traders connected with horticulture, except under the identical conditions that are imposed upon the druggist. "The encroachment on the liberty of the subject is here only a means for securing the preservation of the

liberty of the multitude." That is well said and cannot be improved upon here.

ENGLISH GRAMMAR is, apparently, not a subject to which any special prominence is given in the modern system of elementary education, otherwise English "as she is spoke" would be much more elegant, and the written work of students would be much more intelligible than it now is. This fact was rather startlingly brought home to the examiner of an English paper set some little time back in one of the many non-official supplementary schools of the metropolis, whose special function is to try to remedy the omissions of the national system of education. An essay had been written, and it occurred to the examiner to ascertain how far the budding authors understood the meaning of the words he employed. He therefore asked certain of the students to write down the usual signification of a few of the words which he selected. The result was sufficient to shake the profoundest faith in the divine right of the constituted order of things, and even warranted in the mind of the examiner a suspicion that modern methods of preliminary training seem chiefly to tend towards converting the brains of students into a hopeless jumble of half-digested scraps. One of the words was "coalition." This was translated by "the act of coal-ing," and by the not less brilliant definition "when two meet together with great force." "Magnanimous" was "something which is very large." Another humourist gravely stated in black and white that "fomentation" meant "to foam at the mouth," whilst a companion evolved a specially happy idea by declaring it to stand for something which "fisses." But, perhaps, the cream of the whole collection was the truly rich description of consonants as being "letters of the alphabet which cannot be pronounced with either the lips, the teeth, or the throat." There is good reason for supposing that the vocabulary of the examiner was for a time wholly composed of that class of consonant.

THE DEATH OF SIR JAMES PAGET, on December 30, removes one of the most eminent members of the medical profession. He was a younger brother of the late Sir George Paget, K.C.B., Regius Professor of Medicine at Cambridge, and received his early medical education at St. Bartholomew's Hospital, where he distinguished himself by winning nearly all the prizes that were then given. He became successively Hunterian Professor of Surgery, Member of Council, and President of the Royal College of Surgeons. He was also Serjeant Surgeon to the Queen, and Surgeon to the Prince of Wales; a member of the Senate and Vice-Chancellor of the University of London; a Member of the Institute of France; a Fellow of the Royal Society; a D.C.L. of Oxford, and LL.D. of Cambridge; and was President of the first Medical Congress held in England. He was created a Baronet in 1871; and sat upon two Royal Commissions, one to inquire into the condition of the London small-pox and fever hospitals, the other on small-pox and vaccination. He was President of the Clinical Society in 1869; of the Royal Medical and Chirurgical Society in 1875, and of the Pathological Society in 1887.

THE ISLE OF MAN PHARMACY BILL has been referred to a Committee of five members of the House of Keys, on the motion of Mr. J. T. Cowell, who said statements in the *Pharmaceutical Journal* led him to believe that the measure was faulty, and would not meet the object the chemists of the island had in view when they asked for the Bill. It was said to place grave restrictions upon chemists, which are not placed upon them across the water, and it was therefore suggested that the best plan would be to do what was done in the case of medical men—when a Committee took evidence and reported to the House—as Mr. Cowell thought the decision of that Committee was probably of some use when the matter came to be decided. The members appointed on the Committee are Messrs. J. T. Cowell, J. J. Goldsmith, Kerruish, Crellin, and Mylrea.

SALE OF FOOD AND DRUGS ACT, 1899.

CIRCULAR FROM THE BOARD OF AGRICULTURE.

This enactment came into operation on the 1st instant, and signs are not wanting that a crusade against the offences punishable by the Act is about to be actively inaugurated under Departmental auspices. On the last working day of the old year a circular was addressed by the Board of Agriculture to the clerks of all the local authorities in Great Britain, directing attention to the provisions of the new Statute, and delicately, but quite unmistakably, showing the nature of the duties thereby imposed upon such authorities. One of those duties, and perhaps the one to which the Board of Agriculture attaches particular importance, is the appointment of a public analyst. Every local authority is specifically enjoined to appoint a public analyst, together with proper officers to take samples for analysis, and generally to put into force the law relating to adulteration.

It appears fully evident by this action of the Government Department that the statutory obligations resting upon Local Boards and Vestries will not be allowed to remain unfulfilled; indeed, it is probable that not only a nominal, but an adequate and efficient discharge of those obligations is to be required. The official circular to town clerks and others, after referring to the fact that there were, in the year 1898, forty-two English boroughs in which not more than twenty samples were taken during the twelve months, pertinently proceeds to inquire whether the Local Board receiving that particular copy considers that its own district is fully equipped with inspectors who have experience as sampling officers—men who are able to exercise economy and discrimination. It may naturally follow that, as each Local Board will put its own valuation on its own appointments, very few replies in the negative will find their way to Whitehall; but, as the inquiry is accompanied by a request for an early intimation of what steps have been taken to carry out the provisions of the Act, the Department appears determined to find out, for itself, the real truth and to insist that the intentions of the Legislature, so far as the purity of foods is concerned, shall be carried into vigorous practice.

The Treasury has appointed additional inspectors under the Act, and those are to be available to confer with local authorities as to the best methods for securing an efficient regard for the law; their further but unspecified charge is, no doubt, to report to the Department lax Local Boards who do not take steps to give effect to the "extended vigilance" in the detection of fraudulent practices which the new Act requires. The quoted words supply the key to the whole situation, and it is not at all improbable, in the ordinary nature of things, that the "extended vigilance" may find practical expression in increased raids on chemists. For inspectors, even the most discriminating variety, have an appreciable amount of human nature as well as intelligence, and they will not confine their operations to sampling foods, while pharmaceutical practice, by its very character, affords so ready a field for attack. It therefore behoves pharmacists to be especially careful henceforth to satisfy themselves that their medicines are of official standard and their drugs of unimpeachable purity, so that, so far as regards registered men, the poet's dictum that "things are not what they seem" may cease to have authority.

In order that the statutes relating to Food and Drugs may be read and inwardly digested, as they ought to be, by chemists, the Pharmaceutical Society publishes them almost *in extenso* in the annual editions of the Calendar and—as a source of information on that subject, as well as concerning other Statutes affecting chemists—a copy of that compilation becomes almost as essential to the calling as the Pharmacopœia. Every chemist in business on his own account should, therefore, take steps to procure a copy of the new edition, to be published shortly.

ENGLISH NEWS.

HULL CHEMISTS' ASSOCIATION—At the annual meeting of this Association, held at the Imperial Hotel, on December 19 last, Mr. A. Sheffield, President, in the chair, the following resolution, proposed by the President and seconded by Mr. W. Staning, was carried unanimously:—

That in the opinion of this meeting it shall be unlawful for a company or other corporate body to carry on the business of a pharmaceutical chemist, or chemist and druggist, or to use any description implying qualification under the Pharmacy Acts unless all the directors and controlling shareholders of such company shall be qualified chemists under the Pharmacy Act, 1868.

It was also resolved to send a copy of the resolution to the Pharmaceutical Society and one to the Secretary of the Federation of Local Pharmaceutical Associations.

MANCHESTER PHARMACEUTICAL ASSOCIATION.—In response to the feeling of several Members of this Association, the Ball Committee has held a meeting to consider the advisability of postponing or cancelling the ball announced to be held on January 24, 1900. As a result it has been decided that, owing to the anxiety caused by the state of affairs in South Africa, and the suffering of so many fellow-countrymen, it is advisable to abandon the proposal. The ball, therefore, will not take place this session.

CITY OF LONDON IMPERIAL VOLUNTEERS.—Messrs. Wright, Layman, and Umney, of Southwark Street, S.E., have addressed the following letter, dated December 23, to the Lord Mayor of London:—"Dear Sir,—We notice with the greatest possible satisfaction the raising of the above corps (1,000 men) for service in South Africa, and the generous response that has been accorded to your appeal to aid in its equipment. Although our business is not within the precincts of the City, still we are desirous of contributing to make such equipment of the City of London Volunteers as perfect as it well can be. We imagine that medicines will be required, and as we have had considerable experience in this direction, gained while we had the honour of holding the contract for their supply to the whole of the British Army during a period of three years—1894 to 1897, we shall be very glad to place ourselves at your service, and to supply free of charge all medicines (not surgical appliances) that the medical staff connected with this corps may think necessary to forward to South Africa."

THE LIVINGSTONE EXHIBITION.—The exhibition which has been held during this week at St. Martin's Town Hall, London, W.C., has been organised under the auspices of Livingstone College, and was decidedly unique and interesting. It is intended as a help towards the solution of the health question as it affects residents or travellers in unhealthy climates. Instruction on those lines has for the past six years been given to missionaries at the College; it is hoped by means of the exhibition and its official organ "Climate," to lead to a much larger consideration of the common-sense precautions which should be taken in connection with all kinds of enterprise in foreign climes. The exhibition comprises all kinds of devices for making the work of the explorer easy, and for reducing to a minimum the transport of a military expedition or a missionary party. Among the firms exhibiting were several well-known manufacturers of food specialties, including Allen and Hanburys, Limited; Bovril, Limited; Cosenza and Co. (Maggi's Consommé), and others. Messrs. Allen and Hanburys, Limited, were also represented in the medical department, together with Aërotors, Limited (Sparklets), Burroughs, Wellcome and Co., Howards and Sons, Aliène Co., B. Kühn (Chinosol), Oppenheimer, Son and Co., Limited, and T. Howard Lloyd and Co. Filters and applications for the purification of water, general sanitary fittings, and disinfectants were exhibited by the Berkfeld Filter Co.,

Limited, and Newton, Chambers and Co., Limited (Izal). In addition to the trade exhibit there was a very interesting collection of Livingstone relics—his sextant, Bible, journals, pistols, surgical instruments, autograph maps, and a number of objects connected with the life and work of the great missionary and explorer. There were also a number of other interesting relics of great travellers, many of which were lent by the Royal Geographical Society. Lectures were given on "The Malarial Mosquito," by Major Ross, of the Sierra Leone Malarial Commission, and by Miss Kingsley. The patron of the exhibition was H.R.H. the Princess Christian, the president being Sir George Goldie.

BORIC ACID AS A PRESERVATIVE.—The adjourned case against Messrs. Hudson Brothers, Limited, for selling clotted cream alleged to be adulterated with boric acid (see *P. J.* [4], 9, 484), was resumed at Westminster Police Court, on Thursday, December 28.—Evidence for the defence having been given, the magistrate (Mr. Shiel), said there was no law in the case; it was purely a matter of fact. The onus of proof lay on the defendants to satisfy him that the compound used as a preservative was not injurious to health. They had not so satisfied him, therefore he must decide the case in favour of the prosecution (the St. George's, Hanover Square, Vestry), and impose a fine of £10, and twenty guineas costs.—Counsel for the defence said defendants would consider the question of appealing to quarter sessions.

SALE OF CAMPHORATED OIL.—At Coalville Petty Sessions, on December 22, Thomas Dodd, of Whitwick, was fined £1 12s., including costs, for selling camphorated oil which was not compounded in accordance with the B.P., 1898.—At Loughborough Petty Sessions last week, Charles J. Wathes, chemist and druggist, Kegworth, was fined 2s. 6d. for selling camphorated oil deficient in camphor to the extent of 3 per cent. Defendant said that the compound was made by a qualified chemist, and with the full ingredients; the deficiency was doubtless due to volatilisation.—At Lambeth Police Court, on January 2, Annie Wolff, described as a medical herbalist, of Choumert-road, Peckham, was summoned by the Camberwell Vestry for selling camphorated oil deficient in camphor to the extent of 74 per cent. The defence was that defendant had only had the business a short time, and had made the oil in accordance with a recipe left by the previous owner of the business.—Fine, £1, and 17s. 6d. costs.

"SILVERINE" FOR PEPPERMINT.—On Tuesday, January 2, the Stockport coroner held an inquest with regard to the death of Rosa Langley (15), daughter of a hatter.—It appears that the girl was not well on Christmas Day, and her mother advised her to take a dose of peppermint. Instead of peppermint she took some "silverine," which was in a similar bottle without a label. She immediately became ill and died. It was proved that the "silverine" had been purchased by the deceased's brother from a hawker, and the coroner expressed the opinion that hawkers should be prevented from selling poisons. He further stated that he should communicate with the Chief Constable to ask him to put a stop to the sale of the fluid, which is said to contain nitric acid and mercury, and is used for "silvering" articles.

OVERDOSE OF LAUDANUM.—The Sheffield City Coroner held an inquest, on December 28, upon the body of Daniel William King (85), of 163, Alexandra Road, Heeley, who died on the previous Monday night from the effects of laudanum poisoning.—Evidence was given to the effect that deceased had been in the habit of taking laudanum to procure sleep.—A verdict was returned to the effect that deceased died from an overdose of laudanum, administered by himself, but for what purpose there was not sufficient evidence to show.

Obituary.

GILL.—On December 20, Joseph Gill, Chemist and Druggist, Liverpool. Aged 71.

LOWE.—On December 29, Charles Lowe, Pharmaceutical Chemist, Surbiton. Aged 83. Mr. Lowe had been a member of the Pharmaceutical Society since 1853.

PICKLES.—On December 18, William Thompson Pickles, Chemist and Druggist, Queensbury, near Bradford. Aged 76.

SIMPSON.—On December 25, Thomas Simpson, Chemist and Druggist, Croydon. Aged 70.

STEVENSON.—On December 23, Stephen Stevenson, Chemist and Druggist, Rochdale. Aged 66.

THORNE.—On December 28, Henry Courtney Thorne, Chemist and Druggist, Brighton. Mr. Thorne had been connected for many years with Messrs. Headland and Co., chemists, of Brighton and Hove, and became a director when the business was turned into a limited company at the beginning of 1899. He was very highly esteemed amongst pharmacists in the town, and was a prominent member of the Brighton Association of Pharmacy.

TUNLEY.—On December 12, William Henry Tunley, Chemist and Druggist, late of Rowlands Castle. Aged 45.

WOODHEAD.—On December 23, Herry Charles Woodhead, Chemist and Druggist, Liverpool. Age 64. Mr. Woodhead had been a member of the Pharmaceutical Society since 1892.

WORFOLK.—On December 24, Francis Worfolk, Chemist and Druggist, late of Bolton. Aged 86.

YATES.—On December 26, Samuel Pearce Yates, Pharmaceutical Chemist, Boscombe. Aged 55. Mr. Yates, who had been a member of the Pharmaceutical Society since 1871, had resided in Boscombe for about nine years, and was very well known. He had been ailing for a month or six weeks, but was attending to his business till within a few days of his death, the cause of which was asthma.

SCOTTISH NEWS.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION.—A conversazione was held under the auspices of this Association in the Mid-Masonic Hall, West Regent Street, on December 29. There was a large gathering, and an attractive programme of dances, songs, etc., was carried out with great zest and success. The party did not break up until an early hour in the morning.

A LIBEL ON CHEMISTS.—In a recent Glasgow case where a man was convicted of drugging with chloral, Sir Henry Littlejohn, who was one of the witnesses, said "there was so much competition that druggists would sell that most potent drug to anyone without taking the buyer's name; so much facility was a perfect disgrace to society." It is to be hoped that Sir Henry Littlejohn's facts are weak, and that his assertion is only one more baseless slander against a class of men who deserve more commendation than blame.

PROCEEDINGS UNDER THE PHARMACY ACTS.—At Glasgow Sheriff Court, on Wednesday, January 3, before Sheriff Guthrie, David Stirling, assistant in the shop of Dr. R. Davidson, 255, Main Street, Shettleston, was charged with selling a quantity of opium, contained in a quantity of laudanum or tincture of opium, to an agent of the Registrar of the Pharmaceutical Society of Great Britain, on December 2, 1899.—Mr. Peter Morison, jun., of Messrs. P. Morison and Son, solicitors for the Society in Scotland, appeared for the complainer, and Mr. J. C. Brock, writer, Glasgow, for the accused.—Mr. Morison explained that this was only a pleading diet, and asked that a day might be appointed when evidence could be given.—A long discussion then took place

between the solicitors, with an occasional remark by the Sheriff, on a question of procedure, Mr. Brock arguing that as his client was not aware that it was only a pleading diet, the case should be disposed of that day.—Finally the case was adjourned until Wednesday, February 14, at one o'clock.

IRISH NEWS.

A DOCTOR'S FATAL MISTAKE.—The people of Bandon have been startled by the death of a very popular local doctor, Dr. William J. Belcher, the medical officer to the Bandon Workhouse, who has accidentally poisoned himself. He had visited the workhouse, as usual, and having seen the patients, he went to the surgery to make up their medicines. In this he was assisted by the hospital nurse, and, whilst giving some directions to her, he set about preparing a draught for himself. Apparently, he inadvertently took up a bottle containing carbolic acid in mistake for one containing solution of magnesia, and, having mixed some of the contents with chloroform water, swallowed the draught. He immediately realised the mistake he had made, and medical assistance was sent for, but too large a quantity of the poison had been taken, and, in a very short time, the victim of his own error was dead. It appears that the carbolic acid and the solution of magnesia were kept in bottles of the same shape and size, and that both were standing on the dispensing counter at the time of the accident.

THE ANALYSIS OF DRUGS.—At the last meeting of the Macroom, Co. Cork, Guardians the Local Government Board forwarded a copy of a letter which had been received from Dr. Crowley, medical officer, Clonmoyle Dispensary District, relative to the analysis of samples of drugs supplied for use in that district. Dr. Crowley, in his communication to the Local Government Board, stated that the Guardians of Macroom Union had never asked him to send the medicines to be analysed, nor even informed him that they had an analyst. It was only the Local Government Board Inspector, Dr. Browne, who told him that a Mr. O'Mahony, of Cork, had been appointed analyst of medicines and drugs for the Union. He did not even know how to forward samples of the drugs for analysis, but, of course he would obey the instructions of the Board. Several Guardians expressed the opinion that Dr. Crowley must have known how to forward the drug samples, while others maintained that he should have been informed that an analyst for the Union had been appointed, and that he should be instructed as to how the drugs should be sent on for analysis. The Clerk of the Union said that he had received the drug samples for other doctors of the Union, and had duly forwarded them for analysis. It was decided by the Guardians to send all necessary information on the subject to Dr. Crowley forthwith.

MR. ROBERT G. DOWNES, President of the Pharmaceutical Society of Ireland, has sent a letter to the Council, resigning the Presidency on the score of ill-health. Mr. Downes entered three months ago upon his third year of office. We are informed that his determination to resign is due solely to his continued indisposition, which prevents him taking that active part in the affairs of the Society which is necessary to the proper carrying out of the objects for which it was formed 25 years ago. The regrettable electric tramway accident which befell Mr. Downes a short time ago, and of which we made mention at the time, has contributed in no small degree to his present bad state of health. It is not improbable that a successor to Mr. Downes will be found in the person of Mr. G. D. Beggs, the esteemed Vice-President of the Society, and should that gentleman consent to act, the duties of the onerous position will be in extremely able hands.

FOREIGN NEWS.

BRITISH CHAMBER OF COMMERCE OF PARIS.—An arrangement has at last been arrived at between the English and French Governments, under which no charge will be made from the 1st January, 1900, for consular visa to certificates of origin. This reform, which the British Chamber of Commerce of Paris has for a long time been endeavouring to obtain, and has finally been instrumental in securing, means a saving of six francs to British firms for every certificate of origin which they take out for France, and as in practice certificates are taken out for almost every invoice, the benefit secured for British firms is a very substantial one.

MICROBES AND THE TELEPHONE.—The Under-Secretary of State for Posts and Telegraphs, Paris, having received numerous complaints of the fear of infection by the use of the public telephones, instructed Drs. Roux, Grencher, Nocard and Marc Sée to institute an inquiry. The result of the inquiry shows that the complaints are well-founded. The report states that "considering that as far as those telephoning are concerned, microbes may be thrown on the vibrating plate by the saliva of the person who is speaking, and that, in an extreme case, those may be diffused as dust, under those circumstances the whole box becomes contaminated, yet the usual precautionary measures are sufficient. So far as the receivers of telephonic messages are concerned, the transmission of diseases is considered to be highly improbable. In any event, the ordinary precautions are considered to be enough to avoid it."

FATAL MISTAKE IN READING A PRESCRIPTION.—A very interesting poisoning case, resulting from a husband's misinterpretation of a doctor's prescription for his wife, is just now being investigated by the Paris police. According to details gleaned, it appears that a Madame X, of the Rue d'Amsterdam, was suffering from a serious stomach complaint, respecting which she called in a medical man, who, after a consultation, gave the following prescription: "Purgatif—Gouttes amères de Baumé, 30 gr." Monsieur X had his prescription for the drops dispensed at a pharmacy near the Gare St. Lazare, and gave the whole 30 grammes to his wife as a purge. Madame X died almost immediately after taking the dose. The "Gouttes amères de Baumé" is a French Codex preparation made by macerating 500 grammes of St. Ignatia bean in 1,000 grammes of alcohol at 60°, hence the dose swallowed contained a large quantity of strychnine. The doctor contends in his defence that the dash between the words "purgatif" and the words "Gouttes amères de Baumé" indicated plainly that a purge was to be taken, and afterwards, a dose of the drops. No dose, however, was indicated upon the prescription. That given in the Codex is "from 1 to 8 drops." The chemist declares he dispensed the prescription not as a purge, but to be given by drops. The husband contends that it ought to have been specified on the prescription at what dose, and under what conditions the "drops" should have been taken. The question as to whom shall be held responsible for the death of Madame X has not yet been solved. Clearly upon the face of the matter the doctor is guilty of the grossest carelessness for not at least "specifying" a purgative, for had he done so no such misinterpretation would have been likely to occur.

THE LATE DR. EVANS' MS.—Monsieur Symonds, a Paris bookseller, has been sentenced in default by the Eleventh Chamber of the Correctional Court, on the charge of "abus de confiance" for refusing to restore to the heirs of the late Dr. Evans the manuscript of the latter's book, "The Fall of the Second French Empire." The sentence is eight days' imprisonment, 100 francs fine and 500 francs damages. The late Dr. Thomas Evans, formerly a dentist of much repute practising in the Rue de la Paix, Paris, made a great name for himself during the Commune. It was he who

succeeded in getting the Empress Eugénie safely away in his carriage from the Tuileries, finally conducting her to England. He was mixed up in all the political and court intrigues during the Second Empire, and his book, of which only a limited number was printed, deals chiefly with the events in which he played a prominent part himself.

USES OF TOBACCO JUICE.—“Tobacco juice, rich in nicotine, and warranted,” is kept for sale at nearly all tobacconists in France. It is tested by the Government, and contains from 5 to 6 times the proportion of nicotine found in ordinary tobacco juice. For spraying plants it is mixed with 100 parts of water. The spraying is done after sunset, and the plants are sprinkled the next day with fresh water. As a lotion to kill parasites on cattle it is mixed with 20 parts of water, and applied gradually to parts of the skin, avoiding sores. The above mixtures are improved by adding $3\frac{1}{2}$ oz. of soda crystals to every $1\frac{3}{4}$ pints of diluted juice. “Le Noir,” a sooty parasite of the orange, lemon, olive, and other trees of the Mediterranean, as well as potatoes, beans, peas, tomatoes and other vegetables, is killed by the juice.

MANUFACTURE OF ARTIFICIAL SPONGES.—The process, patented by Dr. Gustav Pum, of Graz, Germany, consists principally in the action of zinc chloride solution on pure cellulose. The results are amyloid and hydrocellulose, which swell up with water but turn horny and hard on drying. In order to retain for the product the property of also absorbing water after drying, alkali-haloids are employed in treating the cellulose with zinc chloride, and finally the product is subjected to a mechanico-plastic treatment. Thus, for example, 2,000 grammes of concentrated zinc chloride solution and 2,000 grammes of sodium chloride are used for 100 grammes of cellulose, whereby a pasty, viscous mass is obtained, which is mixed with about one kilogramme of coarse rock salt. The plastic mass thus obtained is pierced in a press mould with pins, after whose removal the pressed material appears traversed by small canals in all directions. The excess of salts is removed by washing for one or two days with alcohol and water. The product thus obtained can take the place of natural sponge in all its uses, and may especially serve for filtering water for sanitary and industrial purposes. It is also suitable for filling up life-preservers, and for the production of anchor-buoys, as well as in surgery for absorbing secretions, or in pharmacy for clearing mixtures and thus replacing cotton wool.

SENSATIONS OF PRUSSIC ACID POISONING.—A French journal of pharmacy reports that Professor Willis G. Jackson, of the Maryland Agricultural Experiment Station, proposes the use of hydrocyanic acid gas as a lethal agent to be used for capital punishment in the place of hanging or electrocution. It is not a novel idea, but he describes his own experience of the poison. He felt a pleasant drowsiness, relaxed muscles, and a feeling of indifference as to what happened. There was no pain, and his sensation was rather soothing than disagreeable. On the other hand, Mr. E. Murray-Aaron, who came near death through inhaling the hydrocyanic fumes from an insecticide jar, and was restored to life with difficulty, states that he felt “intense intercostal agony, unthinkable mental distress, and a horrible consciousness of all that was going on, without the power to give any sign of life.”

SERUM CURE FOR ALCOHOLISM.—The discovery of a new serum, injection of which is said to give the patient disgust for alcohol has been reported to the Académie de Médecine, by Drs. Sappelier and Thiébault, in conjunction with Monsieur Broca, a chemist of the Rue Saint Denis. This matter is creating a considerable sensation in Paris. Briefly, the curative serum is extracted from the blood of a horse which has previously been alcoholised. Injections of this serum will give an alcohol-maniac an absolute disgust and

repugnance for alcoholic liquors. Dr. Thiébault, when interviewed by our correspondent at Paris, remarked “That the matter cannot be discussed at present. It is like a legal case, *sub judice*, for that is how the present position of the discovery may be now properly described. Our discovery is in the hands of Messrs. Lancedreaux, Mottet, and Laborde, the Committee of the Academy, who will, in time, draw up their report. But, naturally, time must be allowed the Committee for making the necessary experiments, and establishing our claim. Understand clearly what our cure really is. To suppose that we can take a man in the last stages of alcoholism, who is actually tottering into a drunkard’s grave, and raise him to life, is absurd. On the other hand, what we can do is this: We can cure alcoholomania if there be no organic lesions. Be careful to distinguish between dipsomania and alcohol-mania. A dipsomaniac may find in turpentine, for instance, something to satisfy his dreadful craving; it is certainly depraved taste, but many a chemist knows that methylated spirit and bay rum and Florida water have been consumed by the tippler—more rightly called a ‘dipsomaniac.’ An alcohol-maniac, however, only has the appetite for alcohol, as the word implies. Now our cure is applicable to those who are addicted to the abuse of alcohol under the conditions already laid down—that is to say, if the patient’s liver and other organs be not destroyed by drink. At present, the question, so far as we are concerned, is purely and absolutely scientific, and all interviews must be declined until the Academy has pronounced upon it.” “But suppose the Académie de Médecine decides adversely, will that be final for you and your collaborators?” Dr. Thiébault shook his head, and said: “Ah, in that case (which is not likely) then there is another court of appeal, but we shall not talk about that just yet. We know what we are capable of, and actions speak louder than words.”

PHARMACY IN AUSTRALASIA.

(From Our Melbourne Correspondent.)

THE PROPOSED RECIPROCITY CONFERENCE.—The proposal to hold a “reciprocity” conference in Melbourne during January, when the eighth annual meeting of the Australasian Association for the Advancement of Science takes place, has led to some interesting correspondence between several of the Pharmacy Boards interested. At the November meeting of the Victorian Board, for instance, a letter was received from that of New South Wales, intimating that before joining in the movement they would be glad to come to an understanding in reference to the recognition of the different existing Registers of Pharmacists, and submitting the following questions for consideration:—(1) Will the Pharmacy Board of Victoria register all those persons who hold, or are entitled to hold, the New South Wales certificate of registration as pharmacists under Sections A, B, C, D, E, and F of clause 11 of the Pharmacy Act 1897, on their coming to live in the colony? No registrations have been made under Sections E and G of the said Act. (2) If the Board is not prepared to register all the above-mentioned persons, kindly state, which of the certificates of New South Wales you are prepared to accept, pointing out the sections of clause 11 to which you agree. (3) If the Board should object to some of the sections of clause 11, will the Board be good enough to say under which conditions the Board would be prepared to accept these persons? Would it, for instance, accept pharmacists under Sections A, B, C and D if they have passed a pharmaceutical examination of a modified nature, such, for instance, as adopted by the Pharmaceutical Society of New South Wales, which is a copy of the modified examination provided by the Victorian Board? The subject was not definitely disposed of at the meeting in question, pending a reply to a communication addressed to the N.S.W. Board, requesting information as to how that body would be enabled to impose a

modified examination, as there was no provision for doing so in the present N.S.W. Pharmacy Act. So the matter stands at present between the two leading colonies.

A SIMILAR COMMUNICATION to the foregoing, from New South Wales, was under consideration at the November meeting of the Pharmacy Board of South Australia, when the following opinion was arrived at:—(1) That it would be inadvisable to recognise all registrations under the New South Wales Act. (2) That sections other than D were agreeable. (3) That a modified examination added to a D qualification would meet the objection to this. So far, therefore, South Australia seems prepared to accept what New South Wales appears willing to give—a modified examination added to certain qualifications. Western Australia has also replied in similar strain. It remains to be seen how it is proposed to get over the difficulty, attention to which has been directed by the Victorian Board. Tasmania has definitely announced that examination is the only basis it will agree to, but should an agreement be arrived at among the others it would no doubt be induced to come in.

THE WEST AUSTRALIAN PHARMACY BILL.—From the Federal point of view the Pharmacy and Poisons Amendment Bill which has just passed through the West Australian Assembly is fairly satisfactory, as among other things it provides for the recognition of apprenticeship and examinations passed in other colonies. The principal alterations introduced are as follows:—Poisons licences may be issued to persons distant five miles from the nearest pharmacy (the present Act prescribes twenty miles as the limit); the word "poisons" in section 29 (b)—which prescribes that the name, etc., of purchaser of poisons, etc., shall be entered and signed for—is now to apply only to poisons specified in Part I. of the new schedule; and the Act also restricts the application of the section 30 of the Act (providing that no person shall sell any poison ordered by letter, etc., to any person with whose signature he is unacquainted, unless such signature has been witnessed by a Justice of the Peace, legal practitioner, or notary public, or is otherwise authenticated by some person known to the vendor). Section 31 (No person shall sell any poison unless the bottle, etc., containing the same bears the word "poison," together with name of article and name and address of vendor) is now to be supplemented with the words: "Together with the address of the shop or premises from which the poison was obtained." The Act also amends section 36 (Exemptions) by extending the exemption of the Act to "the sale for mining purposes of cyanide of potassium, strong mineral acids or other metallurgical chemicals required in the mining industry." The fifth schedule has now been repealed, and a new one substituted, the effect being that the poisons now constituting the fifth schedule are to form Part I. of the new schedule, and Part II. gives an additional list of poisons. The new sections are mandatory that the business of a pharmaceutical chemist must be carried on by the principal or qualified assistant; and that chemist must have his name legibly painted on the front of his business premises; every person licensed to sell poisons must produce his sales of poisons record book to the Council or Registrar or person authorised in writing by the President or Registrar whenever required; in any prosecution under section 38 of principal Act the fact that any person is apparently employed in any drug shop or acts in the capacity of salesman, shall be *prima facie* proof that such person carries on business as a pharmaceutical chemist in such premises.

BEFORE THE BILL EMERGED from the Committee stage a final clause was adopted as follows:—"Nothing in this Act contained or in the principal Act shall prevent any person carrying on the business or occupation of a pharmaceutical chemist in Western

Australia, who at the passing of this Act is possessed of any qualification legally recognised in any of the Australasian colonies, and who has been a resident in Western Australia for a period of three months immediately preceding the passing of this Act, and is engaged as manager, managing owner, or assistant in the business of a pharmaceutical chemist or company registered in accordance with the provisions of the principal Act, keeping open shop in the colony of Western Australia, and such manager or assistant being at the time of the passing of this Act engaged in the dispensing of prescriptions of legally qualified medical practitioners: Provided that such person shall apply to be registered under the provisions of this Act within three months after the passing thereof; and if such person shall not so apply he shall be excluded from the provisions of this section."

THE FOLLOWING IS THE POISON SCHEDULE AS FINALLY ADOPTED:—

PART I.	
Aconite	Digitalis and its preparations
Arsenic and its preparations	Ergot of Rye and its preparations
Arsenical preparations, except green and other paints and pigments	Essential Oil of Almonds, unless deprived of its prussic acid
All poisonous vegetable Alkaloids, and their salts	Iodine
Belladonna and its preparations	Laudanum
Cannabis Indicus (hemp)	Nux Vomica, bean or powder
Cantharides	Opium and all preparations of opium or poppies
Chloral Hydrate	Phosphorus
Chloroform	Prussic Acid and its preparations
Cocaine and its preparations	"Rough on Rats"
Conium and its preparations	Savin and its oil
Corrosive Sublimate	Strychnine and its preparations
Croton Oil	Tartar Emetic
Cyanides of Potassium and all metallic cyanides	
PART II.	
Butyr of Antimony	Oxalic Acid
Carbolic Acid	Patent and Proprietary Medicines containing any poison mentioned in Part I. of this Schedule
Chlorodyne and Soothing Syrups and Powders	Red Precipitate
Colocynth Pulp	Strong Mineral Acids
Ether	Sugar of Lead
Iodoform	White Precipitate
Mercury Subchloride	

THE NEW ZEALAND PHARMACY BILL.—The "Act to amend the Pharmacy Act, 1898," has just passed through the New Zealand Legislature. It is equally short and (from a Federal point of view) unsatisfactory, as witness the text:—"An Act to amend the Pharmacy Act, 1898. Be it enacted by the General Assembly of New Zealand in Parliament assembled, and by the authority of the same, as follows:—1. The short title of this Act is 'The Pharmacy Act Amendment Act, 1899.' 2. The provisions of sub-section 5 of section 27 of 'The Pharmacy Act, 1898' (entitling certain persons to be registered as pharmaceutical chemists without examination) shall apply only in cases where the person claiming to be entitled to be registered under that sub-section was, as owner or manager, keeping open a shop in New Zealand as a dispensing or homœopathic chemist at the time of the coming into operation of that Act." As the *Australian Journal of Pharmacy* inferentially remarks, this practically puts all the other colonies in quarantine, so far as New Zealand is concerned.

A "WESTERN AUSTRALIAN DENTISTS ACT AMENDMENT BILL" has just been passed through the Legislative Assembly of the Colony indicated. It was introduced on the suggestion of the Dental Board (of W.A.), and reduces the period for which a student has to practice dentistry before being registered from seven to four years. It also provides an annual registration fee of £2 2s., and that appeals against the findings of the Dental Board should be direct to the Supreme Court, instead of to the Minister, in the first case.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

INTRODUCTORY.

The following notes are intended to serve the same purpose in connection with the vegetable and animal materia medica of the British Pharmacopœia, 1898, as the recently concluded series of notes in the Students' Columns have served in connection with the chemistry and pharmacy of that work. The object kept in view in compiling the notes has been the full explanation of what is not self-explanatory in the official monographs, and yet appears capable of explanation. Naturally a large number of sources of information have been drawn upon, including Squire's 'Companion to the British Pharmacopœia,' Hanbury and Flückiger's 'Pharmacographia,' Greenish's 'Materia Medica,' Ransom's 'Medicinal Plant Names,' and others, too numerous to mention. As in the case of the former series, any comments or suggestions will be gladly received by the Editor.

Acaciæ Gummi.

GUM ACACIA is a dried exudation from the stem and branches of various species of *Acacia* (N.O. Leguminosæ). The chief source of the gum is *Acacia senegal*, Willdenow [Bentley and Trimen, 'Medicinal Plants,' vol. 2, plate 94], a tree which grows freely in various parts of Africa. The point is hardly settled yet, but the gum appears to be produced in the cells of the cortex and pericycle, as a result of transformation of the cell-wall. In most cases it exudes spontaneously, but its formation can be promoted by incision. After collection—chiefly in Eastern and Western Africa—the gum is exported by way of the Nile valley and Alexandria (Kordofan gum), or from St. Louis, Senegambia. The gums known in commerce as "Turkey sorts" and "Trieste picked," which are brought from the Soudan by way of Suakin, are as suitable as any for pharmaceutical purposes. Gum acacia is used medicinally as a demulcent and as an emulsifying agent for oils, resins, etc. The official preparations in which it is used are—Mucilago acaciæ, pilula ferri composita, pulvis amygdalæ compositus, pulvis tragacanthæ compositus, and all the trochisci.

CHARACTERS AND TESTS.—The gum occurs in rounded or ovoid, opaque, white or yellowish tears or masses, the largest of which about equal a hazel nut in size. The opacity of the tears is due to numerous minute external fissures. They are also very brittle, and the fragments of broken tears, which are more or less angular and quite transparent, show glistening vitreous surfaces. The gum has a very faint odour, and a bland, mucilaginous taste. It is insoluble, or only slightly soluble, in alcohol and other liquids than water, unless there is a considerable quantity of water present. Thus, it is quite insoluble in 90 per cent. alcohol, and 60 per cent. alcohol only extracts from it certain of its constituents, but weaker alcohols dissolve the gum in proportion to the quantity of water they contain, 100 parts of 22 per cent. alcohol dissolving as much as 57 parts of gum. In water alone, however, gum acacia should dissolve entirely (1 in 1), forming a translucent viscid mucilage, which feebly reddens litmus, owing to the excess of acid present in the gum. If the mucilage is glairy or ropy, or yields a gelatinous deposit after dilution with water, an inferior gum—probably derived from other African or Australian species of *Acacia*, or an Indian gum—has been used to prepare it. By forming a copious gelatinous precipi-

tate with basic lead acetate, but not with the normal acetate, gum acacia is distinguished from many other varieties of gum or mucilage; Ghatti gum, obtained from *Anogeissus, latifolia*, Wall. (N.O. Combretaceæ), yields only a slight precipitate with lead subacetate. Another distinguishing feature of gum acacia is that mucilage prepared from it yields a gelatinous precipitate and forms a translucent white jelly, on the addition of a concentrated solution of borax. An artificial gum has been prepared from commercial dextrin, and powdered gum may be adulterated with starch or flour, both of which can be detected by means of solution of iodine, which colours starch blue in the presence of water. The "dextrin" of commerce is a mixture of uncertain composition. It may contain unaltered starch and be coloured by iodine accordingly, but it also consists largely of erythro-dextrin which gives a reddish-brown colour with iodine, unless the reaction is obscured by the blue colour produced by a considerable proportion of soluble starch. Tannin is present in inferior gums—such as those from Australian species of *Acacia*—and can be detected by the bluish-black coloration produced on adding ferric chloride. Dextrin and certain sugars, which may be found in artificial and powdered gums, reduce Fehling's solution of potassio-cupric tartrate.

NOTES.—The distinctive characters of gum acacia are the numerous minute external fissures, which cause the opaque appearance of the tears, the vitreous appearance of fractured surfaces, the ready solubility of the gum in water, and the adhesiveness of aqueous solutions. The word "acacia" (Gr. *ἀκασία*, from *ἀκμή*, a point or thorn) was probably originally used to designate some thorny shrub, belonging to the N.O. Leguminosæ (L. *legumen*, pulse). The Latin word "gummi" is an indeclinable noun, derived from the Greek *κρόμμυ*. Senegal is a French colony in western tropical Africa, where gum acacia has long been collected for exportation. The specific gravity of gum acacia is about 1.5. The gum consists chiefly of arabic acid, $C_{12}H_{22}O_{11}$, combined with calcium, magnesium, and potassium, and it may be regarded as being essentially an acid calcium salt of arabic acid. It contains from 12 to 17 per cent. of moisture and a trace of sugar, and yields from 2.7 to 4 per cent. of ash. Arabic acid, which is probably not the only acid present in gum acacia, swells in water when pure, but does not dissolve unless an alkali be added; it is converted into sugar—arabinose and galactose—on boiling with dilute mineral acids. Added starch, dextrin, tannin, and sugar should be looked for more particularly in powdered gum. In applying the iodine test, care should be taken that the liquids are cold, as the blue colour with starch and the brown with dextrin are not formed in hot solutions. Sugars used as adulterants can be extracted by alcohol, and tested separately. In using powdered gum acacia for preparing emulsions of fixed oils, a very fine powder is preferable if the oil is to be added direct to the dry gum, but a somewhat coarse powder is better for making fresh mucilage immediately prior to adding the oil.

Aconiti Radix.

ACONITE ROOT should be obtained from plants of *Aconitum napellus*, Linn. (N.O., Ranunculaceæ), which have been cultivated in Britain, the object of that limitation being to insure that the root shall always be grown under uniform conditions. As a further precaution against variation in the strength of the drug, it must be collected in the autumn, preferably in October, when the root attains perfection. After collection, the roots are washed, freed from rootlets, and carefully dried, either entire or sliced longitudinally so as to facilitate driving off moisture. Preparations of aconite relieve acute pain when applied externally, and, administered internally, lessen the frequency and tension of the pulse, produce a steady fall of temperature, and cause moistening of the skin and lowering of the

sensibility to pain. The liniment and tincture are the only official preparations, but the alkaloid aconitine is also official.



ACONITI RADIX.—A. Old root with remains of stem, and B new root with leaf bud, both natural size. C. Transverse section, slightly magnified.

CHARACTERS.—The shape of aconite root is that of an elongated cone, measuring from 5 to 10 Cm. in length, and from 12 to 18 Mm. in diameter at the upper extremity, whence it tapers very gradually downwards. Externally, the root is dark brown in colour, usually wrinkled longitudinally, and marked with the scars and bases of broken-off rootlets; it should also be crowned with the scales of an undeveloped leaf-bud. The root breaks with a short fracture, and appears white or greyish-white internally, as it consists mainly of uniform parenchymatous cells loaded with starch granules. If hollow or spongy, the root has been collected after its reserve material has been exhausted by the development of the flowering stem. The retention of any portions of stem also indicates that the root has not been collected at the proper season, since the old stem must have died down and entirely disappeared by the time the new root attains its maximum development—being then plump and full of starch—and the new stem should not have begun to develop. When the plant is in flower the new root is formed, but only half-grown. If the root be transversely cut and the fresh surface examined with a lens, the stellate pith is seen to consist of a large-celled polyhedral parenchyma, containing an abundance of starch grains; it is divided from the thick parenchymatous cortex by a narrow irregular line—the cambial zone—which gives it the appearance of a star with five to seven rays, and at each angle of the figure thus formed occurs a small vascular bundle. No trace of cuticle is found except at the tips and adjoining parts of the roots; elsewhere it is replaced by brown parenchymatous cells which have formed part of the primary cortex. The fresh root has only a very faint odour, which is neither pungent nor radish-like as has been stated, though there is the faintest possible momentary irritation when the root is first smelled. The taste is at first slight, but a persistent sensation of tingling and numbness soon manifests itself in the mouth, the effect being due to aconitine, the extremely poisonous active principle of the drug.

NOTES.—The distinctive characters of aconite root are its elongated conical shape, starchy interior, stellate cambium, and the persistent tingling produced on tasting it. The name *Aconitum* (Gr. ἀκόνιτον) is probably derived from ἀκων, a dart, or from Acone, a town of Bithynia, in the vicinity of which aconite plants were abundant; *napellus* is the diminutive of the Latin *napus*, a turnip, a fancied resemblance to the shape of that root having been seen in aconite. The natural order Ranunculaceæ derives its name from the Latin *ranula*, the diminutive of *rana*, a frog. The common English name of the aconite plant—monkshood—has reference to the hooded calyx of the flower. The fresh leaves and flowering tops of aconite were formerly used in medicine, but the dried root alone is now official. The quantity of aconitine in the root

is supposed to be greatest in the autumn, but that point has not yet been definitely established by analysis; no satisfactory method of assay is as yet available, and, on account of the extremely poisonous nature of the drug, it is necessary that the potency of its preparations should be regulated as far as possible by growing and collecting the root under uniform conditions. The official description excludes German and Japanese aconite roots, and English roots which are not fully matured, though the supply of aconite root which will meet the official requirements is as yet not sufficiently regular to meet the demand.

Aconitina.

ACONITINE or acetyl-benzaconine is the chief alkaloid found in aconite root, and the only one which has been obtained in crystalline form. The crystals are colourless hexagonal prisms of the rhombic system. Crystals belonging to that system have three axes of unequal length at right angles to each other, as in the case of potassium bicarbonate, chromate and sulphate. The alkaloid has the formula $C_{33}H_{45}NO_{12}$ (eq. 642·53) and is intensely poisonous, its extreme toxic power being attributed to the presence of the acetyl radical in its molecule. Aconitine is chiefly used, in the form of ointment, to relieve acute nervous pain. The only official preparation of aconitine is unguentum aconitinæ.

CHARACTERS AND TESTS.—Pure aconitine should have a melting power of 189° to 190° C.; if heated above that temperature it is decomposed, acetic acid being given off and picroaconitine (benzaconine) left. It is soluble in 35 parts of 90 per cent. alcohol, 1 part of chloroform, or 45 parts of ether, but is almost insoluble in water or in petroleum spirit. An alcoholic solution of the alkaloid turns the plane of a ray of polarised light to the right, whereas the salts of aconitine turn a similar ray to the left. The persistent tingling sensation characteristic of aconite root is perceived when a single drop of a solution containing not more than 0·1 per cent. of aconitine is placed on the tongue. Like the base itself, the salts of aconitine are crystalline: the hydrochloride melts at 149° C., and the hydrobromide at 164° C. An aqueous solution of aconitine, containing as little as 1 part in 4,000, and faintly acidulated with acetic acid, should yield a red or purple crystalline precipitate, consisting of a sparingly soluble permanganate of the alkaloid, on adding a few drops of potassium permanganate solution. The reagent must be in very slight excess. The precipitate is readily distinguished from the similar ones given by cocaine, hydrastine, and papaverine, as cocaine and hydrastine permanganates are very readily dissolved by water, and hydrastine and papaverine permanganates are not crystalline. Again, aconitine permanganate is not changed by the addition of a drop of bromine water to the mixture, whilst the cocaine salt turns a deep orange and that of hydrastine a bright yellow.

NOTES.—The quantity of crystallised aconitine yielded by aconite root is about 0·03 per cent., and the total yield of alkaloids about 0·07 per cent. In addition to aconitine, two other alkaloids—picroaconitine (benzaconine) and aconine—occur in aconite root; they are amorphous, non-poisonous, and have a bitter taste. When hydrolysed aconitine yields acetic acid and picroaconitine, and the latter in turn yields benzoic acid and aconine. Pseudoaconitine is a poisonous crystalline alkaloid (m.p. 201° C.), obtained from *Aconitum ferox*. Like aconitine, it is readily soluble in alcohol and chloroform, less readily in ether, and only slightly soluble in water. It can be distinguished from aconitine by the beautiful purple-red colour produced on adding a solution of potassium hydroxide in absolute alcohol to the yellow residue left on moistening a small quantity of the alkaloid with fuming nitric acid and heating to dryness. Aqueous or alcoholic solutions of aconitine tend to decompose unless slightly acidified with hydrochloric acid, and solutions of the more stable crystallised aconitine nitrate are to be preferred. There is no official dose, but Squire gives the maximum single dose as 0·1 Mgm., or 0·5 Mgm. daily.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

ACTIVE PRINCIPLE OF CAYENNE.

The assertion of K. Micko that the acrid taste of *Capsicum annuum* (paprika) is due to capsaicin, has been disputed by Morbitz, who gave to the crystalline body which he separated the name "capsacutin" and described it as having a vanilla-like odour. Micko has again investigated this body, and reasserts that capsaicin is the active principle both of cayenne and of paprika, and that in the pure condition it is odourless, the vanilla odour being due to decomposition with reagents. He states that cayenne pepper contains twenty times as much capsaicin as paprika. The formula of capsaicin is $C_{18}H_{28}NO_3$.—*Pharm. Centralh.*, **40**, 672; after *Zeits. f. Unters. der Nahr. und Genussmittel*.

A NEW INDICATOR.

Reigler describes a brown diazo-compound which gives, with alkali, a beautiful red colour, and with acids, a yellowish green. The body is prepared in the following manner: Guaiacol, 1 Gm., is dissolved in water, 50 C.c.; 10 per cent. caustic soda solution 30 C.c., and mixed with a solution of diazo-paranitraniline obtained thus: paranitraniline, 1.25 Gm., is dissolved by agitation and heat with 4 C.c. of concentrated hydrochloric acid, and 50 C.c. of water; after cooling a solution of sodium nitrite 0.5 Gm. in water 30 C.c. is added. By mixing this solution with the alkaline guaiacol solution, a red fluid is obtained; on gradually acidulating with concentrated sulphuric acid, the colouring matter is thrown down; this is collected, washed free from acid, and dried. For the indicator 0.2 Gm. are dissolved in 100 C.c. of alcohol.—*Pharm. Centralh.*, **40**, 630, after *Bull. Soc. de Science din Bucuresci*.

SYMBIOSIS AND SAPROPHYTISM.

Professor D. T. MacDougal proposes to limit the term saprophyte to those species of plants which derive their supply of food directly from organic products without the intervention of the activity of chlorophyll, and unaided by other organisms. Thus limited, holosaprophytes include numerous fungi and bacteria, but, as far as is at present known, only a single flowering plant, *Wulfschlagelia aphylla*, belonging to the Orchidæ. All species furnished with mycorrhiza or tubercles, or which enter into direct mechanical or nutritive associations, must be classed as "symbionts" or "symbiotic saprophytes." Two types of endotropic mycorrhiza may be distinguished; one adapted for the fixation of nitrogen, the other for the absorption and modification—perhaps the oxidation—of the products of the soil before liberation in the tissues of the higher plants.—*Bull. Torrey Bot. Club*, p. 511.

CYANOFORM AND NITROFORM.

The cyano- and nitro-compounds corresponding to bromoform, chloroform, and iodoform are highly interesting bodies which have been investigated by Hantzsch, Ostwald, and Rinckenberger. Cyanoforn, $H\cdot C(CN)_3$, prepared from the di-sodium salt of methylene cyanide, by acidification and treatment with ether, is, like nitroform, a very powerful monobasic acid. It is only stable in the pure state, or in a solvent free from water, as it polymerises very readily. In watery solutions, and in salts, this acid exists only as isocyanoforn. Nitroform, $H\cdot C(NO_2)_3$, is obtained through treatment of potassium nitroform with strong sulphuric acid, as a colourless mass, melting at $15^\circ C$. The watery solution of this, as well as its salts, is coloured a deep yellow, owing to the formation of iso-compounds.—*Berichte*, **32**, 628.

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MERCUROUS IODIDE.

Dr. P. C. Rây states that when the residue in the flask after the interaction of mercurous nitrite and ethyl iodide is heated in a tube, mercurous iodide sublimes off between 190° and 210° . The compact mass of crystalline tablets thus obtained shows all gradations of tint from lemon and orange-yellow to dark brown.—*Proc. Chem. Soc.*, **15**, 239.

ABSORPTION OF NITROGEN BY THE LEGUMINOSÆ.

J. Lutowslawski has determined that, in the case of peas and lupins, an increase in the amount of nitrogen commences with the beginning of the independent growth of the plant; that is, soon after the close of the period of germination, and in all cases before the commencement of the formation of the inflorescence. The maximum amount of nitrogen occurs after flowering, when the pods are beginning to be formed; after which a gradual decrease takes place. The time, therefore, for using leguminous crops as manure, in order to increase the fertility of the soil, is at the commencement of the development of the pods.—*Beiheft zum Bot. Centralbl.*, **9**, 1899, p. 72.

COLOURS OF FLOWERS.

In *Nature* for November 30, 1899, P. Q. Keegan describes a series of experiments with the object of deciding between the view of Berzelius that the original colour of anthocyan is red, and that of Wiesner that it is blue. His conclusion is, on the whole, favourable to the former hypothesis; but he believes that there are different stages in the development of the floral pigment. In the lower stages the natural colour is red, whatever the chromogen may be; while in the higher stages the natural colour of anthocyan is blue; or rather, at least with some chromogens, it becomes capable of forming blue compounds with alkalies and certain metallic acids. There also exist chromogens which, except under very exceptional conditions, are incapable of producing a blue pigment. These, in all stages, naturally develop into a red, the brilliancy of which unquestionably attests its real, original and proper character.

ACTION OF LIGHT ON THE STEM AND LEAVES.

From a series of experiments made on different plants, E. C. Teodoresco finds that if a plant is grown so that the lower leafy part of the stem is exposed to light, while the terminal bud is in the dark, the results, as regards the development of the vegetative parts, are intermediate between plants grown completely in the light and those grown completely in the dark. In a plant thus partially illuminated, the development of the conducting tissue and the lignification of the walls of the mechanical tissue approach more nearly to those in a plant grown entirely in the dark. In a plant entirely deprived of light, starch is altogether wanting in the tissues of the stem; while in one partially illuminated it is present, though in smaller quantities than in a plant grown entirely in the light. The carbohydrates elaborated in the leaves exposed to light may accumulate in the parts of the plants which are not directly exposed to light.—*Bonnier's Rev. Gén. de Botanique*, 1899, vol. xi.

ABSORPTION OF IODINE BY PLANTS.

As the result of a series of experiments on different plants, M. P. Bourcel states that they vary greatly in their power of absorbing iodine from a soil containing a given quantity of that element, some species refusing it altogether. A difference is even exhibited in this respect between different species of the same genus; but some natural orders appear to possess the property in a greater degree than others. The Liliaceæ and the Chenopodiaceæ display this faculty to a much greater extent than the Solanaceæ and the Umbellifereæ.—*Comptes rendus*, **129**, 1899, p. 768.

**QUANTITATIVE DETERMINATION OF ALKALOIDS
IN LEAVES OF DATURA STRAMONIUM, HYOSCYAMUS
NIGER, AND ATROPA BELLADONNA.**

BY PROFESSOR ERNST SCHMIDT.

In the last number of the *Apotheker Zeitung*, the author publishes details of a method which he recommends as applicable to drugs containing considerable amounts of chlorophyll, and yielding to chloroform deep green coloured extracts. It is a modification of Keller's method, and from the experience gained in making numerous examinations of stramonium, hyoscyamus, and belladonna leaves during recent years, it has been found that results can be obtained as exact and accordant with each other as in the case of drugs free from chlorophyll. Even in the hands of inexperienced operators the method can be relied upon as easily carried out and trustworthy when iodeosin is used as an indicator in the manner described.

The finely-powdered drug (10 grammes) is first dried until constant over caustic lime, mixed in a flask with 90 grammes ether, and 30 grammes chloroform, well shaken together, and 10 C.c. of 10 per cent. caustic soda liquor added, while the shaking is continued. The mixture is then left at rest for three hours, and at the end of that time water is added, 10 C.c., or enough to make the powder aggregate together, when the mixture is well shaken, leaving the ether-chloroform solution separated clear on the surface. After being at rest for an hour, 60 grammes of the clear solution, representing five grammes of leaves, is passed through a filter into a flask, and distilled to one-half to separate ammonia. Further distillation must be avoided, as it would be attended with formation of hydrochloride in consequence of reaction with chloroform.

The dark green coloured liquid is then transferred to a separator, the flask washed three times with 5 C.c. of ether, and the whole well shaken with 10 C.c. of 1/100 normal hydrochloric acid. After complete clarification of the liquid, and, if necessary, addition of enough ether to make the ether solution float, the acid liquor is passed through a small wetted filter into a flask of about 200 C.c. capacity. The ether-chloroform solution is shaken out three times, with about 10 C.c. of water, and each portion, after becoming clear, is passed through the same small filter, which is finally washed with water until the whole quantity of liquid measures about 100 C.c. Ether is then added, sufficient to give a layer of about 1 Cm., with 5 drops of iodeosin solution (1 in 500 alcohol), and 1/100 normal potash solution is gradually run in, with vigorous shaking after each addition, until the aqueous liquor acquires a pale red colour.

In the titrating back of the uncombined 1/100 normal hydrochloric acid, it is advisable to add only one C.c. of 1/100 potash solution at a time, and to shake well after each addition until the aqueous liquor begins to appear faintly but distinctly red when observed on a white background, while the ether layer is, if necessary, covered with a piece of black paper. Then 1 C.c. of 1/100 normal hydrochloric acid should be added, and, after the whole has been well shaken, the colour should entirely disappear, and the operation is to be completed by adding 1/100 normal potash solution in successive quantities of 0.1 C.c. until the aqueous liquor acquires a faint red colour.

Deducting the measure of 1/100 normal potash solution from 11 (the number of C.c. 1/100 normal hydrochloric acid), the remainder represents the quantity of 1/100 normal hydrochloric acid requisite for neutralising the alkaloid of 5 grammes of the leaves operated upon.

To calculate from these data the quantity of atropine or hyoscyamine, 1 C.c. of 1/100 normal hydrochloric acid is taken as equivalent to 0.00289 gramme of alkaloid.

In making such determinations the 1/100 normal hydrochloric acid and potash solutions should be previously adjusted, under the same

conditions, that the determinations are made, *i.e.*, in carrying out the titration there should be 10 C.c. 1/100 normal hydrochloric acid, with 100 C.c. of water in flask of white glass, with a 1 Cm. layer of ether, and 5 drops of the iodeosin solution.

The condition of the iodeosin used as an indicator is another point of importance in regard to the accuracy of the determination. It should be a scarlet crystalline powder dissolving in alcohol with deep red colour, and in ether with a yellowish-red colour. In water, mixed with a trace of hydrochloric acid, it should be absolutely insoluble. To test the suitability of the iodeosin 5 drops of solution should be mixed in a flask with 100 C.c. of water, 1 Cm. layer of ether and one drop 1/100 normal hydrochloric acid solution, and, then, after the whole has been well shaken, the aqueous liquor should remain free from colour. On adding two drops of 1/100 normal potash solution and shaking, the aqueous liquor should have a pale red tint.

In order to save expense in carrying out such determinations, the ether-chloroform and ether solutions should be saved, and purified for further use. For that purpose, it has been the practice to shake with excess of dilute sulphuric acid and distil in a water-bath, drying the distillate with calcium chloride, and again distilling. The product thus obtained is then brought to a specific gravity of 0.850 by addition of ether or chloroform, so as to make the mixture of the proportion (1 to 3) suitable for the operation.

By means of this method the following results have been obtained:—

Belladonna leaves:—	
Whd	0.40 per cent. alkaloid.
Cultivated	0.26 per cent. "
Stramonium leaves grown in the Marburg Botanic Gardens, 0.40 per cent. alkaloid.	
Hyoscyamus leaves (Cæsar and Loretz):—	
Leaves without stalk, I.	0.2762 per cent.
" " II.	0.2861 per cent.
Leaf stalks, I.	0.363 per cent.
" " II.	0.365 per cent.

The amount of alkaloid obtained from henbane leaves and stalks is very high as compared with the results of other observers.

PRACTICAL PHARMACOGRAPHY.

COLCHICI SEMINA.

MACROSCOPIC CHARACTERS.

Syn. Meadow Saffron, Eng.; Colchique, Safran bâtard, Fr.
Herbstzeitlose, Wiesen-safran, Germ.

The seeds of *Colchicum autumnale*, Linn., are of a dark brown colour, globular, about two millimetres in diameter, and are furnished at the base with a fleshy appendage, the remains of a funiculus. The testa is minutely punctate, somewhat glutinous when fresh, but becoming powdery when kept dry for some time. The seed is closely adherent to the seed-coats, and consists of a minute embryo placed nearly opposite to the hilum and near to the circumference in a hard, horny albumen or endosperm. The seeds have no odour, but a bitter and, subsequently, an acrid taste. They are not likely to be mistaken for any other official medicinal seed. The seed of black mustard is smaller, and is much softer, being easily crushed between the teeth. It has also a pungent taste. The seed of *Amomum melagueta*, or "Grains of Paradise," or "Guinea Grains," have a soft, white, endosperm, and a very pungent biting taste, and are larger and of a paler brown colour than colchicum seeds.

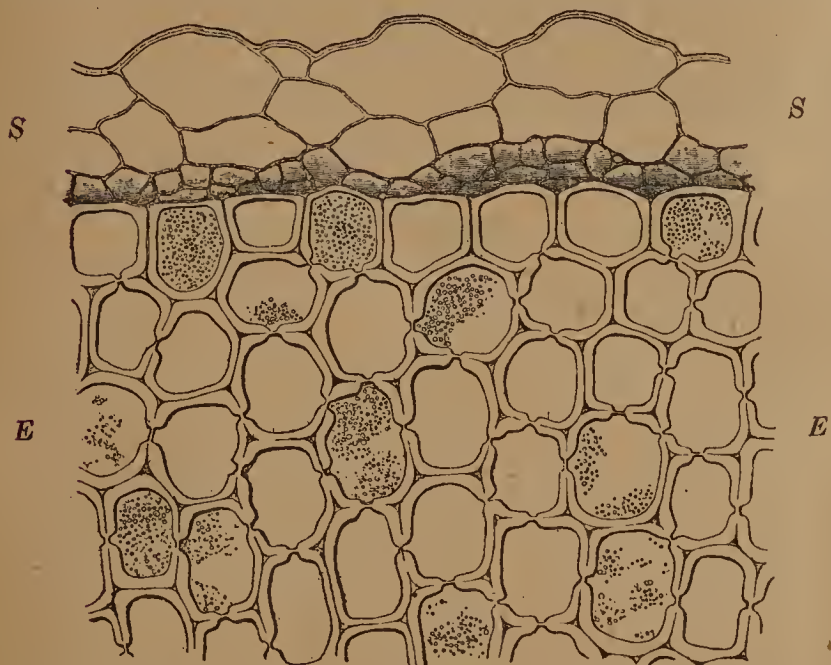
MICROSCOPIC CHARACTERS.

Integuments.—Beneath a thin outer layer of narrow, tangentially extended, thin-walled cells are found two rows of large irregular thin-walled parenchyma. The innermost layer consists of two rows of closely compressed small-celled parenchyma with contents of a brown colour. The tissue of the funiculus consists of loose parenchyma and some small vascular bundles; the parenchyma contains numerous starch granules.



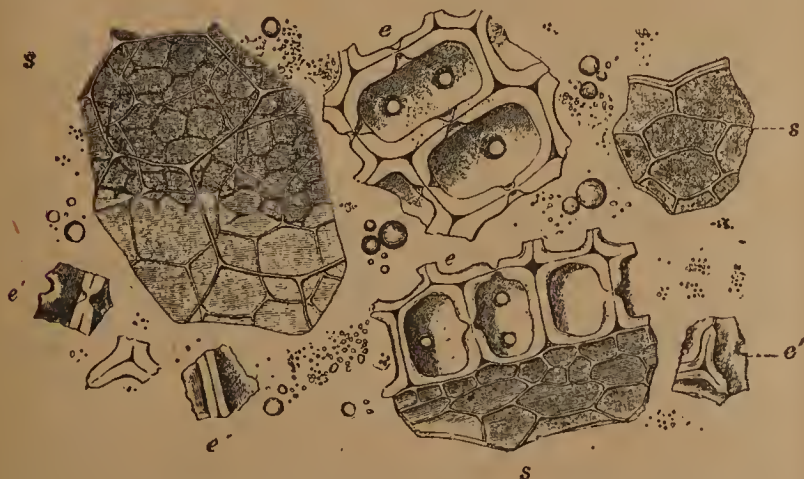
COLCHICI SEMEN.—Section, greatly enlarged. A. Embryo; B. Funiculus (after Berg).

Endosperm.—This consists of closely compacted radially arranged parenchyma; the cells near the centre are almost iso-diametric, but those near the periphery are most decidedly extended radially.



COLCHICI SEMEN.—Section: S. Integuments. E. Endosperm (after Vogl).

The cells are separated from each other by a very distinct middle lamella; they have very thick walls pierced by few, but large, circular perforations; they contain small aleuron grains and drops of oil.



COLCHICI SEMEN.—Powder: s. Fragments of integuments in section and in surface view. e. Fragment of endosperm tissue. e'. Fragments of endosperm cells. Between the particles of tissues are scattered globules of oil.

Embryo.—The small embryo is eccentric and in close contiguity to the integuments at the side opposite to the funiculus. It consists of cells decidedly smaller than those of the endosperm.

Distinctive Characters.—The distinct funiculus containing starch. The small eccentric embryo. The radially arranged thick-walled parenchyma of the endosperm; its middle lamella, and the large circular perforations in the cell walls; the cell contents of aleuron and oil.

DOES IT PAY THE PHARMACIST TO MAKE COMPRESSED TABLETS ? *

BY AMBROSE MUELLER, PH.G., WEBSTER GROVES, MO.

This question I shall answer affirmatively, and try to illustrate that it pays in more than one way. First, it pays to cater to the wants of physicians, and if they think that tablets are the best form in which certain remedies should be administered, it is our duty to dispense them as ordered. Again, if your physicians see that you are doing such work they will feel more confident that anything they may order will be attended to properly and promptly, and they will recommend you to their patients as a thorough pharmacist, and it will not be long until you feel the effect of such quiet recommendations.

Secondly, it pays to make them, from the same point of view that it pays to do your other pharmaceutical work, for if you want to be absolutely satisfied "that what you dispense is the article wanted" you must make it yourself, otherwise there might be a mistake, for which you are held responsible. Again, it is by keeping abreast with progress that we prevent degeneration of our calling, and if every pharmacist would make his own fluid extracts, extracts, pills, triturate and compressed tablets, etc., there would be no danger of manufacturing houses depriving us of our daily bread in supplying physicians with ready-made compounds. Stop to think—who is to blame for this state of affairs? Everyone knows it is the pharmacist himself, for if it had not been for his support such plants would not be in existence. Bear in mind, every specialty (proprietary secret remedy), that you buy means to reduce your professional profit, and every pharmaceutical preparation that you buy which you ought to make means to decapitate yourself as a professional man.

Thirdly, it pays from a commercial point of view, with compound interest. Analyse the cost of material, the very best quality, and you can save money by making up the stock that you are called on to dispense. Some few things may make it seem as though it would not justify you to do the work, but when you look deeper into the question you will agree that you are money out in buying your tablets. Again, look at the many tablets that have been put on the market, the true value of which is about ten to twenty-five cents per ounce, and the pharmacist must buy them and pay the fancy price of 1 dol. to 2 dol. per ounce. In short there is everything in favour of the pharmacist making tablets.

In conclusion, I may enumerate a few cardinal points:—

First. Study your machine so that you may become thoroughly familiar with all parts.

Second. Keep it always perfectly clean, well oiled, and the dies bright and free from rust.

Third. Have your material in finely granular form, or when the substances are very finely powdered, prepare a granulation by very slight moistening by spraying with water, alcohol, or ether, and also using such binding agents as necessary according to the nature of the material you wish to compress, and be sure always to pass it through a number twenty sieve before feeding it in the machine.

* Read before the Missouri Pharmaceutical Association. Condensed from a report in the *Western Druggist*.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

Pharmacists and the Pharmacopœia.

Dr. Tirard was assuredly ill-advised to attack pharmacists as he did at the close of his third lecture on the British Pharmacopœia, but it is impossible for ordinary pharmacists not to sympathise with him to some extent. The mistake he made was, by singling out for notice a particular passage in a leading article which appeared in the *Pharmaceutical Journal*, to associate himself, apparently, with those who oppose the views supported by the article quoted from. I am quite of opinion that pharmacists possessed of any sense of self-respect should decline to assist in the work of pharmacopœia revision, "unless they are to receive full recognition as co-workers on the Pharmacopœia Committee"; on the other hand, I am firmly convinced that it is a fundamental error to permit anyone to have a hand in the work of pharmacopœia revision who is personally interested in the fixing of standards. That is to say, I would exclude all but medical practitioners and pharmacists who are normally engaged in the practice of their respective professions from any share in the actual work of compiling the British Pharmacopœia. All wholesale druggists, whatever their personal qualification, should be regarded as ineligible for the performance of such an important duty, though due consideration might be given to expressions of opinion on their part. Their trade interests, however, are too closely affected to justify the General Medical Council in allowing them to have any voice in the fixing of standards, and, to that extent, Dr. Tirard is justified in directing attention to "the risks of trade competition, of trade influence, and the constant danger of introducing a standard which might create a monopoly." But he ought to discriminate between pharmacists, actually practising as such, and mere dealers in drugs, as the former can have no personal interest in the matter beyond that of desiring the requirements of the Pharmacopœia to be of a practicable nature.

The "British Medical Journal" and Pharmacists.

How utterly mistaken the editor of the *British Medical Journal* is in assuming that the letter addressed by the President of the Pharmaceutical Society to the President of the Board of Trade "marks the final and definite abandonment of the attempt to prohibit *in toto* the practice of pharmacy by limited companies"! Equally mistaken is the conclusion that "as a necessary corollary" there is any idea of abandoning "the intention once entertained of pressing that pharmaceutical chemists should be included in the medical clause which does go this length." Why, to my mind, the "pronouncement," as the oracle of the British Medical Association terms it, is but the first step in the direction of securing recognition of the principle that, in pharmacy as in medicine, it is essential, in the public interest, that duties which require a professional qualification should be restricted absolutely to individuals who possess that qualification. There is good reason for the belief that pharmacy and medicine must hang together in this matter; if one cannot be properly protected the other must remain equally unguarded. Full recognition of that fact would probably result in a successful issue, but the position taken up by that section of the medical profession which would protect itself without the least consideration for pharmacists must be stigmatised as one of unmitigated selfishness. Which is the most just and logical claim—that companies should not be permitted to do what individuals may not, or that companies should be prohibited from doing what individuals may do? The first is what pharmacists say is fair and reasonable; the second is what the Lord Chancellor has proposed in the interests of the medical profession. At present the practice of pharmacy is legislatively protected to some extent; the practice of medicine is not protected at all. Why should pharmacists submit quietly to a process of spoliation whilst acquiescing in a strengthening of the position of those who should be their natural allies, but

who will not lift a little finger to help them in their hour of need?

Division of the Minor Examination.

It is, I think, distinctly to the credit of the *Pharmaceutical Journal* that its columns are freely open to the discussion, by members of the Pharmaceutical Society, of the most important matters in connection with the administration of the Society's affairs. Only rarely, I believe, is that privilege withheld, and then only after the most careful consideration and a proper explanation to the writer of the excluded communication. How near the limits of what is permissible in the way of criticism correspondents may go is well illustrated by Mr. Flemming's letter in last week's issue, for the writer attacked a body of men who, by reason of their position, are unable to defend themselves, and apparently he was allowed a free hand in the choice of expressions. A protest must be entered, however, against his reference to "the unfairness of our qualifying examination" and to his implied suggestion that there cannot be "any moral sense or real personal kindness about our examining board." It is my impression that the manner in which the Minor examination is conducted has always been acknowledged—by those who are in a position to judge—to render it essentially one of the fairest professional examinations conducted at the present day. We have been given to understand—by Dr. Stevenson and other responsible persons—that every allowance is made for the confusion of nervous candidates, and that, unless his knowledge of any of the subjects approaches absolute zero, no one risks a single failure, let alone repeated ones. I, for one, am prepared to accept those assurances without question. So far as the moral sense of examiners is concerned, I fail to see what that should have to do with the question of testing the fitness of candidates to practise pharmacy, whilst real personal kindness is well-known to be more strongly manifested by the Society's examiners than any words of mine can possibly convey. It must be recognised that it is often the truest kindness to reject a candidate, for his own sake quite as much as that of the public whose representatives the examiners really are. And whatever view may be held regarding the desirability of dividing the qualifying examination, nothing but harm can result from imbuing candidates with the idea that examiners are their natural enemies, anxious to reject them at all costs, and filled with a sense of savage satisfaction when they break the record by the number of men they send back to their studies. The true position of affairs is the exact opposite, and a possible defect in the system of examination should not afford ground for abusing those whose duty it is to see that the legal requirements are fulfilled.

Pharmacists as Traders.

The compound rhubarb powder case decided by Mr. Baggallay, at West Ham Police Court, last week, comes as a curious commentary on the leading article published in the *Pharmaceutical Journal* of December 30. In that article it was urged—very properly, in my opinion—that, although the British Pharmacopœia is not legally a standard under the Sale of Food and Drugs Acts, it should be regarded by pharmacists as being morally so; the question was also offered for serious consideration whether, with due regard to the position of a pharmacist as a professional man, he should ever defend a case brought under the Sale of Food and Drugs Acts when—through accident or otherwise—an article supplied by him for medicinal purposes is not in accordance with the British Pharmacopœia. In the case referred to, the defendant pleaded that he had only recently acquired the business, and found the compound rhubarb powder in stock. After his attention had been directed to the matter, he examined the powder and found it contained magnesium carbonate in place of oxide. Those being the facts, it would be unreasonable, under the circumstances, to blame the defendant, but he would have been well-advised not to make the incorrect statement, attributed to him in the newspaper reports, that "most chemists" use the carbonate instead

of the oxide in making compound rhubarb powder. Such is not the case, and I have not the least hesitation in saying that any registered chemist who retails as compound rhubarb powder, or Gregory's powder, a mixture containing magnesium carbonate, is doing what is professionally wrong. Fortunately for the defendant in the case under consideration, the magistrate held that the case must be dismissed because the British Pharmacopœia is not a standard under the Sale of Food and Drugs Acts. That is quite correct, but it is a question whether the book is not a standard in common law for preparations defined therein, if asked for under the B.P. names or synonyms. Again, Mr. Baggallay was wrong in asserting that there is no Act of Parliament which makes the Pharmacopœia the standard for compounded drugs; the Pharmacy Act, 1868, so provides in its fifteenth section, whilst, under the Merchandise Marks Act, 1887, the B.P. would also probably be regarded as a standard for official preparations, the offence in such a case as that referred to being the application of a false trade description to goods. Dealing with the matter, however, under the Sale of Food and Drugs Act, 1875, the magistrate, in his wisdom, decided the case on a question of fact, and so the defendant is clear—fortunately, he will doubtless think, but perhaps unfortunately if the matter be regarded in a proper light. The difficulty of the situation appears to be the lack of a High Court decision as to what extent the British Pharmacopœia is a standard. It is undoubtedly a standard for its own preparations, under the Pharmacy Act, 1868, but the wording of the Section which makes it so has tended to make the law quite inoperative.

Prospects of Company Legislation.

Parliament is expected to be summoned for the Session of 1900 rather earlier than was at first thought probable, and the end of the present month may see the resumption of the two Houses. The prospect of "company" legislation is, naturally enough, being anxiously discussed both in pharmaceutical and commercial centres, whilst the wildest speculations are indulged in as to the probable attitude of the Government in respect to the problem. So far as the indications afforded by the public press may be relied upon, it would seem that the outlook is not particularly favourable to the passage of domestic reforms of the magnitude of the Companies Acts Amendment Bill. Evidence is not wanting that something like a ministerial revolt is in progress, so that if the disruptive elements in the opposite camp could be opportunely eliminated, and advantage taken of the situation, there is no saying what might happen—it might even precipitate a general election. The Government, as a matter of fact, cannot rely upon getting its full working majority during the coming session; for some five-and-twenty of its supporters are either already fighting the Queen's enemies in South Africa, or are on the eve of departing for that purpose. The Opposition does not suffer denudation in a like manner, and may possibly confine its bellicose faculties to fighting the Government at home. Now this state of things has a distinct bearing on the legislative hopes of chemists, for it may be that the chastening effects of present misfortune and the fear of future difficulties will render the Government more amenable to the representations of the Pharmaceutical Society than it has hitherto proved to be. Note will doubtless be taken by the Law and Parliamentary Committee of the Council that at least twenty-five constituencies will be disfranchised by the absence of members abroad, and that it will be useless labour to ask chemists in those constituencies to "bring pressure" to bear on their representatives. I would suggest that disfranchised chemists should notify the fact to the Secretary of the Society, so that the Law and Parliamentary Committee might, if it thought fit, devise a means whereby the views of chemists unrepresented in Parliament could be brought to the notice of the House. Whatever vigour in a parliamentary direction pharmacists are prepared to develop during the approaching Session, I hope it will all be expended on the enemy and not frittered away in mutual recriminations or abuse.

And, let me add, that vituperative references to persons prominently associated with the "limited company" interest are to the last degree puerile, however much they may relieve the mind. Registered chemists have a splendid case, and there is not a shadow of reason why they should utilise the forlorn hope of "abusing defendant's attorney."

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, JANUARY 10, 1900.

Present:—

Mr. WM. MARTINDALE, President.

Messrs. Allen, Atkins, Bateson, Carteighe, Corder, Cross, Glyn-Jones, Harrington, Hills, Park, Savory, Symes, Warren, and Young.

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

Report on the Examinations in Scotland.

The report of Dr. G. Balfour Marshall, the Government Visitor in Scotland, on the examinations of the Pharmaceutical Society held in Edinburgh during the past year, was laid upon the table by the Registrar, and is printed in full at page 29.

The Late Mr. Stanford.

The PRESIDENT, in opening the proceedings, said death had been very busy since the last meeting, and more than one prominent member of the pharmaceutical body had been taken from them. He would refer first to Mr. Edward Charles Cortis Stanford. He was a student and prizeman of the School of Pharmacy, and afterwards demonstrator in the laboratory under Professor Redwood. He took great interest in the chemistry of the products obtained from sea-weed, and was the founder of the British Sea-weed Co., which with the aid of the Duke of Argyll at one time was very successful. He was also a member and founder of the Pharmaceutical Conference, and was President at the Edinburgh meeting in 1892, and was connected with various learned societies. He took great interest in educational matters, and was Chairman of the Dalmeir School Board for many years. He was also well known for his genial *bonhomie*, and he (the President) was sure it would be the wish of the Council that he should write a letter of sympathy to the family.

Mr. ATKINS wished to bear testimony to the estimable character of the late Mr. Stanford, whom he had known during the greater part of his life. The President had ably referred to the scientific attainments of the deceased, but he (Mr. Atkins) wished to bear testimony to his extreme geniality. He was a man of exquisite humour. With regard to the sea-weed enterprise to which the President had referred, there was one aspect of his life that was worth noting. During Mr. Stanford's connection with the people in the Western Islands he collected a very large amount of folklore, and deeply interested himself in educational work among the fisherfolk of those islands.

Dr. SYMES said he had known the late Mr. Stanford for a number of years. He had always been a thoroughly loyal member, not only of the Society, but also of the Conference, and had done a great deal of original work.

The late Mr. Andrew Thompson.

The PRESIDENT said he had also to draw attention to the death of the late Andrew Thompson, of Carlisle. He was a pharmaceutical chemist of the old school, who, up to the last, kept himself abreast of what was going on in the science of pharmacy. For several years he was local secretary to the Pharmaceutical Society, and he was an occasional visitor at the Conference meetings. He also took an active part in pharmaceutical politics, and on the occasion of Mr. Carteighe's campaign in the North, Mr.

Thompson took the chair at a meeting which was held in Carlisle. He was well known in that city, where he occupied several civic offices. He was a man of unassuming, genial manners, and might be termed one of nature's gentlemen. Having himself been his pupil for about three years, he might say that he was a most kindly-hearted man, and he felt that he had lost an old friend.

The Late Mr. Richardson.

The PRESIDENT said he had also to report with great regret the death of one of their colleagues, Mr. John G. F. Richardson, of Leicester, at the age of 65. He was a life member of the Society and for sixteen years, viz., between 1879 and 1895—when his health failed—he served the Society as a member of the Council. Most of those present were associated with him as a colleague during some portion, at any rate, of that period, and could personally speak of the interest he took in all matters affecting pharmaceutical education generally, and that portion of it carried on at 17, Bloomsbury Square in particular. That was perhaps to be expected from a pharmacist who was one of the early students of the School of Pharmacy, and who had substantial reasons for entertaining a sense of gratitude for the knowledge acquired there. Mr. Richardson took a very active part in the Volunteer movement, and held the rank of lieutenant-colonel in that organisation, though he was generally known by the familiar title of "the major." He was sure they would all join in passing the resolution "That this Council learns with regret of the death of Mr. J. G. F. Richardson, of Leicester, an old member of the Council, and desires to tender its sympathy with his family in the loss they have sustained."

The resolution was carried unanimously.

New Year's Honours.

The PRESIDENT proposed that the congratulations of the Council should be forwarded to Sir Thomas Lauder Brunton on his attaining the honour of knighthood. Sir T. Lauder Brunton had taken an active part in all matters connected with materia medica. He was a member of the Society's Research Committee, and had also taken an interest in the efforts of the Society to get an amendment of the Companies Bill.

Election of Members.

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

Allan, Alexander; Glasgow	Leslie, William; Haddington
Bailey, Daniel Jennings; Blackpool	Livesey, Geo. Samuel T.; Leeds
Bambrough, Wilfrid Ernest; London	Lockhart, John; Glasgow
Barnes, Arthur Swaby; Dudley	Lubbock, John William; Spitalfields
Bell, John Rowell; Dunston-on-Tyne	McGregor, Donald; Calcutta
Bell, William James; North Shields	McGregor, James; Calcutta
Bills, Albert James; Stourbridge	Madden, Ronald George; Hackney
Black, William Reynolds; Shipley	Marfitt, George Edward; Leicester
Bower, Frederic Riseley; Cinderford	Martin, John Woolcock; Ashburton
Brice, Frede. Gratton; South Wigston	Massie, John; Brora
Bromfield, John; Hull	Mellor, R. John; Hemel Hempstead
Carter, Charles Edward; Bradford	Mitchell, John; Eastbourne
Carter, William; Oswestry	Newton, Alfred; Walford
Chadwick, Thos. Bentley; Blackburn	Nicolson, Allen Macdonald; Wigtown
Chalmers, James; Kelty	Old, Herbert Ashman; Aldershot
Clegg, Harry Brook; London	Oldroyd, George; Halifax
Cockle, William Henry; King's Lynn	Perrett, Henry John; London
Coltart, John Alexander; Warwick	Pickering, Charles Edward; Hornsey
Count, Sydney; King's Lynn	Prebble, Ernest; Liverpool
Davis, Oliver Chas. Minty; Bristol	Reith, John Reid; Culter
Downar, Frederick William; London	Rickarby, Arthur George; Canterbury
Egginton, John Tertius; Sedgley	Robins, Harry Hollies; Forest Gate
Farr, Minnie; Leamington	Robinson, Bernard C.; Liverpool
Fawthrop, James; Cross Gates	Robinson, C. H.; Market Weighton
Findlay, John; Portobello	Scholefield, William E.; Luton
Ford, Wm. Crossley; Camdeu Town	Shearman, Christopher W.; Cambridge
Foster, Frederick; Birmingham	Smith, Eliza Mary; Fulham
Gilmour, James Pinkerton; Glasgow	Spencer, Rosa Kathleen; Birmingham
Goy, William Henry; Clapham	Spooner, W. Cushing; Lavender Hill
Griffith, Matthew Henry; Rushden	Stedman, C. R.; St. Leonard's-on-Sea
Guthrie, John; Rangoon	Stoneman, John Edey; Kennington
Hadden, Alexander; Ballater	Suttie, Robert; Cambuslang
Hall, Jasper Longsdon; Solihull	Symington, James M.; Inverness
Hall, John; Ashton-under-Lyne	Taylor, Joseph John; Ashford
Handford, Joseph John; Torrington	Tiltman, William John; Highbury
Harding, Christmas; Clerkenwell	Toon, Lionel Edward; Hay
Harries, Frank Reginald N.; Bayswater	Turner, John H. W. R.; Rotherham
Hines, Henry Thomas; Holloway	Turney, Herbert B.; Maidstone
Hogarth, John Tom; Morpeth	Warner, George Oram; Berkeley
Jeanes, Richard; Newport	Warner, Matthew Richard; Warrington
Jenkins, John; Norwood	Watkins, Archibald G.; Brecon
Kelly, Albert Edward; Edinburgh	Weir, Alexander; Belfast
Kirkland, Arthur; Balham	Worth W.; Kingwilliamstown, S.A.

Election of Student-Associates.

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

Atkinson, Richard Jowett; Bradford	John, John Jenkin; Llanpumpsaint
Avery, Cuthbert Johnson; Birmingham	Jones, Rees Trevclyan; Bridgend
Bourne, C. W. K.; West Bromwich	MacNaught, Archibald H.; Greenock
Buchanan, Lizzie; Kirriemuir	March, Frederick William; Thrapston
Campbell, Duncan; Douglas	Martin, Clarence Win.; Colechester
Chambers, George Henry; Eastwood	Matthaei, Maximilian J.; London
Clark, John Barton; London	Meadows, William Ross; Ilford
Colebrook, Donald; Plumstead	Miller, Alfred Edward; Bath
Collitt, Bernard; Gainsborough	Oddie, Major Sidney; Banbury
Cruickshank, George M.; Turiff	Overend, Frank; Holmfirth
Davies, David Augustus; Whitland	Perry, Wallis Bennett; Basingstoke
Edgar, Allan Herbert; Kennington	Pickup, Ralph; Blackburn
Evans, Arthur Morgan; Colwyn Bay	Prichard, Thomas John; Clynog Fawr
Fellows, Hugh; Dudley	Sidebottom, Walter; Accrington
Futty, Alfred; Scarborough	Smalley, Charles; Halifax
Galbraith, Sarah A.; Wolverhampton	Smith, Harold; Lockwood
Gates, Wilfrid; Rochester	Spencer, John Ernest; South Shields
Gibbins, Richard Ernest; Derby	Steel, Joseph Andrew; Haswell
Gittings, Arthur Henry; Bilston	Stephenson, John Harry; Nuneaton
Gorrie, Peter; Edinboro'	Tasker, Walter Arthur; Goole
Haycock, John; Leicester	Treacher, Allen S. John; Tonbridge
Hedley, Joseph William; Durham	Tucker, Alfred Burnard; Honiton
Herbert, Auberon; Reading	Tugwell, Percival Thomas; Brighton
Higgins, Frederick Samuel; London	Turner, Levi; Mellor Brook
Hinchliffe, Frederick; Lower Weston	Uttley, John Edward; Hull
Hodgson, Harold Fredk.; Streatham	Wain, George Gardner; Boscombe
Iredale, Tom; Workington	Westlake, Ethel Maude; Windsor
Jackson, Ewart Gladstone; Newcastle, Staffs.	Wright, John William A.; Bradford
	Wynn, Alfred; Walworth

Restoration to Register.

The name of the following person, who has made the required declaration and paid a fine of one guinea, was restored to the Register of Chemists and Druggists:—

Walter Atkinson, 323, Penistone Road, Sheffield.

Addition to Register.

The Registrar reported that

Thomas Beutley Chadwick,

having made a declaration that he was in business as a chemist and druggist prior to the passing of the Pharmacy Act, 1868, and these declarations having been duly supported, his name had been placed on the Register.

Restorations to the Society.

Several persons were restored to the Society upon payment of the current year's subscription.

Dispensing by Unqualified Persons.

Mr. GLYN-JONES said that, early last year, the question of dispensing by unqualified persons was deferred until the General Medical Council had reported. Now that the General Medical Council had reported, he wished to ask whether the Council would again take up the question.

The PRESIDENT said he could not answer the question off-hand.

Mr. CARTEIGHE said the question was before the General Purposes Committee, and would come up as a matter of course.

Finance.

The report of this Committee recommending the payment of certain accounts was read.

The PRESIDENT, in moving the adoption of the report and recommendations, said there was a balance in hand of £886 10s., which showed a more satisfactory state of affairs than usual at that time of year. It would not, however, be sufficient to meet the requirements of the current month, but money would be coming in from members and from advertisements, and he hoped they would be able to get on without asking for any advance from the Bank.

The resolution was passed unanimously.

Benevolent Fund.

The report of this Committee recommended the grant of £111 in the following cases:—

The widow (70) of a registered chemist and druggist who died in 1875. Applicant has had fourteen previous grants. (Forest Gate.)

The widow (66) of a chemist and druggist, who has had four previous grants. (London.)

The widow (76) of a chemist and druggist and subscriber, who has had three previous grants. (Worcester.)

The widow (61) of a pharmaceutical chemist, who died in 1897; applicant has had two previous grants. (London.)

A registered chemist and druggist (80), who has had four previous grants, and is bedridden from paralysis. (Cheltenham.)

A registered chemist and druggist (76), who has had six previous grants. (London.)

A former member and subscriber (65), who was in business for thirty-one years, but had to retire from ill-health. (London.)

A registered chemist and druggist (71) and occasional subscriber, who has had several previous grants and was an unsuccessful candidate at the recent election. (Liverpool.)

A pharmaceutical chemist member (74) since 1853, and subscriber for many years; also an unsuccessful candidate at the election. (Seacombe.)

One case was deferred and another was not entertained.

The Secretary had reported the death of two annuitants, viz., Mary Wavell, of Brighton, on December 14, aged 73, and William Copney, Lavender Hill, on December 22, aged 78.

Mr. ATKINS moved the adoption of the report and recommendations. He said there were eleven cases before the Committee, of which nine were relieved and one was deferred. To the two unsuccessful candidates at the recent election the Committee had made grants of £20 each, which was rather more than usual, but the Committee carefully considered the cases with the advantage of the local knowledge of Dr. Symes, and there was reason to believe that with some other assistance those two gentlemen would be able to tide over till next year, when he hoped they would be elected to annuities. Two annuitants had died, viz., Mrs. Wavell, who was elected in 1893, and Mr. Copney, who was elected in 1889. There was something very pathetic about the death of the latter, his wife having predeceased him by one day only, and they were both buried in the same grave. The Committee had a very interesting account from the Secretary of a visit he had paid to Mr. and Mrs. Copney, from which it appeared that the grants made for the last ten or eleven years had been of very great service. Mr. Copney was a man of singular gifts and attainments, and altogether his history was well worth studying. He might add that he had received from Nottingham a cheque for £1,000 from the estate of the late Mr. Waterall, with regard to which a resolution would be moved. He might also say that he had invested the balance of £753 11s. 5d. which was in hand at the end of the year on Benevolent Fund donation account to which he had added £211 18s. 4d. from the current account, in the purchase of £950 Consols.

The report and recommendation of the Committee were unanimously adopted. It was also resolved that the President, Vice-President, Treasurer, Messrs. Carteighe and Hills be appointed a Committee to consider and report on the best method of carrying out the conditions attaching to the Waterall legacy.

Library, Museum, School, and House Committee.

The PRESIDENT moved the adoption of the report of this Committee, which stated that the Librarian had furnished his usual report, including the following particulars:—

Attendance.	Total.	Highest.	Lowest.	Average
November	466	37	7	18
Circulation of Books.	Total.	Town.	Country.	Carriage Paid.
November	147	85	62	11s. 5½d.

Several donations to the Library and Museum had been received (see *P.J.*, December 16 last, p. 586), and the Committee had directed the usual letters of thanks to be sent to the respective donors.

The Committee recommended that the undermentioned books be purchased for the Library in London:—

- Parry, Chemistry of Essential Oils, 1899.
- Letters of Faraday and Schoenbein, 1899.
- Charbot, Dupont, and Pillct, Les huiles essentielles, 1899.
- Bruhl, Chemie der sechsgliedrigen heterocyklischen Systeme, 1899.

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

Attendance.	Total.	Highest.	Lowest.	Average
November	345	33	4	13

Mr. GLYN-JONES said he should feel it necessary to vote against the adoption of the report, for the reason that he had not been able to follow it.

Mr. BATESON, as a member of the Committee, asked if Mr. Glyn-Jones would point to any single item that he did not understand.

Mr. GLYN-JONES said one thing which caught his ear was something which dealt with the closing of the Museum. With reference to the election of members and the Benevolent Fund Committee he had been furnished with information, for which he was grateful, as it enabled him to take an intelligent interest in the report, and he thought the same thing ought to be done with this Committee.

The PRESIDENT said the Committee had ordered that in future and until further notice the Library and Museum in London should be closed at 6 p.m. on every day except Saturday. That had been found to be desirable.

Mr. GLYN-JONES said he did not question that at all, but it was the only thing he had been able to understand while the report was being read.

The motion for the adoption of the report having been put and carried with one dissentient,

Dr. SYMES suggested that Mr. Glyn-Jones should be placed on the Library, etc., Committee.

Mr. CARTEIGHE said that was not the question raised by Mr. Glyn-Jones. The question had been already raised by Mr. Glyn-Jones and discussed, and he thought Mr. Glyn-Jones ought to have waited until the end of the current session before again raising it.

Mr. GLYN-JONES said he merely gave it as his reason for voting against the adoption of the report.

Superintendent and Deputy-Superintendent of Written Examinations.

Mr. STRACHAN, of Aberdeen, was appointed Superintendent, and Mr. John Cruikshank Deputy-Superintendent of Written Examinations for the current year.

Company Trading.

Mr. GLYN-JONES said the agenda for the day contained an item, "Report of the Law and Parliamentary Committee," but he understood there was no report to be presented. He wished to know if he would be in order in moving that the Law and Parliamentary Committee be asked to present a report to the next meeting of the Council.

The PRESIDENT said the agenda was printed before the meeting of the Law and Parliamentary Committee; at the meeting the Committee decided not to report. Mr. Glyn-Jones might make the motion he suggested, and if it were seconded and carried, the Committee could take what steps it liked about it.

Mr. GLYN-JONES then moved that the Committee be asked to present a report at the next meeting of the Council. He did so because he thought the members of the Society and the Council were expecting, and rightly, that the Committee should report. The hands of the members of the Council were tied until the Committee chose to report. There was a very definite reference to the Committee to draft a clause, and he thought the majority of the members would be expecting that the Committee would report to the Council with a clause, or else say they did not think it wise to draft one, or had not been able to do so. He did not think all action should be stayed at the mere pleasure of the Committee. He, for one, should like an opportunity, when that report was presented, of protesting strongly against certain things the Committee had done.

The motion was not seconded.

Carbolic Acid.

Dr. SYMES asked if any reply had been received from the Privy Council with reference to carbolic acid. People were still being poisoned by it.

The PRESIDENT said not yet.

Mr. CARTEIGHE said he had reason to believe that the matter was being attended to.

Correspondence.

The SECRETARY announced that the following resolutions had been communicated to the Federation, and forwarded by Mr. J. Cocks :—

1. Oxford and District Chemists' Association, adopting suggestions 1 and 3 of the Federation Circular, with the addition that the manager's name should be on the facia and labels.

2. Aberdeen Pharmaceutical Association, declaring that titles should be protected, and that practice by companies of unqualified persons should be illegal.

3. Crewe Chemists, stating that opinions are divided, but that the majority favours suggestion No. 1 of the Federation Circular.

4. Exmouth Chemists, supporting suggestion No. 1.

The following resolutions had been forwarded direct to the the Secretary :—

From the Newcastle-on-Tyne and District Chemists' Association, expressing the opinion that carbolic acid, strong mineral acids, butter of antimony, acetate of lead, sulphates of copper and zinc, oxalates and strong solution of ammonia ought to be added to Part II. of the Poison Schedule.

From the Hull Chemists' Association, expressing the opinion that no company should practise pharmacy or use titles unless all the directors and controlling shareholders are qualified.

From the Western Chemists' Association (of London), expressing the opinion that, if it is not feasible to restrain all companies from keeping open shop, legislation should be directed to :—

1. Prohibiting the use of titles by companies.
2. Providing qualified control for all "open shops."

Mr. HILLS asked that the actual resolution passed by the Western Chemists' Association should be read. He objected to an epitome which he thought did not correctly represent the resolution.

The SECRETARY therefore read the resolution as sent to him. It has already been published in the *Pharmaceutical Journal* (see last volume, p. 619).

General Purposes Committee.

The Council went into Committee, as usual, to hear and consider the report of this Committee. On resuming, the report and recommendations were unanimously adopted, and special resolutions passed authorising the Registrar to take proceedings against the persons named.

Death of Mr. Daniel Frazer.

As the Council was rising, a telegram was received announcing the death of Mr. Daniel Frazer, a former member of the Council.

EXAMINATIONS IN EDINBURGH.

January, 1900.

MINOR EXAMINATION.

Candidates examined	97
„ failed	58
„ passed	39

Appleton, John Thompson
Bell, William James
Booth, Fred Soutar
Carr, Hugh Livingstone
Colson, Thomas William
Duncan, Douald
Elder, David
Forsyth, Richard Patterson
Gilchrist, John
Heap, Robert Edwin
Hodgson, Edgar
Hogarth, John Tom
Holmes, Alexander
Hunter, John

Innes, George
Jackson, Robert
Kelly, Albert Edward
Lightbourne, James Ashbourne Archibald
Low, John Grieve
McLean, Alexander Bennett
McLees, John Prentice
Martin, Thomas Stewart
Nimmo, William
Penman, David
Prince, Henry Clifford
Quinn, Gerald
Ritchie, David Wilson

Robb, David Wallace
Ross, Hugh
Scott, Thomas
Selby, William Tordiff
Taggart, Charles John Alexander
Taylor, John Edward Brownlow

Thomson, Robert
Thomson, Thomas
Turner, David
West, Harold
White, Thomas Keachie
Wilson, James Sayburn

FIRST EXAMINATION QUESTIONS.

First Paper.

January 9, 1900, from 11 a.m. to 12.30 p.m.

LATIN.

1. FOR ALL CANDIDATES. Translate into Latin :—

1. The journey was very pleasant.
2. He was fearing the anger of the sailors.
3. The fifth legion had been sent into Britain.
4. He goes away to consult the oracle.
5. It is certain that Cicero will be heard.

2. Translate into English *either* A (Caesar) or B (Virgil).

A.—CAESAR.

1. Flumen est Arar, quod per fines Aeduorum et Sequanorum in Rhodanum infuit, incredibili lenitate, ita ut oculis, in utram partem fluat, judicari non possit. Id Helvetii ratibus ac lintribus junctis transibant. Ubi per exploratores Caesar certior factus est, tres jam partes copiarum Helvetios id flumen transduxisse, quartam vero partem citra flumen Ararim reliquam esse: de tertia vigilia cum legionibus tribus e castris profectus, ad eam partem pervenit, quae nondum flumen transierat. Eos impeditos et inopinantes aggressus, magnam partem eorum concidit: reliqui sese fugae mandarunt atque in proximas silvas abdidierunt.

2. Haec quum animadvertisset, convocato consilio, omniumque ordinum ad id consilium adhibitis centurionibus, vehementer eos incusavit: primum, quod aut quam in partem, aut quo consilio ducerentur, sibi quaerendum aut cogitandum putarent. Ariovistum, se consule, cupidissime populi Romani amicitiam appetisse: cur hunc tam temere quisquam ab officio discessurum judicaret? Sibi quidem persuaderi, cognitio suis postulatis, atque aequitate conditionum perspecta, eum neque suam neque populi Romani gratiam repudiaturum.

GRAMMATICAL QUESTIONS.

(For those only who take Caesar.)

1. Give the genitive singular, Latin and English, and the gender, of the following nouns:—*agmen, bonitas, conatus, domus, jus, latus, manus, salus.*
2. Give the principal parts of all the verbs in passage 2.
3. Account for the moods of *animadvertisset, ducerentur, appetisse.* (Passage 2.)
4. Write in Latin—*twenty-one, thirty-sixth, twenty years old, one thousand soldiers, three thousand soldiers, one-third, four times, 476 B.C.*

B.—VIRGIL.

1. Hinc portum petit, et socios partitur in omnes. Vina, bonus quae deiude cadis onerarat Aestes Littore Trinacrio, dederatque abeuntibus heros, Dividit, et dictis moerentia pectora mulcet: "O socii! neque enim ignari sumus ante malorum; O passi graviora! dabit Deus his quoque finem. Vos et Scyllaeam rabiem, penitusque sonantes Accestis scopulos: vos et Cyclopiæ saxa Experti. Revocate animos, moestumque timorem Mittite: forsan et haec olim meminisse juvabit."

2. Hoc primum in luco nova res oblata timorem Lenit: hic primum Aeneas sperare salutem Ausus, et afflictis melius confidere rebus. Namque, sub ingenti lustrat dum singula templo Reginam opperiens, dum, quae fortuna sit urbi, Artificumque manus inter se, operumque laborem, Miratur, videt Iliacas ex ordine pugnas, Bellaque, jam fama totum vulgata per orbem, Atridas, Priamumque et saevum ambobus Achillem.

GRAMMATICAL QUESTIONS.

(For those only who take Virgil.)

1. Give the genitive singular, Latin and English, and the gender, of the following nouns:—*Achilles, aequor, biremīs, conspectus, famulus, jus, mensis munus.*
2. Give the principal parts of all the verbs in Passage 1.
3. Parse fully—"Hic primum Aeneas sperare salutem ausus." (Passage 2.)
4. Write in Latin—*twenty-one, thirty-sixth, twenty years old, one thousand soldiers, three thousand soldiers, one-third, four times, 476 B.C.*

Second Paper.

January 9, 1900, from 12.30 p.m. to 2 p.m.

ARITHMETIC.

(The working of these questions, as well as the answers, must be written out in full.)

1. From the product of 709 and three hundred and four thousand and sixteen subtract one hundred and eleven thousand two hundred and ninety-four. (Answer in words.)
2. When tea is 2s. 3d. a pound, I buy 5 cwt. 3 qr. How much could I have bought with the same money if tea costs only 1s. 1½d. per lb.?

3. What fraction of one ton must be added to $\frac{9}{17}$ of $\frac{51}{702}$ of 4 cwt. 3 qr. to make $\frac{5}{7}$ of $2\frac{1}{2}$ of $83\frac{5}{17}$ lb.?
4. Write as a vulgar fraction in its lowest terms:—
($7.35 \times .0143 \div 7.5075$)—($152 \times .033 \div 1.045$).
5. If 3 cwt. of hay feeds 14 ponies for $4\frac{1}{2}$ days, how many horses will 9 cwt. feed for three days, if 2 horses eat as much as 3 ponies?
6. A plumber sold 96 cwt. of metal for £109 2s. 6d., and gained at the rate of $12\frac{1}{2}$ per cent. What did it cost him per cwt.?

The following question must be attempted by every candidate:—

7. A man starts along a road and walks 5328 metres, then 74 hectometres, then 2 kilometres, then 943 decametres. Find, approximately, how many yards further he will have to walk to complete 30 kilometres.

Third Paper.

January 9, 1900, from 3 p.m. to 4.30 p.m.

ENGLISH.

1. Analyse:—
"Could Nature's bounty satisfy the breast,
The-sons of Italy were surely bless'd."
 2. Distinguish between a *transitive* verb and an *intransitive* verb. Name two verbs that may be used transitively and intransitively.
 3. Correct the following sentences, giving your reasons:—
(a) He is one of those men who is never satisfied.
(b) Who can this telegram be from?
(c) Neither he or his sister are going.
 4. In the following passage, supply the necessary capital letters, and put in the stops and the inverted commas where necessary:—ship ahoy shouted the officer in charge of the boat as they drew within hailing distance of the vessel hulloa returned the mate who was leaning over the taffrail abaft the mainmast what's the trouble plenty I can assure you the warder said shortly it need hardly be stated that the little humour he possessed before approaching the schooner had speedily evaporated on witnessing the crews demeanour.
- The following question must be attempted by every candidate:—
5. Write a short Composition on one of the following subjects:—
(i.) International Exhibitions.
(ii.) The Civil War in the reign of Charles I.
(iii.) Our Colonies.
(iv.) Your Favourite Occupation.

REPORT ON THE EXAMINATIONS IN SCOTLAND.

The following report on the Examinations of the Pharmaceutical Society, held in Edinburgh during the past year, has been presented to the Privy Council by Dr. G. Balfour Marshall, the Government Visitor for Scotland:

[Copy.]

19, Sandyford Place, Glasgow,
6th December, 1899.

Report on the Examinations of the Pharmaceutical Society held in Edinburgh during the year 1899.

To the Lords of the Council.

My Lords,—I have the honour to report that examinations were held in Edinburgh during the months of January, April, July, and October, 1899, by the Board of Examiners of the Pharmaceutical Society. I was present on fifteen occasions, and beg to submit the results of both the Major and Minor examinations:—

Major Examination.

	Number.	Percentage.
Candidates examined	3	—
Candidate who passed	1	33.3
Candidates who failed	2	66.6

Rejected Candidates.

Failed in practical work.....	1
Failed in botany	1

REMARKS.—It is very regrettable that only three candidates should have presented themselves for this "honours" examination, as it shows that amongst the large number of pharmacists there are very few who aspire to the higher title of "pharmaceutical chemist," with the extra privileges which it confers upon them.

Minor Examination.

	Number.	Percentage.
Candidates examined	484	—
Candidates who passed	175	36.15
Candidates who failed.....	309	63.84
Three candidates entered, but did not present themselves for examination.		
<i>Rejected Candidates.</i>		
(A) Candidates who failed in practical work on the first day, and were not admitted to oral examination ..	175	36.15
Failed in practical chemistry	64	13.22
Failed in practical pharmacy	41	8.47
Failed in both above.....	70	14.46
(B) Candidates who passed in practical work, but failed in the oral examination	134	27.68
Did not appear for oral examination	1	—
Failed in botany	50	—
Failed in oral chemistry and physics	35	—
Failed in materia medica	9	—
Failed in prescription reading.....	8	—
Failed in oral pharmacy.....	21	—
Obtained marks in each subject, but failed in the aggregate.....	17	3.51

The practice of stopping a candidate whenever he fails in any part of the oral examination makes it impossible to give a percentage of the rejections in each subject. Candidates were examined on the basis of the new Pharmacopoeia of 1898, which came into force last January.

REMARKS.—There is again a slight improvement in the percentage of passes. The number of failures is, however, too large, many of the candidates presenting themselves over and over again; and this is only likely to be remedied by students taking more advantage of the existing schools of pharmacy throughout the country, or by the introduction of a compulsory curriculum, which would insure thorough systematic training.

PRACTICAL CHEMISTRY AND DISPENSING.—There is an improvement in practical work, the rejections in these subjects being over five per cent. fewer than last year. It is also evident that more attention is being given to practical training, as students appear more familiar with the apparatus in common laboratory use.

Students frequently show imperfect practice in qualitative analysis, the cause of failure being that the candidate does not properly observe the reactions taking place—e.g., calling a brown precipitate black, or accepting as a precipitate what is merely a colour reaction. This leads to the substance in question being mistaken, and not infrequently tests which would be confirmatory, or show their error, are written down from memory instead of being practically tried.

CHEMISTRY AND PHYSICS.—The only points to which special attention might be drawn are, that candidates should show more experience in the working of chemical sums and more familiarity with the barometer, thermometer, and chemical balance.

BOTANY.—This accounts for over 37 per cent. of the failures in the oral examination. Students appear to give least attention to this subject and many show that they have no practical acquaintance with those plants specially indicated in the syllabus. They should recognise that it is not sufficient to acquire a knowledge of botany from books alone, and that the plants themselves must be handled and studied if a satisfactory appearance is to be made at the examination.

EXAMINERS.—Three new examiners have been appointed this year, vice Mr. Thomas Maben, resigned, and Messrs. Ewing and Nisbet, whose term of office has expired.

I am able to express entire satisfaction with the manner in which the examiners performed their duties.

I have the honour to be,
My Lords,

Your obedient servant,
G. BALFOUR MARSHALL.
Visitor.

LETTERS TO THE EDITOR.

The B.P. Preparations of Ipecacuanha.

Referring to the Annotation in the Journal for December 30 (p. 633), commenting on my notes on the B.P. preparations of ipecacuanha, I beg to state that the figures relating to the liquid extracts were obtained and checked by the official process. Several other determinations were made, using Wilson's and Naylor and Bryant's processes respectively, but I did not publish the results of those, as I was not attempting to enter into the various merits or demerits of the different processes. As there is not an official process for the Wine, those were assayed by Naylor and Bryant's process and the results of each operation checked. In two cases the makers of samples were communicated with, and their results tallied with those published. I have not the slightest hesitation in believing that the results are absolutely as reliable as the processes will allow. They were made in Messrs. Duncan, Flockhart, and Co.'s laboratories by the firm's analyst, who is almost continually making alkaloidal determinations.

Edinburgh, January 4, 1900.

R. GLODE GUYER.

Liquor Bismuthi.

Mr. Dudderidge appears to have entirely overlooked the essential point in our paper on liquor bismuthi. We pointed out that the imperfection in the B.P. formula lies in the fact that it orders less potassium citrate than is necessary for converting the bismuth nitrate into bismuth citrate, as it assumes a degree of purity in the potassium citrate not met with in commerce, and not even expected by the characters and tests for that salt mentioned in the B.P. We also showed that the deficiency in alkali is not of much importance provided the citric acid is in excess.

Mr. Dudderidge refers us to a paper read by himself at the Plymouth Conference, in which he recommends the following three modifications:—(1) Non-dilution until after formation of citrate; (2) Reversing the order of mixing; (3) Increasing the quantity of potassium carbonate. We will discuss the first separately, the other two conjointly, (1) MacEwan, in 1886, pointed out the inadvisability of excessively diluting the solution of bismuth in nitric acid previous to the formation of the citrate. (2 and 3) Mr. Dudderidge cannot lay claim to have first suggested that an increase of potassium carbonate is an advantage. It is easy to see that by increasing the amount of alkaline carbonate there will be less likelihood of forming basic nitrate of bismuth, and less loss of bismuth sometimes than at others, owing to the variability in the quality of commercial potassium citrate; but we are unable to see that the quantity of bismuth citrate can be increased thereby, as Mr. Dudderidge's paper would lead us to believe, if a sufficient quantity of the citric radical is not present to produce the increased quantity, or that loss of bismuth is prevented by reversing the order of mixing, one of the features for which we understand Mr. Dudderidge claims *priority of publication*, and which no one will question.

It would be interesting to know (a) whether Mr. Dudderidge, after having increased the amount of potassium carbonate, tried mixing the liquids as mentioned by the B.P.; (b) whether he determined the amount of bismuth in the finished liquor and in the wash liquid; the little or no loss which he speaks of, after filtering the hot liquid containing the bismuth citrate and washing the latter with hot water, does not accord with our experience. Considering the above we fail to see that Mr. Dudderidge can substantiate his claim to have improved and simplified the process for making liquor bismuthi. We do not lay claim to originality in our work, as any chemist who would seriously take the matter in hand could not avoid coming to the conclusion we did; all we claim to have done is to point out where the B.P. formula is deficient; the remedy of course was obvious, and we suggested a general method for using any alkali together with citric acid, an article

which is of comparatively constant purity. If Mr. Dudderidge considers our formula an unnecessary departure from the B.P. text, it will be easy for him to calculate the required quantity of potassium citrate, and the *correct* amount of potassium carbonate. This may satisfy his conscience. We suppose that chemists who cannot follow the simple process given in our paper would buy the liquor. Finally, our departures from the admittedly imperfect B.P. formula are precisely those improvements necessary for the rapid and economical preparation of a solution which will be in conformity with the B.P. characters and tests.

We really cannot think that Mr. Dudderidge gave serious consideration to our paper before writing the letter published in your last week's issue.

Liverpool, January 8, 1900.

R. C. COWLEY.

J. P. CATFORD.

Petroleum Ether.

I live in a provincial town of about 12,000 population. There is one wholesale drug house for four counties, which cannot supply the above because insurance companies do not allow of their stocking it. London firms cannot supply because railway companies object to carry. Will any pharmacists in a similar position kindly suggest how the difficulty may be overcome?

January 10, 1900.

ON THE SQUARE (16/37).

Chemists and Camwal.

It having been pointed out to me that my letter appearing in *P.J.* of December 30, 1899, might be read as constituting a charge that the Camwal Company has supplied its mineral waters to other persons than registered chemists, I beg to point out that my letter does not state that, nor do I wish that inference to be drawn. The dealers in those goods who are not chemist-members have probably obtained the same from such chemists, and my letter has been written, not for the purpose of causing any inconvenience to the Camwal Company, but with a view to obtaining suggestions from my brother chemists generally as to the best means of dealing with such retailing, which in this part of the West Riding of Yorkshire, at any rate, is doing great injury to chemists like myself who deal with and sell the goods of the Camwal Company. I shall be glad to hear suggestions from chemists as to what steps ought, in their opinion, to be taken.

Halifax, January 10, 1900.

CLEMENT FIELDING.

Division of the Qualifying Examination.

If his opinions upon matters pharmaceutical are to have due weight given to them, I think "An Ordinary Pharmacist" ought to sign his articles with his name. Second, and more particularly, he says in effect, division of the qualifying examination is a subject about which very little interest has been manifested recently. He quotes my letter published in the Journal of December 29 to support his statement. If he re-reads my letter he will find that the complaint as to want of interest refers not to the question of division but to the suggested reform in examination procedure, whereby a candidate might be allowed to have placed to his credit, at a second examination, the subjects in which he satisfied the examiner previously. The interest regarding division, I would suggest in passing, is more widespread and nearer the sphere of practical politics than "An Ordinary Pharmacist" seems willing to believe. And third, whilst prepared to demand a higher standard in the event of division, surely no one can intend seriously to follow the lead of this guide, with his desire to raise the standard so that it will approach, if not equal, that of the present Major examination. Pardon my continued perturbation of mind in the contemplation of such an ideal. The duty of the Pharmaceutical Society, be it known, is primarily to provide chemists and druggists for all classes and grades of business from Land's End to John o'Groats; not, as we might be led to infer, to turn out scientists to suit the better class, or West End, style of business.

Edinburgh, January 10, 1900.

JAMES LENNOX.

PHARMACEUTICAL JOURNAL.

A Weekly Record of Pharmacy and Allied Sciences.

ESTABLISHED 1841.

Circulating in the United Kingdom, France, Germany, Austria, Italy, Russia, Switzerland, Canada, the United States, South America, India, Australia, South Africa, etc.

Editorial Office: 17, BLOOMSBURY SQUARE, W.C.

Publishing and Advertising Office: 5, SERLE STREET, W.C.

Members of the Pharmaceutical Society must address all communications with reference to the transmission of the Journal, to the Secretary, 17, Bloomsbury Square, London, W.C.

LONDON: SATURDAY, JANUARY 13, 1900.

THE COUNCIL MEETING.

AFTER the minutes of the previous meeting had been confirmed the PRESIDENT drew attention to the absence of the Vice-President and several other members of the Council, who were suffering more or less from the effects of the prevailing epidemic. Reference was also made to several deaths which have occurred since the last Council meeting.

E. C. C. STANFORD, who was in 1857 a student and prizeman in the Society's School, then demonstrator in the Laboratory under Professor ATTFIELD, and subsequently entered into the manufacture of iodine and other products from sea-weed, but continued to keep up his connection with pharmaceutical affairs through the Conference. The PRESIDENT suggested that a letter should be addressed to his family, expressing the sympathy of the Council. This was agreed to and supported by Mr. ATKINS and Dr. SYMES, who spoke with great appreciation of Mr. STANFORD'S many estimable qualities.

ANDREW THOMPSON, of Carlisle, for several years represented the Society as local secretary and occupied a prominent position as the holder of several civic offices. As a former pupil of his, the PRESIDENT spoke of his death as being to him the loss of an old friend.

J. G. F. RICHARDSON, of Leicester, was for sixteen years a member of the Council until his retirement in 1895 owing to ill-health, and on the motion of the PRESIDENT a resolution was passed expressing the sympathy of the Council with his family in the loss they have sustained.

Reference was made to the knighthood of Dr. LAUDER BRUNTON, who, as an honorary member of the Society, has taken an active part in the Society's work, and on the motion of the PRESIDENT it was decided to congratulate him on the honour conferred.

The SECRETARY reported the receipt from the Privy Council Office of the report of Dr. BALFOUR MARSHALL, the Government visitor of the Society's Examinations, held in Scotland last year. See page 29.

The additions to the Society comprised 86 members and 57 student-associates. Several persons were restored to membership, one person was restored to the Register of Chemists and Druggists, and one addition was made.

Mr. GLYN-JONES asked what would now be done by the Council in connection with the subject of dispensing by unqualified persons, the consideration of which had been deferred until the General Medical Council had made its report, and Mr. CARTEIGHE said that as the matter was still before the General Purposes Committee, it would, of course, come up again.

The report and recommendations of the Finance Committee were adopted, the PRESIDENT remarking that the position of affairs was more satisfactory than usual at this time of the year.

On the recommendation of the Benevolent Fund Committee, seven grants were ordered to be paid amounting to seventy-one pounds, as well as two grants of twenty pounds to each of the two candidates who were unsuccessful at the recent election of annuitants. In moving the adoption of the report, the Treasurer mentioned that he had received a cheque for one thousand pounds from the estate of the late Mr. WATERALL, and that he had invested £753 11s. 5d., the Benevolent Fund balance in hand at the end of the year, together with £211 18s. 4d. from the current account, by the purchase of £950 consols.

A resolution was then passed that the PRESIDENT, Vice-President and Treasurer, with Messrs. CARTEIGHE and HILLS should be a committee to consider and report on the carrying out of the conditions attaching to the Waterall legacy.

The report of the Library, etc., Committee dealt as usual with several matters of detail.

Mr. GLYN-JONES expressed his intention of voting against the adoption of the report because he had not been able to follow its details. In reply to Mr. BATESON'S suggestion that he should specify some item of the report which he did not understand, Mr. GLYN-JONES said he thought the same plan should be followed as in the case of the Benevolent Fund Committee and the election of members, so as to enable members of Council to take an intelligent interest in the various proceedings referred to in the report of the Library Committee. After some further conversation the motion was put by the PRESIDENT, and carried with one dissentient.

Mr. STRACHAN, of Aberdeen, was appointed Superintendent, and Mr. JOHN CRUICKSHANK, Deputy-Superintendent, of written examinations for the current year.

Mr. GLYN-JONES, referring to the agenda, said that as he understood there was no report to be presented by the Law and Parliamentary Committee, he wished to know whether he should be in order in moving that the Committee be requested to present a report on the subject of "company pharmacy" at the next meeting of the Council? By permission of the PRESIDENT, Mr. GLYN-JONES moved to that effect, explaining that he did so because members of the Society are expecting to have a report from the Committee and because the hands of members of the Council are tied until the report appears, while for his own part he desired to have an opportunity of protesting against the action of the Committee in certain respects.

The motion was not seconded.

Dr. SYMES inquired whether any reply had been received from the Privy Council Office in reference to carbolic acid. The PRESIDENT said no reply had been

received, and Mr. CARTEIGHE added that he had reason to believe the matter was receiving attention.

Among the correspondence the Secretary announced the receipt from Mr. J. COCKS, the Secretary of the Federation, of several communications relating to company trading, see page 28, and others which had been sent direct to the Society, see page 28.

In connection with a resolution passed by the Western Chemists' (London) Association, Mr. HILLS objected to an epitome of the resolution being read instead of the actual resolution, which was then read as it was reported in the Journal ([4], vol. 9, page 619).

After the consideration of the legal portion of the report of the General Purposes Committee the recommendations made were adopted, and special resolutions were passed authorising the Registrar to take proceedings in certain cases.

As the Council was rising a telegram was received announcing the death of Mr. DANIEL FRAZER, a former member of Council.

BORIC ACID IN FOOD.

IN view of the general interest attaching to the use of preservatives in food, and especially to the employment of borax and boric acid as preservatives for milk, cream, etc., it appears of importance, at the present time, to note that many leading authorities appear to be agreed that the addition of borax or boric acid to food does not render it harmful. Professor OSCAR LIEBREICH points out, in a recently-published monograph on the subject, that boric acid, even in a 5 per cent. solution, exercises no injurious action whatever on the gastrointestinal epithelium. Borax has a more powerful action, but a solution containing at least 2 per cent. is required to cause the disintegration of epithelial cells, *i.e.*, a stronger solution than would be required to produce a similar effect in the case of soda or saltpetre. It is not surprising to learn, therefore, that the "severest criticism of medical observations, and experience won from experimental research justify the conclusion that borax and boric acid are innocuous as preservatives of food." That assertion, of course, is only valid within such limits as apply to all victuals and drugs, for it is known that medicines, food preservatives, and even aliments, though harmless when used properly, may cease to be wholesome and become injurious when taken injudiciously or in excess. It is noteworthy that even common salt, in 5 per cent. solution, exercises an inflammatory action on the intestinal mucous membrane. According to Professor LIEBREICH, experience has proved that 1.2 Gm. of borax or boric acid taken in food daily, even for a considerable time, does not affect health injuriously. "Even quantities twice as large have not been proved injurious, scientific investigations having decisively demonstrated that these doses are far below the limit where deleterious action commences." In conclusion, Professor LIEBREICH expresses the opinion that whoever studies with care the numerous experiments of different investigators will end by adopting the view that borax and boric acid, far from being injurious to the human system, are really wholesome substances. That statement may be commended to the careful consideration of some public analysts.

ANNOTATIONS.

WHAT IS THE PROFIT OVER COST realised by public analysts on the reagents employed by them in the course of their professional duties? The answer may be difficult to give, but the question is one that suggests itself naturally on reading, in the *British Food Journal*, that the profit over the actual cost of the ingredients used by druggists in dispensing prescriptions is seldom less than two hundred per cent., and often more than two thousand per cent. Now, altogether apart from the fact that the profit on the sale of an article cannot exceed one hundred per cent., the writer of the note referred to looks at the matter in a wrong light altogether. The dispensing of medicine from prescriptions is not merely a putting together of medicinal substances, and it is a distinctly mischievous notion, which unfortunately prevails in some quarters, that the dispenser is doing no more than pack up goods sold in the ordinary course of business, and ought not to charge more than the total of the usual retail prices of the ingredients of the medicine dispensed. But that is quite a wrong view of the matter; the question of the commercial value of the ingredients of medicine dispensed from prescriptions does not enter into consideration, except in a very minor degree. The charge is really made for dispensing the medicine ordered, and the price paid represents the value set by the dispenser upon his professional services. That value may be an extremely high one, or it may be absurdly low, but have we not heard of some public analysts undertaking water analyses for five or ten shillings each, prices which their more reputable brethren consider insufficient and unprofessional? Let it be clearly understood, therefore, that inasmuch as the pharmacist's price for dispensing is as purely professional a charge as the analyst's fee for services rendered, it is both incorrect and needlessly offensive to speak of the profits on the ingredients of medicine dispensed from prescriptions as the *British Food Journal* does.

ACCURACY IN DISPENSING is questioned in the *British Food Journal*, in the note previously referred to, the only basis for supposititious lack of accuracy being some misinterpreted evidence given in a case brought some months ago (see *P.J.*, last volume, p. 272) against a registered chemist by the Fulham Vestry. What was accepted as proved in that case by the magistrate was that each dose of the mixture in question contained one-third of a grain of potassium iodide in excess of the forty grains ordered. The writer in the *British Food Journal*, however, represents the action of the magistrate in dismissing the case as being equivalent to permitting a grocer to supply anything between $17\frac{1}{2}$ and $14\frac{1}{4}$ ounces when a pound of tea is asked for. But, surely the conductors of the official organ of the International Commission on Adulteration should possess sufficient common sense to recognise the absurdity of such a comparison of facts which are not at all parallel. Beyond question, it is of the highest importance that prescriptions should be dispensed strictly in accordance with the directions of the prescribers, but it is almost equally important that critics of magisterial decisions should know what they are writing about. The fact that anyone can misinterpret Mr. Rose's plainly worded decision into a statement that, provided the drugs prescribed are contained in the medicine the quantity present does not matter, suffices amply to prove the utter incompetence of such a person to comprehend the report of the case. What Mr. Rose did say was that he doubted whether the Sale of Food and Drugs Act was meant to be applied in a case of the nature of that brought before him; it had no relation, he thought, to a trifling excess of an ingredient in a bottle of medicine, and it could not be supposed that the Act was intended to enforce "absolute exactness" in dispensing medicine from a prescription.

THE "MEDICAL PRESS," by the way, accepts the views of the *British Food Journal*, as representing the facts, and expresses the opinion that the Pharmaceutical Society is the proper body to take the matter in hand. At the same time, that badly-informed organ of medical opinion assumes it may be taken for granted that the Society will do nothing of the kind. That assumption is correct, as it happens, but for a very different reason to that malevolently implied in our contemporary's remarks. In the first place, the Pharmaceutical Society possesses no powers which would enable it to take action in such cases; secondly, if it were possessed of such powers, those responsible for the conduct of its affairs would do what the editor of the *Medical Press* is apt to neglect, *i.e.*, make sure that the facts of the case justified action being taken. For some reason or other the medical organ referred to distinguishes itself almost continually by attacks, which are imperfectly veiled at best, upon the Pharmaceutical Society or upon registered chemists. Readers will recall an objectionable paragraph in its pages, from which we quoted a few weeks ago (see last volume, p. 612), in which it was impudently asserted that compressed tablets afford facilities for the administration in minute doses of the very active alkaloids, "which the practitioner prudently hesitates to order in a prescription." That is to say, the dispensing skill of a factory hand who turns out compressed tablets by the thousand, by the simple operation of turning a crank or setting an engine in motion, is appraised more highly than that of an educated and properly trained pharmacist. The exaggeration, of course, was too palpable for the passage quoted to affect any level-headed reader, even to an infinitesimal degree, but the incident is symptomatic of that strong feeling against pharmacists which, unfortunately is ever-present amongst a large section of the medical profession.

SIR HENRY LITTLEJOHN may have been justified in asserting that chloral is too easily obtained by the public and that boys and girls, amongst others, can get possession of it without let or hindrance (see *ante*, p. 15), but it must be remembered that he was referring to Scotland only, and probably not to sales by registered chemists so much as those effected in establishments where poisons are sold illegally. If the facts be as stated, however, the blame rests with the sheriffs and other public officials in Scotland, who have done all they could to discourage the Pharmaceutical Society in its efforts to carry out the law. It has been asserted that the Pharmacy Act, 1868, is practically a dead letter in Scotland; if that be so, it is the effect of persistent obstruction by those who should have done their utmost to secure the respect for the law. Sheriffs have declined to give judgments, in the face of the evidence, or they have imposed absurdly small penalties; they have also denied the right of the Pharmaceutical Society to proceed under Section 17 of the Pharmacy Act, though the Procurator-Fiscal asserts that the Society is the proper body to take action and declines to do so himself. Hence, so far as pharmacy law in Scotland is concerned, there is, as has been pertinently observed, "stagnation, confusion, and aggravation." Meanwhile, as usual, the public is the chief sufferer, and sooner or later something will have to be done to secure due observance of the law, even in Scotland. If, therefore, Sir Henry Littlejohn's remarks have the effect of directing public attention to what is a very serious difficulty, they will have been well said. For the credit of Scottish pharmacy, however, we had hoped, ere this, to have learned that some steps had been taken to refute, or minimise the effects of, Sir Henry Littlejohn's statements—so far, at least, as they have been supposed to reflect upon registered chemists.

MR. J. G. F. RICHARDSON, whose death is announced this week, was formerly a member of Council of the Pharmaceutical Society, a position he occupied during several years. He was a student at the School of Pharmacy in 1856, passed the Minor and Major examinations in 1857, and shortly afterwards became partner in an old-established drug business in Leicester, which subsequently de-

veloped into the large and well-known manufacturing concern, of which he was so long the head. He was a member of the Leicester Town Council for nine years and also a Justice of the Peace for the borough, whilst for some twenty-five years he was an enthusiastic Volunteer, attaining ultimately to the rank of lieutenant-colonel in the local Volunteer force. For some years past Mr. Richardson has been unable to take any active part in business affairs, and he died in London, at the age of sixty-five years, on Saturday last.

REFERRING TO MR. GUYER'S COMMUNICATION (see p. 30), it can only be said that the official process of determination used by him has been proved to be inaccurate, and it is not sufficient evidence of deterioration in the alkaloidal contents of liquid extract of ipecacuanha to rely on such a method. Moreover, the results obtained by him in other ways are not given, and they could not have agreed with those arrived at by the B.P. process of determination. Mr. Guyer is advised to continue the investigation; but employing throughout, say for example, one of the other two methods he mentions, and ascertaining the alkaloidal value by titration. The loss of 26.5 per cent. of ipecacuanha alkaloids in two months is not confirmed, or even rendered probable, by "believing that the results are absolutely as reliable as the processes will allow."

THE LACK OF A GENERAL INDEX to later volumes of the *Pharmaceutical Journal* has exasperated one reader, who asks, When is "the wealthy Pharmaceutical Society of Great and Greater Britain" going to issue an index to the Journal for the last twenty years? He continues: "It is too bad that searchers after truth should be compelled to wade through the last twenty volumes to find some classic memoir. This is not conservation of energy. Why does the treasurer of the Society keep his breeches' pockets buttoned? The Chemical Society has recently issued an index at a nominal charge of twelvepence."

THE STORY OF A BROKEN PHIAL suggests to a correspondent that the War Office seems to be unrivalled in the art of delay for delay's sake. An Army dispenser, who was some months ago attached to the Belfast Military District, described the difficulties he had in obtaining another phial when one got smashed. "(1) Who broke it? (2) When was it broken. (3) How was it broken? (4) Was it broken by fair wear and tear, through carelessness, or by accident?" These were but few of the searching interrogative minutiae which were formulated regarding sixpenceworth of glass, in the interests of the British Army, and for the preservation of the Empire. The dispenser (like Captain Percy Turner) found it more expeditious and less vexatious to provide the article (and out of his own pocket) than to wait three months! There was also a large-lettered *nota bene*, no doubt in order to emphasise the enormity of the crime particularly impressing upon the dispenser the fact that this money had to be provided at the expense of the Government, which shows that the War Office really has the interests of the country at heart. It appears also that all drugs and surgical appliances are supplied from London, and though there is no necessity to create of this an Irish grievance, contracting chemists in extensive military districts like Belfast are thought to deserve some consideration.

EVENING MEETING IN EDINBURGH.—The third evening meeting of the present Session will take place at 36, York Place, on Wednesday next, the 17th instant, at 8.30 precisely. The proceedings will comprise papers by Mr. George F. Merson, F.C.S., on "Commercial and Powdered Myrrh," and "Tincture of Myrrh." The usual explanatory references to recent additions to the Society's museum in Edinburgh will also be made. The chair will be taken by Mr. P. Boa, punctually at the hour named.

ENGLISH NEWS.

PUBLIC DISPENSERS' ASSOCIATION.—A special general meeting of this Association was held at its new rooms, St. Bride's Institute, Ludgate Circus, on Wednesday, January 3, for the purpose of giving effect to a motion of affiliation passed by the Poor-law Dispensers' Association, Mr. Welford in the chair. It was decided that the name of the Association should be changed to the Public and Poor-law Dispensers' Association, that the Poor-law members of the Council should form a sub-executive, together with a secretary for Poor-law matters, and that in future there should be two secretaries—one for the general duties of the Association and one for Poor-law. The meeting then became the second annual meeting of the Public Dispensers' Association, Mr. Welford again presiding. The Secretary (Mr. Forster) having read the Council's annual report, Mr. Donnan, the Treasurer, then gave his financial statement, which showed, after paying rent up till April, the Association had a balance in hand of £1 6s. 2d. The Executive was then elected as follows:—Mr. F. N. Clark, Chairman; Mr. Welford, Vice-chairman; Mr. Hewitt, Treasurer; Mr. Forster, General Secretary; Mr. M. Smith, Poor-law Secretary. Council:—Messrs. Duff, Miller, Spencer, Totten, Lindsay, and Donnan. A suggestion that all country dispensers should be written to and asked to join having been brought forward, the meeting adjourned.

EXETER SCHOOL OF PHARMACY.—On Wednesday, January 10, Lady Poltimore distributed the prizes and advanced certificates gained by the successful students at the Royal Albert Memorial College, Exeter, to which is attached the Exeter School of Pharmacy, in charge of Mr. Alan H. Ware, Ph., Ch., the Principal of the College being Mr. A. W. Clayden. During the session 1898-1899 there were fewer pharmaceutical students than usual, but most of these obtained successes in chemistry and botany examinations of the Science and Art Department. Several former students of the College have also at recent examinations succeeded in winning their "Minor" qualifications. Three students have presented themselves for the examination at present proceeding, and have been so far successful as to have passed the practical tests of the first day. There are also students working full time for the April or June examinations of the present year. The pharmaceutical prizes were presented as follows:—The prize of one guinea presented by Mr. J. Hinton Lake (local secretary of the Pharmaceutical Society) was divided between W. W. Wilcock and G. H. Kynaston, the former obtaining the same examination success as the winner of Mr. Gadd's prize named below, and the latter doing best in elementary chemistry. Mr. G. Stocker's prize of one guinea was awarded to E. Kingsley Monks, who did best in botany during the session. The prize of one guinea offered by Alderman H. Gadd, J.P., to the senior students in chemistry was divided between W. Samways and H. Pellow.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.—At a meeting of the Darwen members of this Association, held on January 2, Mr. R. L. Gifford read a paper on "The Present Pharmaceutical Position," in which he again urged that, so far as concerns keeping open shop as a retail chemist, and selling scheduled poisons, qualified persons should be debarred from taking advantage of limited liability law. He maintained (1) that the views of the majority of the Law and Parliamentary Committee of the Council of the Pharmaceutical Society are right and ought to prevail, (2) that loyalty to the cause demands united action, (3) that it is unreasonable to expect men who stand upon a principle to barter it, and (4) that it is not unreasonable to ask men who acknowledge the justice of that principle to act with others because they are merely actuated by motives of expediency.

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION.—At a meeting of this Association, held on Monday, January 8, Mr. A. Foster

(President) in the chair, a letter was read from Mr. H. T. Butler, secretary of Camwal, respecting a discussion at the last meeting of the Association on the proposed reconstruction scheme (see *P.J.* [4], 9, 594). Mr. Butler wrote to the effect that the impression created by the report of that meeting—*i.e.*, that Camwal was bound to supply shareholders with Camwal waters—was not correct, inasmuch as the fact of a person being a shareholder did not qualify him for a supply of the Association's waters.—It was suggested that a mistake had been made in the report, and that what was really said was to the effect that if a chemist ordered waters they would have to be sent where he directed, and in that way they might be sent to grocers or others who were not chemists.—Regret was expressed that any mistake should have occurred in the report, and the matter was then allowed to drop, the Secretary being instructed to write and ask Camwal for a copy of the articles of association.—Mention was made of the Chemists' Defence Fund, and it was announced that nine or ten members of the Association had applied for shares.

THE SALE OF RAT POISON.—An inquiry was held at Norwich on Saturday, January 6, touching the death of Hannah Holsia-Blyth (49), wife of a cattle dealer of Norwich.—Evidence was given to the effect that deceased had been strange in her manner for some time past, and had been carefully watched, because her friends thought she might take her own life. On the previous Wednesday, however, she went out with her grand-daughter. About seven o'clock she went out again, remarking that she was going to a chemist to get the baby some cough mixture, as the child was suffering from cough and cold. About nine o'clock she went to bed, and shortly afterwards told her husband she had taken rat poison. She was very sick during the night. The next morning a doctor was called in. Death, however, occurred on Friday, and in the doctor's opinion was due to poison.—A paper was found in the bedroom bearing the words "Rat Poison," and, according to the evidence of Mr. Orson Boswell Wilson, chemist and druggist, of St. Catherine's Plain, Norwich, it had contained a coloured powder composed of arsenic and a blue pigment, which he had supplied to deceased. He had known her for thirty years and had never noticed any peculiarity about her, so that when she came to his shop on the previous Wednesday for some cough mixture and afterwards asked for some rat poison, as she was troubled with rats, he gave her some wrapped in a paper, marked "Rat Poison." That he put in another paper and sealed it for security. There was about half a teaspoonful of powder. He entered the sale in his poison-book, but did not ask her to sign it.—The Coroner said he thought it would have been better if Mr. Wilson had gone through the usual course. He did not say it would, but it might have caused the woman to alter her mind.—The Foreman said it was absolutely necessary to have a signature, and not under any consideration to act contrary to the Pharmacy Act.—A Juror asked if there was a red label on the packet.—Mr. Wilson said no; he thought it was a white label.—The Coroner briefly summed up the evidence, and said no doubt death was due to poison. There was also no doubt that deceased had been in a bad state of mind, and there was every reason to believe that she had been well looked after. He did not know that there was any cause to complain of anybody's action. But with regard to the chemist, neither Mr. Wilson nor any other chemist should sell a preparation such as had been sold in that case without complying with the Act. No distinction should be made, and he believed that chemists generally were very careful in every respect.—A verdict of "suicide whilst temporarily insane" was returned.

POISONING BY CARBOLIC ACID.—On Thursday, January 4, an inquiry was held at Mansfield into the circumstances attending the death of John T. Spilman, aged twenty, son of a farmer residing at Clexby House, Caistor, Lincolnshire.—From

the evidence it appeared that while deceased was on a visit to Councillor G. A. Fish he was taken ill. A doctor, thinking the case to be one of typhoid fever, prescribed accordingly, and requested that a bottle of carbolic acid should be procured for disinfecting purposes. That was done, but, unfortunately, on the evening of January 3, the bottle containing carbolic acid was placed on the mantel-piece, while the one containing medicine was placed on the wash-stand, the result being that during the night a dose of carbolic acid was administered to the patient by mistake.—The jury returned a verdict of "Death by misadventure," and also recommended that bottles containing poison should be so made as to be quite distinctive from ordinary medicine bottles.

OVERDOSE OF CHLORAL HYDRATE.—An inquiry was held at Buxton on January 2 with respect to the death of William Plant (twenty-nine), until recently landlord of the Waterloo Hotel, Taddington.—Evidence was given to the effect that deceased engaged a bed at the Shakespeare Hotel, Buxton, on Monday, January 1, and retired at about 11.10 p.m. Next morning he was found dead in bed, with his clothes on. Three bottles were found in his pockets, two containing chloral hydrate and one containing potassium bromide.—A medical man having stated that he had treated the deceased man for sleeplessness, and that in his opinion death was due to an overdose of chloral hydrate, the jury recorded a verdict to the effect that death was due to chloral hydrate poisoning, but there was not sufficient evidence to show with what intention it was taken.

MERCURIAL POISONING.—John Jordan (forty-four), a shepherd, of Tettenhall Wood, Wolverhampton, has died as the result of drinking a preparation for foot-rot in sheep. He informed the surgeon who attended him that he had taken a quantity of the medicine, and death was found to be due to mercurial poisoning. An inquest was held on January 2, when a verdict of "Death by misadventure" was returned.

THE SALE OF COMPOUND RHUBARB POWDER.—At West Ham Police Court on January 3, George S. Drayton, chemist and druggist, 80, Woodgrange Road, Forest Gate, E., was summoned for selling compound rhubarb powder not of the nature, substance, and quality demanded, such article not being "genuine compound rhubarb powder according to the formula of the British Pharmacopœia—it contained only 30 per cent. of magnesia, whereas 66.6 per cent. is prescribed by the British Pharmacopœia."—Defendant said he had only recently taken over the business, and the article in question was already made up and marked. After his attention had been drawn to the matter, he examined the article and found that it had been made with carbonate of magnesia instead of oxide of magnesia. Most chemists used the carbonate instead of the oxide (*sic*), as it mixed more freely with water.—Alfred Smith, one of the sanitary officials, stated that he purchased $\frac{1}{2}$ oz. of compound rhubarb powder at defendant's shop on November 14. Defendant served him.—Cross-examined by defendant he said he did not ask for "compound rhubarb powder, B.P.," nor did he present a doctor's prescription. He asked for "compound rhubarb powder."—Thomas W. Crocker, another assistant, spoke to receiving the article, and added in reply to Dr. Sanders (West Ham Medical Officer of Health) that he intended to purchase the British Pharmacopœia article. He understood that to be the only standard.—Mr. Baggallay (the magistrate): When did it become so?—Witness: It is only common knowledge.—In answer to defendant witness said Mr. Smith was not told to purchase the B.P. article. He had his instructions in writing.—Mr. Baggallay: It does not matter what were his instructions; he did not ask for "compound rhubarb pow-

der, B.P."—Defendant: Unless the B.P. is specially asked for the chemist uses his discretion. It makes not the slightest difference. The chief ingredients, ginger and rhubarb, are in the proper proportion.—Mr. Baggallay said he was of opinion that the summons could not be supported, even if it was in itself good. The information stated that the article was not genuine compound rhubarb powder according to the British Pharmacopœia, as it contained only 30 per cent. of magnesia, whereas 66 per cent. was prescribed by the B.P. But it was not necessary that a drug to be genuine should be made according to the B.P. There was no Act of Parliament which made the B.P. the standard of any compound of drugs. The statement that the drug was not according to the B.P. was bad on the face of it, but if that was not bad the certificate of the analyst did not prove the case. He did not say the compound rhubarb powder was not genuine, but that it was not in accordance with the British Pharmacopœia. The case would be dismissed.—Mr. Drayton asked for costs, and was granted 10s.

DEFICIENT SPIRIT OF CAMPHOR.—At the County Petty Sessions, on December 19, Joseph W. Coulston, described as a drug vendor, of Wymondham, was summoned for selling deficient spirit of camphor, and was ordered to pay the costs, £1 0s. 6d., the defence being that he had only recently purchased the business, including the whole stock, and he supposed that the article in question was of proper strength.

SULPHURIC ACID IN VINEGAR.—Samuel Thompson, grocer, 22, Brewer Street, London, W., was summoned at Marlborough Street Police Court on December 29 for selling vinegar adulterated with 0.1556 per cent. of sulphuric acid.—Dr. Edmunds, public analyst to the St. James's Vestry, stated that he found in the vinegar in question the quantity of sulphuric acid mentioned in the summons.—For the defence Dr. J. Atfield gave evidence to the effect that he had examined a sample of the vinegar and had applied every test for sulphuric acid, but could find no trace of it. He did, however, find some phosphoric acid, which was a natural constituent of vinegar.—The prosecution then produced a letter from Somerset House, where a sample of the vinegar had been sent for independent analysis, in which it was stated that the authorities confirmed Dr. Edmunds' certificate.—Mention having been made of the fact that defendant had previously been fined for selling adulterated cocoa, a fine of £5 with six guineas costs was imposed.

IRISH NEWS.

PHARMACEUTICAL SOCIETY OF IRELAND.—The following have passed the preliminary examination:—J. R. D. Holtby, J. Anderson, J. W. Middleton, W. H. McCarthy, A. Haire (F. J. Fitzpatrick and H. C. Smyth—equal), (J. W. Hatch, D. S. Thomson, and W. Walsh—equal), H. Ramage, J. J. Tobin, W. B. Stewart, T. H. Kane, G. L. Lyons, T. V. L. Watson, A. D. McMurray, M. Murphy. Six candidates were rejected.

DUBLIN IMPORTS AND EXPORTS.—According to the trade returns of the port of Dublin for the month of December last, just issued, the exports of chemical goods from Dublin were valued at £38,835, while the imports into Dublin of chemical goods, including dye-stuffs, etc., were valued at £12,718. The quantity of oils imported into Dublin during December were valued at £29,185, while for the whole of the past year they were valued at £1,332,355. The quantity of chemical goods exported at Dublin during 1899 was valued at £466,308, while the quantity imported during 1899 was valued at £284,470.

PHARMACEUTICAL SOCIETY OF IRELAND.

Meeting of the Council.

The monthly meeting of the Council was held on Wednesday, January 3, at 67, Lower Mount Street, Dublin. The members present were Messrs. J. J. Bernard, Wells, Simpson, Dr. Walsh, Grindley, Porter, Michie, and Professor Tichborne.

On the motion of Mr. GRINDLEY, seconded by Mr. SIMPSON,

The chair was taken by Mr. Wells, a letter of resignation of the office of President having been received from Mr. R. J. Downes, and Mr. Beggs (the Vice-President) being absent through illness.

The minutes of the last meeting having been read,

Mr. BERNARD asked if the Society had been able to recommend any members to offer themselves as compounders of medicine in the military hospitals.

Mr. FERRALL, the Registrar, said two names had been sent forward.

Mr. BERNARD: The remuneration offered is so small that the authorities will hardly get pharmaceutical chemists to do the duty.

Mr. GRINDLEY: They have been inviting them to go out to South Africa.

The CHAIRMAN: Ten have been taken from London and ten from Edinburgh, and of the latter ten five were qualified and five were unqualified. The authorities have paid more attention to the chest measurements of the men than to their qualifications as pharmacists. Before proceeding to the business on the agenda paper it is right that a resolution should be passed expressing regret at the death of Dr. Hodges, of Belfast, one of the original members of the Council. He was highly respected in the north of Ireland, and was a man of great scientific attainments.

On the motion of Mr. PORTER, it was ordered that a letter of sympathy should be addressed to the relatives of the late Dr. Hodges.

RESIGNATION OF THE PRESIDENT.

The REGISTRAR then read the following letter from Mr. Downes:—

22nd December, 1899.

To the Vice-President and Council, etc.

Gentlemen,—The time has arrived when I must emphatically relinquish the honourable position in which you have placed me as President. My health suffers increasingly, and I find I have lost that energy and buoyancy which in the coming session are essential for the prosecution of your labours. You will please take this as irrevocable, as there is no use in asking me to reconsider. I take the opportunity of thanking you all for the great kindness I have always received from you, for the high honours you have put on me, and the assistance you have given me in the discharge of my office.

I am, Gentlemen,

Yours truly,

ROBERT J. DOWNES.

The CHAIRMAN said he was sure every member of the Council, as well as of the Society generally, regretted that Mr. Downes' state of health compelled him to resign office. He had held the office of President with very great honour to himself as well as advantage to the Society. It would be unfair to take the usual course of asking him to reconsider his decision.

Dr. WALSH, in moving that the resignation of Mr. Downes be accepted with great regret, said it should be conveyed to him that they all wished that he could retain office.

Mr. GRINDLEY seconded the motion, which was agreed to.

Mr. BERNARD: It is only a resignation of the office of President?

The CHAIRMAN: That is all. I hope that after a little while we shall have him back here again.

Mr. GRINDLEY proposed that the Vice-President, Mr. Beggs, be elected President for the remainder of the year. He knew that he was thoroughly identified with the Society, and was quite sure that he would uphold the dignity of the office in every way in his power.

Mr. MICHIE said he had great pleasure in seconding the motion. Since he became a member of the Council he had had a great deal

to do with Mr. Beggs, and he was quite sure he would make a very competent President.

The CHAIRMAN, in putting the motion, said he was quite sure from what he knew of the energy of Mr. Beggs' character that he would make an excellent President. He (Mr. Wells) had spoken to him that day, and he said he was not at all anxious to take the office, but that if elected he would do his best to merit their confidence.

The motion was unanimously agreed to.

Dr. WALSH said he had great pleasure in moving that Mr. Bernard be elected to the vacant office of Vice-President.

Mr. SIMPSON seconded the motion.

Mr. BERNARD said that if he were to consult his own feelings he would not accept the office, but as he had always endeavoured to do his duty to the Society he did not feel at liberty to refuse it.

The CHAIRMAN, in putting the motion, said he felt perfectly confident that Mr. Bernard's abilities would enable him to discharge the duties of the office with the utmost efficiency.

The motion was passed unanimously, and

Mr. BERNARD, as Vice-President, took the chair, and said he felt deeply grateful for the good opinion they entertained of him, and hoped to show them that it was not misplaced.

Mr. WELLS then moved the following:—

That this Council desires to place on record and to convey to the Ex-President, Mr. Robert J. Downes, its high appreciation of the manner in which he filled the important office of President for the past two-and-a-quarter years, and also to thank him for the very efficient and zealous manner in which he performed the duties of the office; and they regret exceedingly that through ill-health he has been compelled to relinquish it.

He (Mr. Wells) had known Mr. Downes from the time he was himself a boy, and during all the intervening years he had been more or less associated with him. It was matter of history that he had served them well and faithfully. There had been active Presidents in the chair before him, but he did not think any of them had given more thought and attention to the work of the Society than he had done. It had been a mystery to him how Mr. Downes had found time to do the amount of writing he had had to do, especially last year, in connection with the company question; but he knew that when he accepted the office of President he did so simply on account of that work, which he entered upon with the wish to be able to see some definite result from it. Unfortunately, he was not in a position to continue it, and they were the losers; and the best thing they could do under the circumstances was to place on record their feelings in the matter. He would only add that it was the desire and hope of every member of the Council that it might please Providence to restore Mr. Downes to health, and that he might be amongst them again and able to assist them for many years to come.

Mr. GRINDLEY, in seconding the motion, said it was hardly a pleasure to do so, as they were losing one of the best Presidents they had ever had.

The VICE-PRESIDENT said it was a matter of great regret to him that the first duty he had to perform in the chair was to put this resolution. He was sure that it expressed not only their opinion of Mr. Downes as a colleague, but their feeling towards him as a personal friend.

The resolution passed unanimously.

CORRESPONDENCE.

A letter from the Privy Council Office enclosed a copy of the report of Sir George Duffey, the Lord Lieutenant's visitor, on the examinations held by the Council during the year. The report was referred to the School Committee.

A letter from the Attorney-General of the Isle of Man forwarded a copy of the Manx Pharmacy Bill. The Bill was referred to the Law Committee.

PROPOSED ANALYTICAL DEGREE FOR PHARMACISTS.

Professor TICHBORNE then moved his proposition, which stood over from the last meeting of the Council, in favour of the establish-

ment of a degree to meet the requirements of the Local Government Board as regards public analysts. He only asked the Council now to decide the principle involved—that was to say, that it was desirable to create a body of men able to take the position of public analyst.

Mr. SIMPSON asked what it was proposed to call the men who would thus be created?

Professor TICHBORNE said that was a matter of detail which should be left to a committee, but the name of the degree should be one that should not clash with that of pharmaceutical chemist.

Dr. WALSH thought that the matter was outside the scope of the Society. Undoubtedly in theory it was very good; and he believed that the pharmaceutical chemist who was also a practical analyst would be an ideal man for one of those positions under the Local Government Board. If any pharmaceutical chemist, however, wished to go in for one of them the only thing for him to do was to obtain the qualification of "F.I.C."; and as the Society's examination should not be lower than that for "F.I.C." he did not see what the difference would be.

The VICE-PRESIDENT said Dr. Walsh was not quite in order, and asked if anyone seconded the motion.

Mr. SIMPSON then seconded the motion as a matter of form.

Mr. MICHIE and Mr. WELLS having spoken in support of Dr. Walsh's view of the matter, the motion was put and negatived.

Other business having been disposed of, the Council adjourned.

GLASGOW CHEMISTS' AND DRUGGISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.

At the weekly meeting held on the 5th inst. the chair was occupied by the PRESIDENT, Mr. J. P. Gilmour, and a short paper on "Allan Ramsay" was contributed by Mr. M. Meldrum, Ph.C., after which Mr. J. P. Taylor read a paper entitled

For and Against a Curriculum.

He said the advantages of a curriculum were: (1) A more thorough education in the different branches of our profession; (2) more protection from Government for our trade; (3) a better social standing, and, presumably, better remuneration. To take these seriatim, it can hardly be denied that the establishing of a one or two years' curriculum of study in well-equipped, well-taught schools, such as we already have, where students would receive every encouragement to systematic and thorough education, would be an immense improvement on our present system of haphazard learning. It would compel men to attend to their class work, and would entail on them a course of study of sufficient duration to give every man with any brains at all an opportunity of making himself proficient. It would do away with the unavoidable cramming that most of us have to do in the course of a day session of a very few months, or an evening session of, sometimes, even a few years. Then, again, it would be of advantage to both teacher and taught, enabling both sides to do greater credit to themselves and to each other.

The second advantage referred to was increased Government protection. In fairness, if it were required of us that we should go to increased trouble and expense in order to qualify, then we would be entitled to demand some recompense in the assurance that our trade or profession would be secured to us, and to us alone. This, in fact, would be a necessary sequence to an enforced curriculum, or else the game would not be worth the candle.

The third advantage, the improved social standing which chemists would gain, may seem on the face of it to be somewhat paltry and insignificant, but it is really not so. One of the main difficulties which a chemist has to face in his efforts to make money is the impression which the public undoubtedly have, that he is only a shopkeeper, and is only entitled to the limited profit which shopkeepers are generally supposed to content themselves with. But

the chemist is a highly-skilled workman as well as a shopkeeper, and has a considerable amount of the professional element in his training, and he is as much entitled to charge for that skill as is the doctor to charge for his. But the public don't see that.

Turning next to the disadvantages which a curriculum would bring with it, the author said there was only one which he would mention—namely, the increased trouble and expense which would be laid upon students. Undoubtedly, he said, this is a very serious drawback, and until we have some assurance that adequate recompense will accrue, until we know that we are to be treated as worthy of a place in keeping with our skill, we will find few who will support a curriculum, and many in favour of preserving the existing state of things.

MANCHESTER PHARMACEUTICAL ASSOCIATION

The fourth general meeting of the session was held on Wednesday evening, when Mr. W. S. Glyn-Jones, Secretary of the Proprietary Articles Trade Association, delivered an address on

The P.A.T.A. and Its Defence Fund.

Mr. G. S. WOOLLEY, President, occupied the chair, and gave a hearty welcome to Mr. Glyn-Jones for his kindness in coming down to deliver his lecture. He further announced that owing to the War and other causes it had been decided by the Committee not to hold the annual ball.

Mr. GLYN-JONES, in his preliminary remarks, adverted to the usefulness of the Association and the justification shown for its existence. Its usefulness had been shown clearly in connection with the number of new proprietaries which were being added constantly to the protected list of the Association. During the past two years there had been attempts made by large proprietors to meet the trade in some way or other, and there was no doubt that their attempts to do this had been largely due to the organised efforts of the Association. They had been accused of opposing the schemes of certain people, because it had been alleged they had not been members of the Association. But this was not so. The Association had welcomed any scheme, provided it would guarantee a certain profit to the trade. Dealing with the proposal to form a defence section into a limited company, he said this had been done on the advice of their solicitor, who thought it would be better to put the thing on a sound business basis and make the contracts made mutually effective, and that as some sort of guarantee fund would be required they thought the best and simplest way of insuring that guarantee fund was to ask the members to take up one share, on which they would pay 5s., leaving 15s. to call up if necessary. For this they undertook to provide legal advice for members in the business in which they were engaged. This was certainly a desirable thing. There was as much need for an expert solicitor as for an expert medical man. The next object was to provide a legal defence for any members who might be prosecuted under any Acts affecting them in their business. He had no hesitation in saying that eight out of every ten chemists were to-day quite unwittingly committing technical offences under various Acts of Parliament. They would engage an analyst and solicitor to act for them up to a cost of £10, but it would be in the option of the Committee to take a case to a higher court if they considered the case was one which, in the interest of the trade, it was necessary they should get a higher opinion upon. A third object equally important was that of indemnifying members against loss arising from accidents in dispensing and retailing. At present it was considered that the charges of already established insurance societies were unnecessarily high. Information as to changes in Acts of Parliament would also be given so as to prevent members getting into difficulties, and it would be also important under which the whole trade would benefit by watching legislation in their interests. Already some 400 shares had been taken up, and in the course of the next six months it was hoped that the remaining 600 would be subscribed.

The CHAIRMAN said that if chemists could only be induced to take some interest in this matter it might result in something useful being done and protecting the members from vexatious prosecutions.

A discussion followed, and Mr. Glyn-Jones was accorded a cordial vote of thanks for his address.

Obituary.

BELL.—On January 5, at 73, Spring Bank, Hull, Eliza Mary, wife of Charles B. Bell, M.P.S. Aged 64.

KITSON.—On December 30, Edward John Kitson, Chemist and Druggist, Worcester. Aged 66. Mr. Kitson, who had been a member of the Pharmaceutical Society since 1893, was a native of Macclesfield, but had been in business in Worcester for over thirty years. He was for some time a member of the Board of Guardians, and on one occasion sought municipal honours, but with these exceptions the demands of his business precluded his engaging actively in public work. His death was quite unexpected, occurring suddenly in the early hours of Saturday morning, he being apparently in good health the previous evening.

MCALLISTER.—On December 29, Robert Dempster McAllister, Chemist and Druggist, late of Birmingham. Aged 37.

MEE.—On January 4, George Mee, Pharmaceutical Chemist, Enfield. Aged 64. Mr. Mee had been a member of the Pharmaceutical Society since 1869.

MORGAN.—On December 31, Richard Morgan, Chemist and Druggist, Stepney. Aged 39. Mr. Morgan had been connected with the Pharmaceutical Society for some years as an associate, and latterly as a member.

PALMER.—On January 2, Enoch Palmer, Chemist and Druggist, Great Grimsby. Aged 68. Mr. Palmer, who had been a member of the Pharmaceutical Society since 1871, was one of the oldest chemists in the town. He took an active interest in every movement that was for the welfare of the town, and in 1871 was elected to the Town Council. Twenty years later, 1891, he was made an Alderman, and in 1894 and 1895 was unanimously elected Mayor. He was greatly interested in educational matters, being Chairman of the Technical Instruction Committee, under the joint authority of the Town Council and the School Board. He was vice-chairman of the Watch Committee and a member of the Caistor Board of Guardians. He was on the Commission of the Peace for the borough of Grimsby and also for the Hundred of Bradley Haverstoe, in the parts of Lindsey.

RACKHAM.—The death occurred last week of George Rackham, formerly a Chemist and Druggist, of Borough High Street, S.E. Mr. Rackham had been for many years a member of St. Saviour's Board of Guardians and St. George the Martyr Vestry. His early life was spent in Canada, and for some time after he came to England he edited a local paper in Essex.

RICHARDSON.—On January 6, John George Frederick Richardson, Pharmaceutical Chemist, late of Leicester. Aged 65. Mr. Richardson, who had been a member of the Pharmaceutical Society since 1859, was at one time a member of the Council.

SHAPLEY.—On January 10, Charles Shapley, Pharmaceutical Chemist, Torquay. Aged 46. Mr. Shapley, who had been a member of the Pharmaceutical Society since 1875, was a member of a very old Torquay family, and was for many years secretary of the local Science and Art Schools. For a short time he was a member of the Town Council. He was a partner of the firm of Messrs. Shapley and Dwyer, carrying on business in the Strand, Torquay.

VAWSER.—On January 7, Jesse Vawser, Chemist and Druggist March, Cambs. Aged 60. Mr. Vawser had been a member of the Pharmaceutical Society since 1869.

ANSWERS TO QUERIES.

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

Aubepine (C. J. M.—37/16).—It is anisic aldehyde.

Hyacinthin (C. J. M.—37/16).—It is not a simple body but a mixture, probably containing benzyl cinnamate or other benzyl esters, with cinnamyl alcohol.

Heliotropine (C. J. M.—37/16).—Yes. Heliotropine is made on the commercial scale from safrol; the method for so producing it is patented.

Medical Preliminary (H. F. W.—37/19).—No. You must pass an examination in the list approved by the General Medical Council.

Optical Examinations (G. A. M.—37/20).—You will find full particulars at page 251 of the Students' Number of the *Pharmaceutical Journal*, published September 9, 1899.

Hamamelin (J. A.—37/8).—Many of the eclectic resinoids and extractives, such as hamamelin, euonymin and others, are prepared both green and brown. R. H. Parker (*P. J.* [3], 12, 41, 62) has shown how those bodies are liable to variation. As probably the bark is richest in the astringent matter, we should prefer to use the brown form for suppositories, which are presumably for hæmorrhoids.

Employment of Shop Boy (J. F. N.—37/21).—The only law which appears to affect you in the matter is the Shop Hours Act, 1892, which provides that no young person (*i.e.*, under the age of eighteen), shall be employed in or about a shop for more than seventy-four hours, including meal times, in any one week; in addition, a notice referring to the provisions of the Act must be exhibited in a conspicuous place, in every shop where a young person is employed.

Non-Publication of Report (W. H. G.—16/14).—The author did not supply a copy of his paper, nor was any proper report of the meeting referred to received. Under the circumstances, the lack of novelty in the matter and in its manner of treatment was such that it was not thought desirable to incur unjustifiable expense by publishing anything beyond a bare summary such as appears in this week's issue. Doubtless the author would not be unwilling to read the paper again, in your town, for the benefit of such of his friends as have not yet heard it, especially if they express a desire to discuss it.

Stylographic Ink (S. H.—37/17).—Take any good writing ink and evaporate every ten fluid parts down to nine. Then make up to the original volume with mucilage of acacia and syrup, equal parts, and filter. Another formula is:—Tannin, 200 grains; gallic acid, 50 grains; indigo carmine, 320 grains; ferrous sulphate, 1 oz.; distilled water, 16 fluid ozs.; mucilage of acacia, 2 fluid ozs.; carbolic acid, 5 drops. Dissolve the tannin and gallic acid in part of the water, and the sulphate of iron separately in another part. Mix, add the indigo carmine, and when dissolved filter. Then add the mucilage and the phenol. Stylo inks should always be allowed to stand for some time to deposit, and then be carefully decanted, or filtered through a little moist absorbent cotton. They should be quite free from suspended matter.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Adeps.

LARD is the purified abdominal fat of the hog, *Sus scrofa*, Linn. (Order Ungulata). The flat leafy masses known as "flare" are well washed with water to free them from any salt that may have been used as a preservative; the external membranes are then removed as far as possible, and the fat is freed from moisture by exposure to the air for some hours, the effect of so drying it being to render it less liable to become rancid and mouldy. The fat is next cut into small pieces and beaten in a mortar, or otherwise suitably treated, until the membranous vesicles are completely broken and the fat is entirely released. The resulting mass is then heated in a vessel surrounded by warm water, at a temperature not exceeding 57°·2 C., and when the fat is completely melted it is separated from the membranous matter by straining through muslin. If the fat be heated to a higher temperature than that specified it will acquire an unpleasant odour and taste. After straining, the lard is stirred gently till cool to prevent granulation from the crystallisation of stearin and palmitin, but in such a way as to prevent the introduction of air into the melted fat, as that would tend to promote rancidity. Lard possesses emollient properties and is used to prevent poultices drying and sticking to the skin, as well as for making ointments. The official preparations of lard are adeps benzoatus, and the ointments of aconitine, atropine, cocain, iodine, mercury, mercuric nitrate, resin, and veratrine. It also enters into the composition of emplastrum cantharidis and pilula phosphori. Benzoated lard is prepared by melting lard, 500, on a water-bath, adding powdered benzoin (from carefully selected pieces), 15, and heating for 2 hours, frequently stirring meanwhile. The residue of the benzoin is then removed by straining, and granulation prevented by stirring the lard until cold. Benzoated lard is used in the preparation of the ointments of belladonna, cantharides, chrysarobin, galls, mercuric iodide, mercuric oleate, mercurous chloride, potassium iodide, stavesacre, sulphur, sulphur iodide, and zinc. Indurated lard (adepts induratus) is prepared by depriving lard of a portion of its oil by pressure. It may be employed in India and the Colonies when prevailing high temperatures render ordinary lard too soft for use in ointments.

CHARACTERS AND TESTS.—Pure lard should be soft, white, and of a uniform consistence, fusing at about 37°·8 C. and forming a clear liquid at a somewhat higher temperature. It should have only a slight fatty odour (indicating freedom from rancidity), be neutral to litmus (test for free fatty acids), and dissolve entirely in ether. The presence of common salt may be detected by boiling the lard with water, filtering when cool, acidifying the filtrate with nitric acid, and adding a few drops of silver nitrate solution, which gives the white curdy precipitate characteristic of chlorides. A clean platinum wire dipped into the liquid will indicate the presence of sodium by imparting a strong yellow coloration to the blue flame of a spirit lamp or a Bunsen burner. If starch has been added to whiten the lard, the cooled filtrate will be coloured blue on adding a little iodine solution. Cotton-seed oil is frequently present in American lard, and may be detected by Becchi's test: Heat 5 C.c. of the melted fat on a water-bath with a solution of 0·05 Gm. of silver nitrate in 5 C.c. of 90 per cent. alcohol, to which one drop of nitric acid has been added. After heating for five minutes, shake vigorously. The silver salt is reduced by cotton-seed oil, and the fatty layer which separates on standing is then of a dark colour. The limit of acidity is indicated by a per-

manent red colour being produced on dissolving 10 Gm. of lard in a mixture of equal volumes of chloroform and 90 per cent. alcohol, adding two drops of phenol-phthalein solution, and then 0·2 C.c. of volumetric solution of sodium hydroxide.

NOTES.—Lard consists approximately of 40 per cent. of stearin and palmitin, mixed with 60 per cent. of olein. It should dissolve in 22 parts of ether and 16 of oil of turpentine, and combine with 20 per cent. of potassium hydroxide. Its specific gravity at 15° C. is about 0·934 to 0·938 when fresh, but varies more widely according to age. American lard usually begins to melt below 36° C., and is therefore excluded by the official requirements. Rancidity in lard occurs chiefly when the fat is exposed to light; it is due partly to hydrolysis and partly perhaps to oxidation. If any water be present in lard it will not form a clear solution when dissolved in chloroform. Becchi's test alone does not afford conclusive evidence of the presence of cotton-seed oil in lard, as pure lard which has been exposed to the air will give the same reaction, and cotton-seed oil which has previously been heated fails to give it. A better test is that of Bevan, who finds that a decided pink coloration is given when 3 Gm. of lard containing as little as 1 p.c. of cotton-seed oil is heated in a salt bath for about half an hour, with 1 C.c. of amylic alcohol and 1 C.c. of a solution of sulphur (1 p.c.) in carbon disulphide.

Adeps Lanæ.

WOOL FAT, described as the purified cholesterin-fat of sheep's wool, is a mixture of uncertain composition, containing fatty alcohols—cholesterin, iso-cholesterin, etc., together with esters of those alcohols. Cholesterin, the most prominent constituent of the fat, is a monatomic alcohol, $C_{25}H_{43}OH$, of unknown constitution, which exists partly free and partly in the form of stearate and palmitate. The fat also contains a small quantity of ordinary glycerides; if it be saponified with alcoholic potash, and the alcohol be removed by evaporation, the resulting soap may be dissolved in water. The cholesterin can be extracted from the soap solution by agitation with ether and subsequent separation and evaporation of the ethereal layer; characteristic scaly crystals of cholesterin being left. Wool fat possesses emollient properties, and is very readily absorbed by the skin, thus promoting the action of remedies combined with it. Sheep's wool may contain as much as 30 per cent. of fat, but usually it contains 10 to 15 per cent. This is readily extracted by simply kneading the wool with water; the fat forms an emulsion with water, and, on heating, it separates as a distinct layer on top. It may be purified by repeated treatment with water in a centrifugal machine, or by other suitable processes, and can be freed entirely from water by heating until its weight is constant. The anhydrous fat is used for the preparation of hydrous wool fat. It is capable of incorporating more than its own weight of water—Squire states 25 per cent. more. Its saponification equivalent is equal to about 9 to 10 per cent. of potassium hydroxide.

CHARACTERS AND TESTS.—Wool fat is a yellowish, tenacious, unctuous substance, with a slight but peculiar odour, and its melting point varies from 40° to 44°·4 C. The fat dissolves readily in ether or in chloroform, but is less soluble in alcohol; 1 gramme requires 75 C.c. of boiling 90 per cent. alcohol to dissolve it "almost completely," and the greater part of the fat separates in flocks on cooling. When incinerated with free access of air, wool fat should not leave more than 0·3 per cent. of ash, and that should not be alkaline to litmus (indicating freedom from added alkali). The limit of acidity is indicated by a permanent red colour being produced on dissolving 10 Gm. of wool fat in 25 C.c. of ether, adding 2 drops of phenol-phthalein solution and then 0·1 C.c. of volumetric solution of sodium hydroxide. A solution of the fat in chloroform acquires a purple-red colour when poured gently over the surface of strong sulphuric acid; this reaction is characteristic of cholesterin.

Absence of particles of wool and other nitrogenous animal matter is indicated, according to the B.P., by the absence of ammoniacal odour when the fat is heated with sodium hydroxide solution, but it must be very indifferent wool fat which would give such an indication.

ADEPS LANÆ HYDROSUS.—Hydrous wool fat is prepared by placing wool fat, 7, in a warm mortar and adding—gradually and with constant trituration—distilled water, 3. It should be of a yellowish-white colour and free from rancid odour. When heated on a water-bath, it should separate into an upper oily layer and a lower aqueous layer, 10 Gm., so treated and stirred until the weight is constant, yielding not less than 7 Gm. of anhydrous wool fat. Hydrous wool fat is used in the preparation of unguentum conii and unguentum hamamelidis. It is capable of incorporating about half its weight of water and makes an excellent ointment basis when mixed with an equal weight of soft paraffin. The water present in the hydrous fat can be approximately determined by dissolving 10 Gm. in 10 C.c. of chloroform and measuring the water which separates.

Aloe Barbadosis.

BARBADOS OR CURAÇAO ALOES is the product of various species of *Aloe* (N. O. Liliaceæ), including *Aloe vera*, Linn., and *A. chinensis*, Baker. The leaves of the plants contain a yellow juice in the cells of the pericycle, which escapes when the leaves are cut transversely. The juice is concentrated by boiling, and when evaporation of moisture is complete the residue is poured into boxes or gourds and allowed to solidify. This variety of aloes is produced in the Dutch islands of Aruba, Bonaire, and Curaçao, chiefly from *A. chinensis*. Very little, if any, is now produced in Barbados. Aloes is chiefly remarkable for its slow purgative action, but it is also used as a bitter tonic in small doses. The B.P. dose is from 2 to 5 grains. The official preparations of Barbados aloes are aloin, decoctum aloes compositum, extractum aloes barbadensis, extractum colocynthis compositum, pilula aloes barbadensis, pilula aloes et ferri, pilula colocynthis composita, pilula colocynthis et hyoscyami, and tinctura aloes.

CHARACTERS AND TESTS.—The hard masses in which Barbados aloes occurs may vary in colour from yellowish or reddish-brown to chocolate-brown or almost black. The fracture may be dull and waxy or smooth and transparent, the differences in appearance being due to variations in the method of evaporating the juice. Small splinters of the opaque variety, when examined under the microscope, exhibit numerous minute crystals of aloin (barbaloin), imbedded in a transparent mass, but similar splinters from the glassy variety are quite transparent. The odour of Barbados aloes is disagreeable, and the taste is nauseous and bitter. The powder imparts a crimson colour to nitric acid, and yields a slight bluish-green colour when mixed with sulphuric acid and the vapour of nitric acid blown over. The first reaction serves as a distinction from Socotrine and Zanzibar aloes, which impart to nitric acid a reddish or yellowish-brown colour; the second distinguishes Barbados or Curaçao aloes from Natal aloes, which yields a bright blue colour under similar treatment. Barbados aloes is almost entirely soluble in 90 per cent. alcohol diluted with half its volume of water, and it should yield 70 per cent. to cold water.

NOTES.—The distinctive characters of Barbados or Curaçao aloes are the evanescent crimson colour imparted to nitric acid and the slight bluish-green colour produced with sulphuric acid and the vapour of nitric acid. The name *Aloe* is derived from the Greek *ἀλόη*, the aloë. *Aloe vera* (also known as *A. vulgaris*, Lam.; and *A. barbadensis*, Miller) is the common aloes of Spain and Northern Africa. *A. chinensis* is a native of China, now cultivated in the West Indies. Opaque (hepatic or livery) aloes appears to owe its peculiar appearance to the fact that evaporation is allowed to take place more slowly than in the case of the glassy or vitreous aloes, and the conditions

are therefore more favourable to the crystallisation of aloin. Rapid concentration of the juice to the extreme limit, succeeded by a quick cooling process, results in homogeneous transparent masses, which show no trace of crystals. Such masses, however, may become more or less opaque on keeping, owing to the slow crystallisation of the aloin. The only other variety commonly met with in the vitreous form is Cape aloes, which occurs in dark masses, often with a greenish tinge. It is easily distinguished by its marked sour odour, pale yellow powder, and the permanent green colour it imparts to nitric acid after standing a few minutes. Squire gives the solubility in water of Barbados aloes as 75 per cent., and states that it dissolves entirely in 60 per cent. alcohol. The solubility tests insure the use of a carefully-prepared drug.

Aloe Socotrina.

SOCOTRINE AND ZANZIBAR ALOES are obtained from *Aloe perryi*, Baker, and other species of *Aloe*. The juice that flows from the transversely cut leaves is collected in the island of Socotra and on the east coast of Africa, whence it is exported to Europe by way of Bombay. The juice is allowed to evaporate spontaneously, and arrives in this country in a semi-liquid or pasty condition; if the kegs or tins containing Socotrine aloes are allowed to remain undisturbed for awhile, the brownish-yellow, viscid, opaque contents tend to separate into a clear, dark-brown liquid and a dark yellow deposit of aloin in crystals. Socotrine aloes are less purgative than the Barbados variety, two grains of the latter being equal in that respect to three grains of Socotrine aloes. The B.P. dose of the latter is from 2 to 4 grains. The official preparations of Socotrine aloes are aloin, pilula aloes et asafetida, pilula aloes et myrrhæ, pilula aloes socotrinæ, pilula rhei composita, and tinctura benzoini composita.

CHARACTERS AND TESTS.—The odour of the fresh aloes is unpleasant, but an agreeable fragrance is developed on keeping. When dried at a gentle heat, Socotrine aloes forms hard dark-brown or nearly black masses, which break with a dull, waxy, uneven fracture, and are characterised by a strong but not disagreeable odour and an extremely bitter, nauseous taste. Zanzibar aloes may be regarded as a variety of Socotrine aloes. It is usually imported in liver-brown masses, which break with a dull, waxy fracture, differing from that of Socotrine aloes by being nearly smooth and even. The odour of Zanzibar aloes is strong and characteristic, and its taste is nauseous and bitter. Both Socotrine and Zanzibar aloes are usually of the opaque, hepatic variety, though they also occur in the vitreous variety. Examined under the microscope they exhibit numerous minute crystals of aloin (socaloin) imbedded in a transparent mass. Both kinds impart to nitric acid a reddish or yellowish-brown colour (distinction from Barbados and Curaçao aloes), and when the vapour of nitric acid is blown over the powder mixed with sulphuric acid no blue coloration is produced (distinction from Natal aloes). Both Socotrine and Zanzibar aloes dissolve almost entirely in 90 per cent. alcohol diluted with half its volume of water, or in 60 per cent. alcohol, and they should yield about 50 per cent. to water, leaving a practically inert residue.

NOTES.—The distinctive characters of Socotrine and Zanzibar aloes are the reddish or yellowish-brown colour imparted to nitric acid and the absence of colour when the powder is treated with sulphuric acid and the vapour of nitric acid. The specific name of *Aloe perryi* is derived from the name of the individual—Lieut. Perry—who first brought specimens of the plant to Kew. Garnet-coloured, translucent socotrine aloes from *A. perryi* may be seen in museums, but is not now found in commerce. Samples which are nearly black are unfit for pharmaceutical purposes. Fine qualities of Zanzibar aloes are sometimes slightly translucent. The nitric acid test is very important; no true Socotrine or Zanzibar aloes imparts a crimson colour to the acid. The solubility test suffices to exclude inferior samples of the true drugs.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

FAT- DESTROYING FUNGUS.

R. H. Biffen describes a fungus belonging to the Hypocreaceæ found on germinating coconuts, which has the property of breaking up the oil contained in the endosperm. The reproductive bodies observed were megaconids, microconids, pycnidiospores, and peritheces; but no ascospore could be discovered in the latter. The author attributes the property of splitting up oil to an enzyme, which can be obtained in a flocculent precipitate by the addition of an excess of absolute alcohol.—*Annals of Botany*, 1899, p. 363.

According to A. Gautier, arsenic is constantly present in the thyroid gland, apparently, like phosphorus and iodine, combined in the nucleins. When thyroid glands are submitted to peptic digestion, the peptones are absolutely free from arsenic, but the residual nucleins are relatively rich in that metalloid. Arsenic is also found in minute quantities in the spleen and in the skin, but no other organ gives even the faintest trace. This precise limitation of its occurrence has important toxicological significance, since its presence, even in minute trace, in any but the organs specified, is regarded as abnormal.—*Comp. rend.*, 129, 929.

ANIMAL FERMENTS.

The researches of B. Abelous and E. Gérard point to the probable co-existence of an oxidising and a reducing ferment in the tissues of the organs of animals. They find that when a maceration of horse kidney is allowed to act on a solution of potassium nitrate, that a certain amount of nitrite is formed, which after twenty-four hours in the incubator at 42° C., begins to diminish in quantity. If a trace of sodium nitrite be similarly treated, the greater part disappears; but if the kidney maceration be first boiled, no oxidation of the nitrite ensues. Similar but even more pronounced results of the same nature are obtained with the ferment precipitated from the aqueous kidney maceration by means of alcohol. Further, the reducing ferment may be almost wholly removed by submitting the renal pulp to the digestive reaction of papain or of trypsin, while the oxydase becomes even more energetic than before. On the other hand, the last-named ferment may be rendered inactive by removing the air from the aqueous maceration and exposing the experimental mixture to an atmosphere of inert gas, such as hydrogen.—*Comp. rend.*, 129, 1023.

STRONTIUM AND BARIUM PHOSPHIDES.

By reducing the phosphates of strontium or of barium by means of lampblack in the electric furnace, A. Jaboin has succeeded in obtaining the respective phosphides in a crystalline state. *Strontium phosphide*, Sr_3P_2 , which is a very stable body in dry air, occurs as a blackish mass of microscopic crystals, showing a bright, crystalline, reddish-brown fracture. Its density is 2.68; it rapidly decomposes in moist air. Hydrogen is without action on it below the fusing point of glass; it burns in chlorine at about 30° C. Bromine combines with it at 170-175° C., and iodine at a red heat. At very high temperature carbon replaces the phosphorus, so that during the preparation, exposure in the electric furnace must not be prolonged. Water causes its decomposition with the formation of strontium hydrate and phosphoretted hydrogen. It is not attacked by strong acids; with oxidising agents, violent reaction takes place. *Barium phosphide*, Ba_2P_3 , is analogous in all respects to the strontium compound, occurring in dark masses of minute crystals, with a brilliant fracture.—*Comp. rend.*, 129, 762.

VOL. 64. (FOURTH SERIES, VOL. 10.). No. 1543.

INFLUENCE OF SOLAR RAYS ON PLANTS.

E. C. Teodoresco has made a series of experiments on this subject, employing the spectroscope and different coloured screens. With regard to the leaf, he finds the various coloured rays to be less favourable to the development of their tissues than total light. The palisade and air tissues have a minimum development in the green, more in the red, most in the blue. The chloroleucites are smallest and least numerous in the green, the stomates are more numerous in the green than in the red, and in the red than in the blue. The results obtained in the root and in the stem confirmed the general conclusion that green light is least favourable to the development of the plant, the maximum development of all the tissues being, on the other hand, most promoted by the most refrangible rays of the spectrum, viz., the blue and the indigo.—*Ann. Sci. Nat. (Bot.)*, 10, 1899, p. 141.

EXPLOSION OF POTASSIUM CHLORATE.

Although potassium chlorate is not generally considered to be a detonating explosive, Berthelot finds that when suddenly introduced into surroundings previously heated to a temperature above that at which decomposition commences, it will detonate under ordinary pressure in an open vessel, even when enveloped in an inert gas. In that respect it resembles picric acid. This may be shown experimentally in the following manner. A glass tube 25 to 35 Mm. in diameter closed at one end, and fixed almost vertically, is heated in a gas flame to a red heat for about 25 to 30 Mm. of its length; in the meanwhile, a glass rod, drawn out to a thread, is dipped several times into a melted mass of $KClO_3$, each coat of the melted salt being allowed to cool before a fresh immersion is made. In this way a bead of the salt is formed at the end of the thread. This is then plunged into the red hot tube to about 10 Mm. from the bottom, taking care not to touch the sides. As the chlorate liquefies under the influence of heat radiating from the sides of the tube, it slowly drips on the bottom, and as each drop falls, a sharp detonation, accompanied by white fumes, will be obtained. The detonation, however, does not affect the melted salt which remains adherent to the glass thread. The chlorate detonates more markedly when heated directly in a hydrocarbon flame. The conditions cited above may easily be reproduced in the case of a great fire, where the walls of a warehouse may become heated as described; this probably explains the recent fatal explosion at the chlorate works of the United Alkali Company at St. Helens.—*Comp. rend.*, 129, 926.

ACTION OF HEAT ON SEEDS.

Doyère has shown that grains of wheat may be heated to 100° C. without affecting their powers of germination, if they have previously been dried *in vacuo*. V. Jodin finds that the same results may be obtained with certain seeds, without employing a vacuum, if the temperature be regulated so that they are thoroughly deprived of moisture before being exposed to a greater heat. Thus the seeds of *Lepidium latifolium* and peas, heated at once to 98° C. for ten hours were all killed; but if first exposed for twenty-five hours to a temperature of 60° C., then for ten hours to 98° C., 30 per cent. of the peas and 60 per cent. of the *Lepidium* seeds germinated. In fact, a temperature of 60° C. appears to be quite harmless to these particular seeds. This is only the case, however, if the seeds are exposed in an open vessel, so as to permit the rapid elimination of hygrometric moisture. If this be checked, the vitality of the seeds is at once impaired. If they are heated in sealed tubes, or even in tubes with an open capillary aperture, they are killed even at 40° C. But if a hygroscopic body, such as quicklime, be previously introduced into the same tubes, so as rapidly to absorb the moisture given off, the seeds remain as resistant to the effects of heat as those treated in an open vessel.—*Comp. rend.*, 129, 893.

CHEMISTRY OF JASMIN OIL.*

Some years ago the examination of jasmin oil was undertaken in the laboratory of Messrs. Heine, of Leipzig, and it was found to contain a considerable amount of benzyl acetate, $C_7H_7 \cdot C_2H_3O_2$. Subsequently Verley (*Compt. rend.*, 128-314), by heating a fraction of the oil with oxalic acid, obtained a crystalline product which he took to be phenyl-glycol, $C_6H_5 \cdot CH(OH)CH_2 \cdot OH$, and thence he inferred that the odour of the oil was due to the presence of phenyl-glycol-methylene acetal. $C_6H_5 \cdot CH-CH_2 \cdot O \cdot CH_2 \cdot O$

As it appeared unaccountable that a body of such marked characters should have been overlooked, the investigation of the oil was resumed by A. Hesse and F. Muller, and the behaviour of phenyl-glycol-methylene acetal with alkalies and acids was also studied. It was found to be readily volatisable with steam, unaltered when boiled with alcoholic potash, but readily convertible into phenyl-glycol when boiled with a 1 per cent. solution of oxalic. In the examination of jasmin oil it was first separated into fractions by distillation with steam, and the portion distilling between 96° and 101° was subjected to the action of oxalic acid, without yielding the least trace of phenyl-glycol. By saponification of the oil it yielded benzyl alcohol, with a small quantity of linalol and acetic acid, showing that the ester portion of the oil consists chiefly of benzyl acetate, with a small proportion of linalyl acetate.

But, though the results obtained sufficiently proved that the odour of jasmin oil is not due to phenyl-glycol-methylene acetal, it was evidently influenced by the presence of other bodies in small proportion, for the detection of which large quantities of the oil required to be operated upon. Then, in the second paper on the subject, Hesse and Muller state that the average composition of jasmin oil is benzyl acetate 65 per cent., linalyl acetate 7.5 per cent., including, perhaps, esters of other terpene alcohols, benzyl alcohol 6 per cent., linalol 16 per cent. (?), and other constituents amounting to about 5.5 per cent.

From the further investigation of the oil of jasmin flowers, Albert Hesse concludes that the most important constituents are indole, the methyl-ester of anthranilic acid, and a ketone of the formula $C_{11}H_{16}O$, to which he gives the name of jasmone.

INDOLE was determined by conversion into the picrate and the amount found to be 2.5 per cent. Indole reacts with sodium disulphite like aldehyde, forming a crystalline compound very sparingly soluble in methyl alcohol and again yielding indole when heated with alkalis.

ANTHRANILIC METHYL-ESTER was determined by several methods:—When it amounts to more than one per cent. of the oil, on mixing 1 C.c. of the oil with an equal volume of a cooled mixture of 1 C.c. concentrated sulphuric acid and 5 or 6 C.c. of ether, a crystalline sulphate of the ester is deposited: on washing the crystals with alcohol and ether and then decomposing with soda solution the methyl-ester is recovered. Crude jasmin flower oil does not react sharply with this reagent as neroli oil does, and hence Hesse infers that the amount of anthranilic methyl-ester in jasmin oil cannot be more than 0.5 per cent.

JASMONE, $C_{11}H_{16}O$, is a pale yellow oil, becomes darker when kept, it has an intense jasmin odour; specific gravity, 0.945 at 15° ; boils at 257° — 258° under a pressure of 755 Mm. The oxime, $C_{11}H_{17}ON$, crystallises in fine needles melting at 45° and volatilises with water vapour. The semi-carbazone melts between 201° and 204° . This ketone constituent of jasmin oil is contained in the fraction distilling in vacuum (4 Mm.) above 100° , or under normal pressure above 230° , and it can be separated by conversion into the oxime or the semi-carbazone. The crude oxime can be separated from oily admixtures by distillation with water, the oxime passing over last—or by shaking with dilute sulphuric acid, in which the oxime is very soluble, extracting the acid solution with ether, and then on neutralising the solution with ammonia, the oxime is deposited

in crystals. The amount obtained was 3.5 per cent. The semi-carbazone can be purified by distillation with water and from the non-volatile residue the ketone can be separated by treatment with the equivalent quantity of sulphuric acid and straining

COMMERCIAL MYRRH AND POWDERED MYRRH.*

BY GEORGE F. MERSON.

Pharmaceutical Chemist.

In examining a series of samples of myrrh obtained in the ordinary course of business from brokers and others, and variously described as "Sorts," "Sorts Elect.," "Sorts Parv.," etc., but all included in the generic title myrrh, I was struck by the widely dissimilar character of the samples, yet was unable, from official data, to say that they were other than what the Pharmacopœia directed to be used in the preparation of the tincture. One sample yielded, on ignition, as much as 15.7 per cent. of ash, over 8 per cent. of which was insoluble in acid; earthy impurities.

The Pharmacopœia gives in the case of similar gum-resins, asafetida and gamboge, an ash limit and a spirit solubility; yet in the case of myrrh, galbanum, and ammoniacum there is neither ash limit stated nor percentage which should be soluble in 90 per cent. alcohol given. It may be urged that myrrh is not of very great pharmaceutical importance, and that no special harm would accrue through the presence, more or less, of sand and other extraneous matter.

The same would apply equally to gamboge and asafetida, yet these substances are safeguarded from adulteration. The following notes make no pretence to absolute accuracy, but are intended for general guidance to pharmacists, the manipulations necessary being such as can be readily carried out at the dispensing counter.

TABLE I.—LUMP.

No.	Per Cent. Soluble in 90 p.c. Alcohol.	Per Cent. Insoluble in 90 p.c. Alcohol.	Per Cent. Total Ash.	Per Cent. Soluble Ash.	Per Cent. Insoluble Ash.	Trade Description
1	33.0	68.8	13.7	7.6	8.10	Sorts Parv. Com.
2	35.2	64.8	9.8	4.6	5.20	" " "
3	35.6	64.4	6.4	4.4	2.0	" " "
4	35.9	63.8	8.3	5.5	2.	Parv. Opt.
5	37.8	62.2	4.5	4.1	0.40	" " Pkd.
6	38.7	61.3	3.0	2.69	0.31	" " Elect
7	39.4	60.3	3.3	2.16	0.14	" " Opt.
8	39.5	60.5	3.4	3.38	0.02	" " Elect
9	40.0	60.0	2.7	2.7	0.00	Elect 30 yrs. old
10	45.7	34.3	3.4	3.3	0.10	Sorts Parv. Elect.
11	48.3	51.6	2.8	2.4	0.40	Elect Medium

TABLE II.—POWDER.

No.	Per Cent. Soluble in 90 p.c. Alcohol.	Per Cent. Insoluble in 90 p.c. Alcohol.	Per Cent. Total Ash.	Per Cent. Soluble Ash.	Per Cent. Insoluble Ash.	Trade Description.
12	33.8	66.2	7.53	4.98	2.55	Pulv.
13	36.8	63.2	9.20	5.30	3.90	" Opt.
14	38.0	62.0	12.90	7.20	5.70	" Elect.
15	38.2	61.8	10.84	6.24	4.60	" "
16	38.4	61.6	5.70	4.37	1.33	" Elect.
17	38.8	61.2	13.15	6.54	6.61	" "
18	39.1	60.9	9.10	5.40	2.70	" "
19	40.6	59.4	9.40	6.00	3.40	" Elect.
20	41.0	59.0	9.05	4.90	4.15	" No. II.
21	42.1	57.9	5.00	2.90	2.10	" Extra elect.
22	43.4	56.6	3.90	3.76	0.14	" "
23	46.5	53.5	3.50	3.10	0.40	" "
24	46.6	53.4	5.70	3.80	1.90	" "
25	47.1	52.9	3.50	3.10	0.40	" No. I.

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, January 17, 1900.

* *Berichte*, 32, 565, 765, 2611.

Tables I. and II. represent the approximate composition of twenty-five samples examined during the course of last year—eleven of lump and fourteen of powder—and obtained from all parts of the country. I am indebted to Mr. Rutherford Hill for nearly half of them, and which represent pharmacy north of the Tweed.

The figures given in the second column show the percentage soluble in 90 per cent. alcohol. This would include resin, essential oil, and moisture, and was arrived at by treating 1 Gm. in fine powder with successive small quantities of rectified spirit, filtering through two counterpoised filter papers, washing the insoluble portion till perfectly exhausted, drying at water oven temperature, and weighing. The weight of the insoluble residue expressed as per cent. is given in column three. Its composition would be gum, woody fibre, and extraneous mineral matter.

The ash was determined by igniting 1 Gm. of the drug, cooling and weighing. This treated with hydrochloric acid, washed with water, drying the insoluble portion and again weighing, gave respectively total ash, insoluble mineral matter (silica), and, by difference, soluble ash, as shown in columns four, six and five.

It will be noticed that there is a certain relationship between the percentage soluble in alcohol and the quantity of total ash present.

The higher the yield of spirit soluble matter the lower the percentage of ash. It is noteworthy also that, with the exception of the first four samples, the total ash is practically entirely soluble in dilute hydrochloric acid.

In other words, the normal ash of myrrh is entirely soluble. The small percentage of insoluble matter found in the ash of Nos. 5 to 11 was proved to be adherent sandy particles embedded in the surface layers of the pieces of myrrh. The soluble character of normal ash being thus proved it will aid us presently in fixing a standard of ash limit for the powder. No. 1 on the table was a very sandy sample. Fragments of granite or quartz, of considerable size, could be distinguished with the naked eye, hence the high yield of ash. When sifted and again ignited, the ash content fell very considerably.

It was "Small Sorts," and certainly not such as anyone would be likely to buy for tincture making.

Yet it, with Nos. 2 and 4, are closely reproduced in some of the powdered samples in Table II. The assumption that much of the siftings find their way into the commoner grades of powder is borne out by the amount of sand present in the powdered article of commerce. The soluble portion of the ash was found to be chiefly carbonates (as would be expected) of lime and magnesia, with traces of iron, but no attempt at a complete chemical analysis was made.

The insoluble portion was, to all intents and purposes, "silver sand," with, in the worst samples, a good deal of dust. Two only of the samples yielded over 5 per cent. of soluble ash, and these not to any extent in excessive quantity. Even *total* ash in good commercial myrrh does not reach 5 per cent., although K. Dieterich ('Year-Book,' 1899, p. 167) gives 10 per cent. as the limit of ash allowable. This, in my opinion, is much too high, even for powdered myrrh. Excluding No. 1 in Table I. as being not a fair type, but including Nos. 2, 3 and 4, which are undoubtedly of low grade, the mean total ash of ten samples is 4.75 per cent.

Dieterich also states that not more than 70 per cent. should be insoluble in alcohol. This, again, is, in my opinion, to allow too wide a margin.

I would incline to 65 per cent. of insoluble matter as the maximum, and that, according to column three in the tables, is a liberal allowance. The mean of ten samples, again, is 60.3 per cent., while if the first three are omitted we obtain 59.5 per cent. as the figure. The powders in Table II. show over all a mean of practically the same percentage, and I am tempted to suggest 60 per cent. insoluble in spirit as the correct figure.

Turning now to the powders, we find uniformity conspicuous by

its absence. Although the spirit soluble percentage is approximately the same as in the lump, the yield of ash is much more varied, as well as being altogether higher and containing a larger proportion of silica.

Table II. is interesting from the fact that it indicates what chemists' ideas of powdered myrrh are. The yields of ash shown by the table certainly indicate a wide range of quality.

Only in the very finest grades of powder does the total ash fall so low as 5 per cent. It would appear from the table that three only, Nos. 22, 23, and 25, are absolutely pure, although 16, 21, and 24 are by no means bad. Where the total ash rises above 6 per cent., and the insoluble portion exceeds 2 per cent., it is evident that carelessness, or intent, exists in the preparation of material for grinding.

As commercial myrrh contains an average of from 5 per cent. to 7½ per cent. of moisture, which is driven off before grinding, we must allow for a higher normal ash in the powder than we would pass in the crude state. As the crude drug can be valued fairly accurately by the eye and nose, so the powder, in which the resin value is fairly constant, can be assayed roughly, yet sufficiently accurately, for general purposes by the elutriation of a weighed quantity (say 1 Gm.) with warm spirit.

Two or three successive treatments in a small flask, using a tared-filter paper upon which to decant the liquid, and allowing a few moments for the denser particles to subside, will separate the powder as follows:—

Sand (chiefly) in flask,
Gum (insoluble) on filter paper,
Resin (in solution) in filtrate.

The flask, being tared before commencing the operation, is placed in a water oven to dry, likewise the filter paper with gum, this latter being washed with a little more alcohol if necessary. The net weight of sand and gum combined deducted from 1 Gm. will be the weight of resin. Even elutriation itself will show at a glance the presence or otherwise of an undue proportion of sand. This, of course, applies only to foreign mineral matter, not ash proper.

In addition to the above, for shop purposes, a rough assay may be made by igniting 1 Gm. in a porcelain crucible, treating the ash successively with dilute HCl and water in the crucible and pouring off the clear liquids. There should be practically no sandy or crystalline residue.

Colour is a useful guide to purity in powdered myrrh. The samples examined ranged in colour from rich lemon or straw for the finest varieties to dull greyish and brown for the common grades.

In the inferior sorts an ordinary hand lens, and even the naked eye, revealed distinctly crystalline particles in considerable quantity.

One Gm. of medium quality lump was powdered coarsely and dried on a watch glass in water oven for an hour, cooled in a desiccator, and weighed. Result: 0.911 Gm., equal to a loss of 8.9 per cent. The essential oil exuded freely and collected in globules on the watch glass. Even at this temperature the oil was seen to be volatilising, so that the loss did not accurately represent the moisture present. On again placing in water oven for a further period of twelve hours, cooling and weighing, the myrrh was found to have gained in weight to the extent of 0.011 Gm., whilst the globules of oil, which were quite fluid in the first instance, had become resinified. A similar quantity in coarse powder dried for forty-eight hours over sulphuric acid gave results equal to 7.42 per cent. of moisture, and practically the same was obtained (7.32 per cent.) with double the quantity in twelve hours.

The dried residues when finely powdered were of a beautiful lemon colour, and this shows that the darker grades of powdered myrrh on the market are the product of a much inferior gum resin.

Invariably a dull or dark-coloured powder is associated with a high ash yield and much insoluble mineral matter.

To summarise:—

(1) Myrrh is easily obtainable of good quality, and is not adulterated to any great extent, except by the inclusion of earthy matter which can readily be removed by sifting.

(2) The normal ash in good "sorts" does not exceed 5 per cent., which should be almost entirely soluble in dilute hydrochloric acid.

(3) One Gm. when exhausted by 90 per cent. alcohol should leave a residuc which, when dried at 100° C., should not weigh more than 0.60 Gm.

These data I would respectfully submit upon which to base a supplementary paragraph to be included in the British Pharmacopœia under "Characters and Tests."

TINCTURE OF MYRRH.*

BY GEORGE F. MERSON.
Pharmaceutical Chemist.

In the present Pharmacopœia, percolation as a means of exhaustion for drugs is much more largely employed than in the previous one, and I thought it might be interesting to see whether any special reason existed as to why tincture of myrrh, which was made by maceration and percolation in the 1885 edition, should, so to speak, take a backward step, and revert to maceration only. On the score of economy, which, efficiency being always kept in view, is an important feature in the manufacture of spirituous preparations, percolation gives a smaller loss of menstruum through evaporation, and a more perfect exhaustion, than does maceration.

The increased proportion of gum resin ordered in the present formula (4 oz. per pint, as against 2½ oz. previously) cannot be held as a reason for the change, as it is well known that, weight for weight, percolation will more thoroughly exhaust a drug than will maceration, provided always the substance is suitable for percolation—this, myrrh is. The Pharmacopœia orders myrrh in *coarse powder* and maceration for seven days in three-fourths of the final volume of 90 per cent. alcohol; filtering and washing the marc with more alcohol to produce the required volume of the tincture. The question here arises, what is a coarse powder? I would have said without hesitation No. 20, and several *confrères*, on being asked the question, at once gave No. 20 as being their reading. Some even said 16 to 18 in the case of myrrh. On glancing over the Pharmacopœia, however, we find that three common numbers, "degrees of coarseness or fineness," are employed—viz., 20, 30, and 40. Higher than these we have "fine powder" and "finest powder" specified, the degree of comminution being left to the common sense of the pharmacist. Conversely we have certain substances ordered in "coarse powder," which we are justified in taking to mean of a degree or degrees coarser than No. 20, but certainly not so fine as No. 20. Had No. 20 powder been meant in *Tinctura Myrrhæ*, why not say so? The assumption is that it is coarser than No. 20 that is indicated. However suitable such a powder might be in the case of woody or fibrous drugs, it is manifestly unsuited to a compact resinous body like myrrh. I made no attempt to experiment with anything in a coarser state than No. 20, thinking that no useful end would be served by doing so. I have prepared six quarter-pint lots of tincture from, respectively, 20, 30, and 40 powder, using maceration in one set and percolation in the other. The figures in Table III. give comparable results:—

TABLE III.

No. of Powder.	Maceration.		Percolation.	
	S.G. at 60° F.	Resin undissolved.	S.G. at 60° F.	Resin undissolved.
20	0.85044	8.2 p.c.	0.85120	3.4 p.c.
30	0.85090	3.7 p.c.	0.85182	1.5 p.c.
40	0.85192	1.3 p.c.	0.85250	0.0 p.c.

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, January 17, 1900.

It will be seen that percolation gives distinctly the better tincture. Not only is the specific gravity higher than that of the tincture made by maceration, but the percentage of undissolved resin in the exhausted marc is considerably lower. The time taken to finish the tincture is inside of twenty-four hours, as against seven days—an obvious advantage. No. 20 powder macerated with frequent agitation daily and finished off according to official directions left 8.2 per cent. of resin undissolved. No. 30 powder under similar treatment gives a specific gravity and percentage of undissolved resin which closely approximate the results obtained by *percolating* No. 20 powder, the latter, however, having slightly the advantage—the gravity being a trifle higher and the proportion of undissolved resin somewhat smaller. No. 30 powder percolated bears practically a similar relation to No. 40 macerated, while No. 40 powder percolated is to all intents and purposes completely exhausted.

The only drawback to using 40 powder is the difficulty experienced in getting the myrrh to pass so fine a sieve, owing to its oily nature.

Then, again, for percolation it is too moist and cohesive when freshly powdered to get introduced uniformly into a percolator without packing too hard. If, however, the powder be allowed to stand over-night in a closed vessel after sifting, it will cake somewhat, and can then be re-sifted in a "free" condition, oxidation of the oil, which is fairly rapid, bringing this about. The powder now run into a conical percolator, slowly rotating this the while and tapping the sides gently all round afterwards, will allow the menstruum to pass rapidly, and by the time half the spirit has passed the percolate will be practically colourless. A small pad of cotton is put in the bottom of the percolator before filling. When most of the colour has been discharged it is advisable to close the tap of the percolator, say over-night, for maceration, and draw off the remainder of the spirit in the morning. The marc may be pressed off, or the spirit recovered by distillation, although it is preferable to use about seven-eighths of the total volume of alcohol, drain, press off, adding pressings to the tincture and making up, if necessary, with more alcohol.

As the drug is exhausted before all the menstruum has passed through, there can be no objection to making up to bulk with spirit. It is no use attempting to displace with water, as can be done in *Tinct. Zingiberis*.

Consequent upon a paper read in November, 1894, by Mr. H. W. Jones, before the Midland Pharmaceutical Association, an exchange of ideas regarding the percolation of tincture of myrrh took place in the correspondence columns of the *Pharmaceutical Journal* between that gentleman and Mr. A. McKellar, of Glasgow. Mr. Jones advocated maceration and percolation, referring to the difficulty in getting uniform packing and freedom from air bubbles unless the drug was previously mixed with a considerable quantity of spirit and then transferred to the percolator. The air bubbles I do not think are of any moment, and if the creamy mixture is poured into the percolator the coarser particles settle at the bottom, leaving the fine powder in the upper layers—exactly the opposite condition to that which should prevail to secure thorough exhaustion. Solution of the resinous principle of myrrh is so rapid that a percolator should be chosen, relatively large, compared with the bulk of powder to be operated on, so that the tendency to clog, which is troublesome when using No. 40 powder in a long column of marc, may be obviated. The depth of powder in the percolator should not be more than twice the diameter of the lower part of the percolator. If 30 powder is used, there is no trouble with clogging if care is taken in filling the percolator.

Specific gravity varies considerably in samples of tincture which I have examined.

Colour gives no indication of the gravity of the tincture, or, if any, then in inverse ratio.

High-coloured tinctures are made from inferior grades of myrrh, and those having a high ash content will give a low spirit solubility. The specific gravity of one dark sample I found to be 0.8474, while the figure for a standard tincture should not fall below 0.851.

Specific gravity, however, is not of very much importance, as the percentage of moisture present in the crude drug, which is variable, will affect it to a greater or less extent, and it would be very easy to adjust a tincture to any given figure.

I have here two specimens each of tincture, powder, ash, and exhausted gum residue for comparison.

They are respectively examples of fine and common products.

STRYCHNINE HYDROCHLORIDE AND SODIUM ARSENATE.*

BY J. RUTHERFORD HILL.

In his paper at our last meeting Mr. Dunlop suggested, but did not profess to prove, that the precipitation of strychnine in his mixture (*Ph. J.*, page 604) was due to sodium oxide as a contamination in the sodium arsenate. Other explanations were suggested in the discussion. In view of the process for making sodium arsenate, sodium oxide as an impurity is improbable. Drying at 300 F. would not produce it. Moreover, I have found that the crystallised salt $\text{Na}_2\text{HAsO}_4 \cdot 12\text{H}_2\text{O}$ causes precipitation exactly in the same way as the dried salt, and there could be no sodium oxide in the crystals. The official liquor sodii arsenatis is only faintly alkaline at ordinary temperatures. Mr. Dunlop found at least 0.5 grain of strychnine precipitated from half an ounce of the solution. The sodium arsenate would have required to be contaminated with hydroxide to the extent of 2.75 per cent. to cause such a precipitation, and this would give a very distinct alkaline reaction. The hydroxide would have been detected in the alcohol with which the salt was washed, but I could find none. The evidence therefore seems to be that sodium oxide did not cause the precipitation. The varying reaction with mercuric chloride is referred to later.

It was suggested that the salt contained some sodium carbonate, and that this explained the precipitation. In view of the process of manufacture such a contamination is not at all improbable, but a salt so contaminated would not conform to the pharmacopœial tests. The salt I used in my experiments, and which acted in the same way as Mr. Dunlop reports, gave not the slightest indication of effervescence on adding strong sulphuric acid to the dry salt. I found that one part of Na_2CO_3 in 1000 of dried Na_2HAsO_4 could be quite distinctly detected by effervescence when treated in the foregoing way. The salt therefore contains no Na_2CO_3 or less than 0.1 per cent. But in order to precipitate 0.5 grain of strychnine you must have 0.08 grain Na_2CO_3 which is equal to 3.7 per cent. of a contamination, and that would be very readily detected by adding strong sulphuric acid. This leads to the conclusion that sodium carbonate is not the cause of the precipitation.

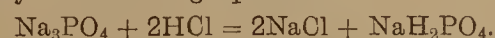
The third suggestion quoted by Mr. Dunlop, and supported in the discussion, was that sodium arsenate undergoes partial hydrolysis in aqueous solution, and that the faint alkalinity and precipitation of strychnine are due to the NaOH thus produced, the equation being,



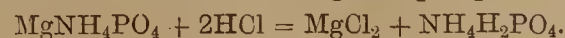
Reference to authorities gave little useful information, but much was learned by reference to the isomorphous salt sodium phosphate Na_2HPO_4 , in regard to which Ostwald and others support the view as to hydrolysis of the salt in aqueous solution. On repeating experiments with both phosphate and arsenate of sodium, it was found that both acted in precisely the same way under similar conditions. When Na_2HAsO_4 is added to a solution of NH_4Cl there is no immediate evidence of free ammonia. But

if the solution is allowed to stand, free ammonia is plainly perceptible in a few hours both to test-papers and by smell. When the solution is heated free ammonia is immediately and very perceptibly evolved. This would indicate, and accords with theory, that hydrolysis takes time to develop at ordinary temperatures, and is hastened and probably increased at higher temperatures. This phenomenon may be easily demonstrated by adding a few drops of solution of phenolphthalein to a suitable quantity of liquor sodii arsenatis. Fill two test-tubes with the faintly-pink liquid. Heat one, and the tint will be observed to deepen gradually up to the boiling point. Place the hot tube alongside the cold tube and the contrast will be very distinctly seen. As the hot liquid cools the depth of colour gradually diminishes until after a few hours both tubes have again the same tint, showing that the salt has resumed the same molecular condition. The experiment may be repeated at will by again applying heat. The varying evidences of sodium oxide which Mr. Dunlop says he got with HgCl_2 may be due to differences in concentration of the solution, in the time it has stood, and in the temperature, all of which will affect the degree of hydrolysis and the percentage of free NaOH.

It was proved by Rose that a solution of Na_2HPO_4 decomposes NH_4Cl with liberation of NH_3 . Thomas has shown (*Journal of the Chemical Society*, vol. 33, p. 76), that Na_2HPO_4 absorbs HCl, giving up half its Na to form NaCl and NaH_2PO_4 . He found that when HCl is added to a saturated aqueous solution of Na_2HPO_4 at the boiling temperature, the whole of the acid combines with the Na of the phosphate and forms NaCl, provided there be two equivalents of Na to one of HCl in the solution. When tribasic sodium phosphate was dissolved in water, and HCl added equal to $\frac{3}{2}$ of the equivalent of the base, and the solution subjected to distillation in a vacuum, the distillate was neutral. If more than the above proportion of HCl was present, the distillate was acid. The reaction is made clear by the following equation:—



This result was confirmed by Stolba, who applies the method to the volumetric determination of phosphoric acid in minerals and manures by titration of ammonio-magnesian phosphate thus:—



Pagenstecher has also shown that solutions of Na_2HPO_4 absorb CO_2 . As already stated, sodium arsenate was found on experiment to behave in all cases precisely as sodium phosphate does.

All these observations favour the theory that sodium phosphate and arsenate in aqueous solution do undergo hydrolysis, and that the tendency is to separate into the dihydrogen phosphate or arsenate and sodium hydroxide. They tend also to suggest that the precipitation of strychnine is not due either to sodium carbonate or sodium oxide present as an impurity in the original salt, but to free NaOH, resulting from hydrolysis. Mr. Dunlop manifestly did not attempt to determine quite accurately the amount of strychnine precipitated, and the method of collecting with so small a quantity would probably be attended by considerable loss. He says he got about 0.5 grain, or twenty-eight per cent. That quantity would theoretically require for precipitation 0.06 grain of NaOH, and would indicate that little more than an eighth part of the sodium arsenate undergoes dissociation in the solution. This further seemed to favour the view of hydrolysis as the cause, for it is alleged, and confirmed by my experiments, that at ordinary temperatures the hydrolysis of the Na_2HAsO_4 is only partial and very slightly apparent by reagents. I was disposed to rest satisfied with this explanation, and the prescription in question seemed to furnish a very interesting proof of the fact of hydrolysis as well as a means of determining its extent by precipitation of a relatively definite quantity of strychnine.

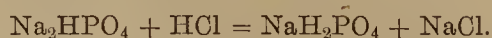
But it occurred to me to test the actual amount of strychnine liberated with some accuracy, and in doing so the method of washing out the precipitated alkaloid with chloroform in the usual way

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, January 17, 1900.

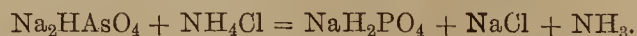
was adopted in preference to the less convenient plan of collecting, as Mr. Dunlop did.

It may be noted that on mixing the two solutions, shaking the mixture, and allowing to stand, crystals were seen beginning to form in about five minutes. Using an aqueous solution of trychnine hydrochloride in place of the official liquor, which contains 25 per cent of 90 per cent. alcohol, crystals began to form almost at once, the precipitation was much more rapid, and the crystals showed less tendency to adhere to the sides of the bottle. The spirit, therefore, appears to slightly retard precipitation. The solutions were allowed to stand for twenty-four hours. The precipitated alkaloid was thoroughly washed out with four quantities of chloroform, collected in a tared beaker and weighed. Half an ounce of liquor strychninæ hydrochloridi contains 1.797 grain strychnine. Two determinations gave as a mean 1.780, or 0.017 less than theory requires. This result was a surprise. Observing that Mr. Dunlop only allowed his mixture to stand one hour, it occurred to me that the reaction had not concluded in that time. On repeating the determination, allowing the mixture to stand only one hour and then washing out the yield was 1.760 (one determination), or 0.037 less than theory. It therefore appears that even in an hour the whole of the alkaloid is set free, though probably only gradually deposited from solution. That the deficiencies above noted were due to experimental error was proved by adding faint excess of HCl to the solution from which the alkaloid had been washed out and then a little potassio-bismuthic iodide solution. The absence of any precipitate showed that the alkaloid had been entirely removed. An aqueous solution of strychnine containing about one in 8,000 gives a perfectly distinct precipitate under these conditions. It seemed therefore clear that the hydrolysis theory was not an adequate explanation of the facts.

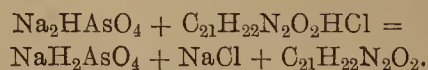
A consideration of Thomas's researches with Na_2HPO_4 suggested what seems the true solution of the problem. In his critical experiment the reaction evidently is as follows:—



It seems probable, too, that free NH_3 is given off when solutions of Na_2HAsO_4 and NH_4Cl are boiled together thus:—



It does not, then, seem necessary to assume that there is any prior hydrolysis in aqueous solution. Doubtless there does seem to be some, but it is unimportant. It is well-known that mineral acids in combination with alkaloids behave like free acids towards the fixed alkalies. The instability of the Na_2HAsO_4 in solution and the loose attachment of the HCl in the strychnine hydrochloride result in a double decomposition, explained by the following equation:—



An analogous experiment with a one per cent. solution of quinine hydrochloride and sodium arsenate solution gave an immediate precipitate, almost making the liquid solid, of the bulky quinine hydrate which dissolved readily in ether. In the course of these experiments, many interesting points of a physico-chemical nature relating to theories of solution emerged, which neither time nor ability made it possible for me to follow up.

SODIUM METAVANADATE IN MEDICINE.—Pécourt points out that from the ease with which vanadic acid and its salts part with their oxygen in the presence of organic matter, and from the difficulty in obtaining sodium metavanadate in a pure state, the therapeutic results obtained with those compounds are not likely to be satisfactory, unless care be taken to ensure that the preparations are fully active. This is the more needful, since the erroneous opinion prevails that the vanadates are as stable as the phosphates (See *P.J.* [4], 493).

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Red Rag of Anonymity.

It is rather a curious comment on the boasted level-headedness of the average Briton that he can rarely avoid introducing personalities into any argument in which he may be engaged—he must, in fact, have something concrete to belabour. I notice that a correspondent in last week's Journal chafes at my incognito, and even goes to the flattering length of suggesting that in order to have "due weight" my views should bear my signature. Now, that seems a very neat compliment to pay one, but it hardly appeals to me. My name is not one to conjure with, and it certainly has nothing whatever to do with the soundness or otherwise of the views I have advanced on pharmaceutical matters. It has ever been a profound mystery to me why a truth should be deemed unworthy of credence unless coupled with the name of its herald; or why disputants eager to arrive at the right or wrong of a debatable matter should think rather less of crushing fallacies than of damaging the reputation or feelings of their opponents! A little reflection should show that whatever weight attaches to the observations published in this column would not in the least be enhanced by the announcement that the writer's name was Brown or Smith. On the other hand, I can foresee that a great deal of force might be lost—such is our peculiar mental constitution—if the author disclosed his ordinary name and his very ordinary position in pharmacy. For it must be said that the feeling which prompted the disparaging inquiry of old, "Can any good come out of Nazareth?" has its counterpart to-day in the innermost recesses of the national heart; and every man of average intelligence knows perfectly well that any shortcomings in social or official position, or any physical or moral blemish inherited or acquired, will invariably draw punishment down upon one's utterances, to the more or less utter asphyxiation of the truth that may be in them. I propose, therefore, still to skulk behind the mask of anonymity, as a prominent pharmacist pleasantly puts it, but if I can induce those who enter into the arena of pharmaceutical politics to cultivate a thinking habit, instead of emulating the "Stanislaus" methods of discussion, with their unparliamentary use of English and "old red sandstone," I shall have largely accomplished the object with which I have delivered myself into the hands of the printers.

Division of the Qualifying Examination.

Mr. James Lennox states, in his letter published last week (*ante*, p. 30), that he did not complain of lack of interest in the proposal to divide the qualifying examination, but in a suggested reform of examination procedure. I find it difficult to perceive, however, how placing to a candidate's credit at his second attempt to pass an examination the marks awarded to him in the subjects in which he has previously satisfied the examiners differs from division of that examination. As a matter of fact, the two suggested changes would be the same in effect, though in one case it would be definitely understood that certain subjects must be taken in each part of the divided examination, whereas in the other the candidate would only be required to satisfy the examiners in the subjects in which he had previously failed. Of the two plans the first appears to me preferable, and I would assure Mr. Lennox of my cordial approval of it, though I must still contend that it is not yet within the sphere of practical politics. I can only express my regret that he declines to recognise the necessity of further raising the standard in the event of the proposed division becoming, as I sincerely hope it may, an accomplished fact. If the supply of mere retailers of drugs and sundry articles were to be the primary duty of the Pharmaceutical Society, it might be a moot point whether much in the way of examination is required at all. My own view, however, has always been that the maintenance of a definite pharmaceutical qualification is a matter of much greater importance, and that would seem to necessitate a continual advance rather than such a retrograde step as Mr. Lennox advocates.

The Woes of Army Medical Compounders.

The reports that have come to hand respecting the manner in which the newly-enlisted army medical compounders are being treated appear to me to be likely to act as a serious deterrent to others who might have been inclined to take a holiday and see a bit of life in South Africa at the public expense. Those whose applications were accepted seem to have expected—and not unreasonably—that they would rank as non-commissioned officers, at least; in reality, they are being treated as private soldiers, and there is a prospect of their having to undertake many other duties than those which strictly appertain to a medical compounder's province. So far as concerns individuals who are qualified under the Pharmacy Acts, many pharmacists are disposed to say, "Serve them right," the feeling being very strong that no registered chemist should have offered his services under the conditions stipulated. But various motives have doubtless actuated those who thought the conditions good enough for them, and loyalty to his fellow-workers is not yet too conspicuous in the average registered person's character. The lack of that loyalty, indeed, is one of the most painful features of modern pharmacy, but those in whom it is manifested are frequently more to be pitied than blamed. Let us, then, hope for amendment and sympathise somewhat with our brother pharmacists who have had the gilt so roughly removed from the army medical corps gingerbread. Personally, I wish them all well through their troubles and a safe return to their native country after a not altogether unpleasant sojourn in South Africa.

Pharmacy Act Administration.

The extreme difficulty sometimes experienced by the Pharmaceutical Society in securing favourable judgments in cases brought under the Pharmacy Act, 1868, is well illustrated by the result of the Worcester weed-killer case, as reported in the daily press this week. The defendant—a seedsman and florist, and not registered as a chemist and druggist—admitted having accepted payment for weed-killer containing arsenic, but claimed immunity on the ground that he acted as agent for the makers of the preparation. He did not keep any stock of the weed-killer, but booked orders for it, took the money in payment, and gave receipts on bill-heads bearing the name of the makers, to whom he sent the orders for execution direct. He accounted quarterly for the business done, deducting 25 per cent. from the selling price as his commission, and had absolutely nothing to do with the handing over of the poison to the seller. The Pharmaceutical Society, nevertheless, contended that he both kept open shop for the sale of poison and actually sold it. But the County Court judge decided adversely to the Society (see *P.J.*, last volume, p. 167), and an appeal was therefore entered. Again, however, the Society has been defeated, Justices Grantham and Channell having found, without troubling the respondent, that the County Court judge was right. Mr. Justice Grantham thought the respondent was undoubtedly an agent only—"the conduit pipe to introduce the one person to the other"—and Mr. Justice Channell said it seemed to him the evidence proved that the florist had not the control and management of the sale. The appeal was, accordingly, dismissed, but leave to appeal further has been granted, and more may yet be heard of the matter. Meanwhile, I may point out that, in the event of the Queen's Bench decision being upheld, the Society would still have had a remedy against the makers of the weed-killer, but for the fact that they are registered as a limited company. Otherwise, in the event of a case being brought against them, they might have pleaded that the transaction was a wholesale one. But the supply of an article by a wholesale dealer to a consumer is not a sale "in the ordinary course of wholesale dealing." Any sale to a consumer must necessarily be a retail transaction, a point which wholesale dealers who sell scheduled poisons would do well to note.

PROCEEDINGS UNDER THE PHARMACY ACT.

THE SALE OF WEED-KILLER.

Pharmaceutical Society of Great Britain v. White.

In the High Court of Justice, Queen's Bench Division, before Justices Grantham and Channell, on January 16, 1900, an appeal was heard from a decision of the County Court judge at Worcester, in August last (see *P.J.* [3] 9, 167), dismissing a claim by the plaintiffs to a penalty under Section 15 of the Pharmacy Act, 1868, for the sale of a weed-killer containing arsenic by the defendant, a seedsman and florist, on the ground that the defendant had not actually sold the article, but had simply taken the order for it, which he sent on to the Boundary Chemical Company to execute. Mr. Crump, Q.C., and Mr. Grey appeared for the appellants, Mr. Cavanagh for the respondent.

Mr. Crump, in opening the case, stated the facts shortly. The defendant admitted that he sold the weed-killer containing arsenic, but he said he acted as agent for the Boundary Chemical Company, Liverpool. He stated that he did not keep the weed-killer in stock, but sold it, took the money, and sent on the order to the Chemical Company, to whom he accounted quarterly, deducting 25 per cent. from the selling price as his commission. The learned County Court judge, in deciding the case, said he found, as a fact, that the defendant did not sell the article in question, but acted as the agent of the Chemical Company. He submitted that this was not a question of fact, but of law. In reply to Mr. Justice Grantham, he admitted that the defendant did not retail, dispense, or compound the article in question; but he contended that he was a seller. He kept an open shop in which he sold poisons. He cited the case of *Templeman v. Trafford*, 8, Queen's Bench Division, a case under the 17th Section, in which Mr. Justice Grove said: "I am of opinion that in cases under Section 17 the seller is the person who actually conducts the business of selling," etc. He then referred to the case of the *Pharmaceutical Society v. Wheeldon*, 24, Queen's Bench Division, and read the judgment of Mr. Justice Hawkins.

Mr. Justice Channell pointed out that in the case cited the sale was the actual handing over of the poison; the question really was what was intended by selling.

Mr. Crump, continuing his argument, referred to the case of the *Pharmaceutical Society v. London and Provincial Supply Association, Limited*, in which it was laid down that the actual seller must be a qualified person. He quoted several passages from the judgments in the House of Lords, one of which stated that "he who sells, whether he be master or servant, principal or person to whom the conduct and management of the sale is delegated, is struck at by the 15th Section, because otherwise a very wide door would be opened to the evil which the Act was intended to guard against." There was no question of delivery, or the handling of the poison, in any of the judgments he had referred to.

Mr. Justice Channell thought it might make a difference when the poison was not kept on the premises.

Mr. Crump submitted that it did not. He proceeded to read a passage from the judgment of Lord Blackburn in the House of Lords, who pointed out that an unqualified person was forbidden not only to sell, but to keep open a shop for the sale of poisons. He concluded by reading the judgment of the County Court judge, in the course of which he said that the case would have been wholly different if Mr. White had kept the weed-killer in stock, and had handed it across the counter, or had sent it out in his cart. He held, however, that it was not the sale of Mr. White, but of the Boundary Chemical Company; the acceptance of an order did not make the person who took the order responsible for the sale. On the whole, he submitted that that decision was contrary to the judgments to which he had referred. In reply to the Bench, he

said that the receipt for the money was given on a billhead bearing the name of the Boundary Chemical Company. The document was handed up to the Bench.

Mr. Justice Grantham said they need not trouble the respondent. He had no doubt that in this case the County Court judge was right. He had found, as a fact, and he had evidence before him to justify the finding, that the defendant did not sell this article. Practically the evidence was uncontradicted as to the position of the defendant. He was a florist, and, knowing what was useful for killing weeds, he was ready to advise people where to get it; and he thought also he might assist his own business and make a little money, and so he arranged with the people who were the sellers—who, as it were, kept the shop for it—to tell the people who wanted to buy weed-killer to go to them. He said, in his evidence, if anybody came to him for it, he told them they could either send the order direct to the Company at Liverpool, or, if they liked, he would take the order and send it on; and he was provided with billheads by the Liverpool firm for the purpose of giving receipts for the money which was paid him on their account. For that recommendation he was entitled to a commission of 25 per cent. That being so, it seemed to him that he was not the person who was managing the sale; he was merely the conduit-pipe to introduce the one person to the other. He could not give a better example than the case of a shop in which the whole transaction took place—a chemist's shop. A person went into that shop to buy some poison. In the shop was a boy or a girl, or any unqualified person to whom the request was made for some rat-poison or weed-killer. The boy said, "There is my master, at the other counter; if you go to him, you can get it." Thereupon the master, being a qualified person, hears what the person wants, and supplies it. Could it be said that the boy who first saw the person who came into the shop and told him where to go was the person who sold? Certainly not; and if that was so in a shop, where the poison was kept, how could it be said that the person who did not keep it on his premises at all, did not make it, and did not deliver it, was the seller, or the person who managed the sale? He quite accepted, as he was bound to do, the judgment of Lord Selborne in the House of Lords, and though it did not apply to this case directly, he thought the learned County Court judge had been guided by it. He also accepted the judgment which had been cited, of Mr. Justice Hawkins, of which he entirely approved, but it did not touch this case at all. He did not think the County Court judge could have come to any other conclusion.

Mr. Justice Channell was of the same opinion. He thought the County Court judge must be taken to have found as a fact that the defendant had not the control and management of the sale. The cases clearly established that a person acting in the control and management of the sale was liable as seller, although he was not the principal; but here, it seemed to him, there was ample evidence upon which to find that the defendant had not the control and management of the sale. The only question of law in the case was as to the meaning of having the control and management of the sale. As far as he gathered from the cases, the person having control or management of the sale was the one who might do, or not do, the things which the Act required to be done with reference to the sale. This man was merely a messenger or something of the sort, though he received 25 per cent. commission. He might be supposed to get that because as a florist he recommended this substance as an effective weed-killer, and it was obviously for that reason that he was employed.

Mr. Cavanagh asked that the appeal should be dismissed with costs, and said it was arranged when leave was given to appeal that the defendant's costs should be as between solicitor and client.

Mr. Crump asked leave to appeal, as it was an important question of principle, and after some discussion the Court gave leave to appeal, on condition that the defendant's costs of any unsuccessful appeal should be as between solicitor and client.

ALLEGED ILLEGAL SALE OF LAUDANUM.

Pharmaceutical Society of Great Britain v. Freeman.

At the Birmingham County Court on Monday, January 15, before His Honour Judge Whitehorne, the Pharmaceutical Society of Great Britain brought an action to recover, under the provisions of the Pharmacy Act, a penalty of £5 from Ernest Freeman, described as a chemist's assistant, of High Street, King's Heath, near Birmingham.

Mr. Arthur Smith appeared to support the action, and Mr. Cochrane was for the defence.

Mr. Smith, in opening, said the proceedings were taken under the Pharmacy Act of 1868. Section 1 declared it to be unlawful for any person to sell or keep open shop for the sale of poisons unless he were registered under the Act, and Section 15 enacted that any person contravening the Act in this respect should be liable to the penalty claimed in the present instance. A certain number of poisons were scheduled in the Act, and opium was among them. As regarded the present case, the facts were that on September 29 a lady acting under the directions of the Society visited the shop of a gentleman who traded under the name of "Freeman's," at High Street, King's Heath. The lady purchased from an assistant (the present defendant) twopennyworth of laudanum.

His Honour: The lady was, so to speak, a detective?

Mr. Smith said this was so. The lady marked the bottle, handed it to her husband, who was formerly a member of the Birmingham detective force, and who was waiting outside. The husband then entered the shop and had a conversation with the young man, who stated that his name was Ernest Freeman. Subsequently the bottle was handed over to a representative of the Registrar of the Pharmaceutical Society, and in due course its contents were analysed and found to come within the schedule of the Act.

Annie Painter gave evidence as to the purchase of the laudanum and as to the marking the bottle.—In cross-examination she said she did not tell the assistant that she wanted the article for the purposes of analysis. She had not seen the assistant between September 29 and last Friday, when she again visited the shop ostensibly to purchase a tablet of soap.—The witness was asked to look round the court, and when both Ernest Freeman and his brother William stood up, she said she believed it was the former who had made the sale.—Mr. Cochrane: Are you sure?—Witness: To the best of my belief it was.—Mr. Cochrane: Will you say you are sure?—Witness: I won't say I'm sure, but to the best of my belief it was.

William Painter, husband of the last witness, said that after seeing the sale effected, he entered the shop and saw the young gentleman just identified by his wife. He entered into conversation, in the course of which the assistant said his name was Ernest, and that his brother William had a shop in the City Road.—In cross-examination, witness said he was not aware of the fact that defendants and even judges were constantly complaining of the fact that the prosecution in such cases kept it secret that the article had been purchased for analysis.—Mr. Cochrane: Do you think it fair to let a month go by between the sale and the making of the accusation?—Witness: I have nothing at all to do with that. I act under instructions.—Continuing, the witness said that he sealed the bottle received from his wife, and kept it locked up in a drawer, until it was handed to Mr. H. Moon, an official of the Pharmaceutical Society.

Mr. H. Moon proved the receipt of the bottle, and said he forthwith handed it over to Mr. Eastes for analysis.—Cross-examined, he said there was nothing in the Act requiring that notice should be given to the shopkeeper that the article purchased was for analysis.—Mr. Cochrane: Can't you see that it's hard upon a shopkeeper to trace out who made a sale which took place months before?—Witness: We are not proceeding against the shopkeeper.—Mr. Cochrane: You are complaining that Ernest Freeman sold poison, and it is not until a month afterwards that you give him notice of it?—Witness: That is so.

Mr. E. J. Eastes, Fellow of the Institute of Chemistry, deposed that the bottle contained three fluid drachms of laudanum.—His Honour: Is that a poisonous dose?—Witness: More than enough to poison an adult person.—Mr. Cochrane: Do you mean to say that what you found in the bottle would have killed any ordinary person?—Witness: Yes; there is more than enough to kill any ordinary person.—His Honour: Will you try, Mr. Cochrane?

Mr. Cochrane, in defence, asked His Honour to insist upon the strictest proof in such a case.

His Honour: Not a bit stricter than in any ordinary case. I must be satisfied honestly upon the evidence.

Mr. Cochrane: That there has been an infringement of the Act of Parliament?

His Honour: Yes.

Mr. Cochrane said that in any case he did wish to make one strong complaint, and he hoped that the Pharmaceutical Society, which appeared to be strongly represented in court, would take it to heart for the future.

His Honour: Societies have no hearts.

Mr. Cochrane said he appeared not only on behalf of the defendant, but on behalf of his father and brother, both of whom were members of the Pharmaceutical Society, and properly registered chemists. They complained that the Society, instead of taking up arms against people who were adverse to its interests, adopted a system which he called "sniping," picking out cases where possibly a mistake had been made, but cases which were never for a moment aimed at by the Act of Parliament. The Act was express in what it was designed to put a stop to. Its very preamble showed that it was passed for the protection of the public—to protect the public against the indiscriminate sale to them of poisons by unregistered chemists. The proprietor of the shop about which the present complaint was made was Mr. John Freeman, a registered chemist. His eldest son, who was his assistant at this and other shops, was also a registered chemist and a member of the Pharmaceutical Society. The defendant, Ernest Freeman, was unregistered.

His Honour: He hopes to be registered?

Mr. Cochrane said such was no doubt the case. To begin with, the sale of poisons as enumerated in the Act was but an infinitesimal part of the practice. Far and away the largest business done at the shop was the sale of drugs which were not included in the Act. It was perfectly obvious that in a shop of the kind it was impossible to keep a properly qualified chemist behind the counter every minute it was opened. At any rate, such a thing was commercially impossible, and it was not reasonably necessary. What Mr. Freeman did was to instruct his unregistered assistants not to sell poisons. The defendant in the present case had been strictly forbidden to do so. He did not think the Society could raise the smallest objection to such a course.

His Honour: Supposing the father and the eldest son leave the shop, isn't it your duty to lock up the poisons? I tell you candidly I am asking the question upon Wheeldon's case.

Mr. Smith: The very point is discussed by Mr. Justice Hawkins in his judgment.

Mr. Cochrane said instructions were given to the unregistered assistants that they were not to sell poisons. They did all they were legally called upon to do when they arranged that poisons should not be sold by an unqualified assistant. The next point he wished to make was that they were brought there months after the event. The purchase was made on September 29, and they got no intimation that anything was wrong until November 9. He protested that this was not a fair way for a Society entrusted with the administration of an Act of Parliament to conduct its business. It was not fair to allow such a length of time to elapse before the defendant was asked to give his explanation.

His Honour: That would be a proper argument to address to a fellow-citizen, but for this particular term I happen to be not a fellow-citizen, but an administrator of the law. My private opinion, even if it should be with you, is neither here nor there.

Mr. Cochrane said it was very hard for a man to be called upon to pay £5 and to find that any explanation he might have been able to give was out of his reach. All he could say was they had done their best to prevent any breach of the Act.

His Honour: Now you are speaking for the father and brother, with whom I have nothing to do. What I have to consider is whether it is proved against Ernest Freeman that he has committed an offence.

Ernest Freeman then deposed that he was not at the King's Heath shop on September 29 at any time of the day. He produced his order books, and said by the entries they contained he would be able to recollect exactly how he spent the day. He had never seen the witness Painter.—In cross-examination, witness admitted that he had sat twice for the Preliminary Examination and had failed on each occasion.

Wm. Freeman, who said he was a member of the Pharmaceutical Society, said he was at the shop the whole of the day, and his brother was not there at all. He recollected Mr. Painter, and the conversation detailed by the latter very probably took place. It was quite possible that he gave his name as Ernest Freeman, as he should regard Mr. Painter's question as to his name an impertinent one. Ernest was occasionally left in charge of the shop, but he had strict instructions not to sell poisons, which were locked in a cupboard. The key, however, was always accessible.

Mr. Smith, in addressing His Honour, said the case resolved itself into a question of identity.

His Honour remarked that the person who stated the case against the defendant was Mrs. Painter, and she was uncertain.

Mr. Smith said that Mr. Painter, an experienced detective, was able to identify the defendant, whom he saw immediately after the sale was made. As against this, what was the probability of the truth of the evidence on the other side? William Freeman, according to his own showing, was willing to forswear his own name and adopt the name of another person. On the one side the evidence was absolutely clear, whereas on the other there was the evidence of an interested defendant, one whom the Act sought to reach, and that of a man who on his own admission had lied.

His Honour said he had to consider whether the plaintiffs had made out their case; whether they had produced evidence which forced him to the conclusion that it was Ernest Freeman who sold the laudanum. On the one side the only evidence he had to act upon was the evidence of the detectives. He was not saying that the evidence of the detectives was damaged because they were detectives, but, after all, it was their business to prove their cases, and to a certain extent they were not absolutely independent. On the other side there was the evidence of the two brothers, and what had struck him most of all—he hoped for their own sakes that they had been speaking the truth—that their accounts coincided entirely. It was true that the elder brother admitted having told a deliberate falsehood to the detective and assumed his brother's name. That he did not forget, but on the balance of testimony he could not come to the conclusion that the Society, which had acted simply in its public capacity, had proved its case. Therefore, he gave judgment for the defendant, but, in the circumstances, without costs.

ILLEGAL SALE OF LAUDANUM.

Pharmaceutical Society of Great Britain v. Mottram.

Similar proceedings were instituted at the Birmingham County Court, on the same day as the foregoing case, against Charles Mottram, in respect of the sale of laudanum in a shop belonging to Mr. Freeman at Six Ways, Birmingham.

Mr. Cochrane pointed out that the defendant in this case was an infant, and under the County Court rules a solicitor could not act for him without the instructions of a guardian.

His Honour overcame the difficulty by appointing Mr. Registrar Whitelock as the guardian.

Evidence similar to that given in the previous case was produced, and Mr. Painter stated that when addressed as Freeman in the

shop, the defendant said, "I'm not Freeman; I'm Mottram. I married the daughter."

No evidence was offered in defence, and His Honour, in giving judgment for the amount claimed, asked whether Mr. Smith pressed for costs?

Mr. Smith said he must, having regard to the conflict of testimony in the other case, but whether the Society would insist upon enforcing the order or not was another matter. These were prosecutions in the public interest.

Mr. Cochrane submitted that in this case there was no reason why the Society should have costs.

Mr. Smith remarked that whilst the Society sued for penalties of £5, it cost a lot more than that to get them. It was only because the Treasury helped in the matter that they were able to bring these prosecutions at all. He would take care that any order made was not unduly enforced. He would undertake, for instance, that the Registrar was not troubled.

His Honour: Then I cannot refuse it, but I must record for the Registrar's safety that the plaintiffs' solicitor undertakes not to enforce the order against the guardian.

Mr. Smith: As a matter of fact, I believe these costs are at the end of a very long vista.

A TEXT-BOOK OF PHARMACEUTICAL CHEMISTRY.

LEHRBUCH DER CHEMIE FÜR PHARMACEUTEN. Von Dr. BERNHARD FISCHER. Verlag von Ferdinand Enke, Stuttgart, 1900.

Dr. Fischer's book contains an exposition of the principles and facts of chemistry intended chiefly for the use of students preparing for the German Gehilfen-Examen—*i.e.*, the examination which confers upon successful candidates the right of acting as assistant in a German pharmacy. It includes a fairly complete account of the science, but what renders the book so valuable is the attention which has been devoted to the practical and technical details which are not to be found in text-books, or at least in English text-books. These details, moreover, impress one as having been written by a chemist thoroughly familiar with industrial chemistry as practised at the present day. Manufacturing processes for obtaining chemicals from natural products are described in clear and convincing language, and methods of preparation for substances made in the laboratory are given with sufficient detail and exactness to enable the student to prepare for himself the substances dealt with. Under each of the more important medicinal chemicals a special paragraph is given dealing with the tests for their purity and detection of adulterations. These are also extremely practical and valuable for the pharmaceutical student because they are framed with a view of indicating the standards which are requisite for substances used for the particular purpose in which he is interested. While developing his work in this manner, the author has not failed to retain a systematic and scientific method of treatment. From this it is apparent that he has produced a book which has no counterpart in this country. Those who maintain that such a thing as "pharmaceutical chemistry" really exists will derive support for their opinion by a perusal of Dr. Fischer's manual, where, side by side with the principles of the science, will be found those facts which, as a worker in a technical branch of chemistry, it behoves the pharmacist to know.

After an introductory portion, the author devotes 250 pages to descriptive inorganic chemistry, where all the more important compounds of the non-metals and metals are dealt with in the manner already broadly indicated. In addition to the details having specially pharmaceutical interest, many other important technical applications are also described, and at the end of each of the sections dealing with the metals their analytical reactions are given. The descriptions and tests naturally refer more particularly to the requirements of the German Pharmacopœia.

Organic chemistry occupies nearly 200 pages. The ordinary scheme of classification is adopted, those sections containing sub-

stances of medicinal importance being amplified. All the modern synthetic remedies having any claim to recognition are dealt with in their proper position in the scheme of classification, so that the student may realise their relative position and importance among the carbon compounds.

The sections dealing with glycerin, the carbohydrates, oils, fats, and soaps are all excellent so far as they go. The practical and technical details provide very interesting reading far in advance of anything usually found in books of the same scope, for one must assume that the author intends his book to cover only elementary ground. Dr. Fischer appears to employ constitutional formulæ and diagrammatic methods in explaining chemical equations more freely than is usual in books written by English chemists. This, however, may be generally observed in comparing German and English books on chemistry, and may perhaps indicate a greater reliance upon the mental vigour of the German student. Some of the modern diagrammatic methods are undoubtedly useful in explaining reactions provided the student understands the limitations which must be imposed upon the diagrams as a material representation of what actually occurs.

Following the part dealing with organic chemistry there is an excellent, although somewhat compressed, part treating of qualitative analysis. The use of flame reactions, the blowpipe, heating on charcoal, and other methods of preliminary testing are very clearly explained, and a very useful table for the detection of acids is given.

Volumetric analysis claims only a comparatively small share of attention, the standard solutions described being only five in number—*viz.*, hydrochloric acid, potassium hydroxide, iodine, sodium thiosulphate, and silver nitrate. The general methods and the use of apparatus in volumetric determinations are, however, described succinctly.

Next follows a chapter on chemical calculations, containing a set of examples worked out and explained in simple and clear language and by methods which commend themselves by their simplicity and directness.

An appendix dealing in a somewhat fragmentary manner with physics completes the volume. It is devoted for the most part to a description of instruments used in physico-chemical observations—*e.g.*, the thermometer, barometer, balance, microscope, and polariscope. The descriptions are chiefly supplementary to those found in elementary books on physics where detailed description of apparatus is subordinated to general principles. It will afford the student the means of enlarging his acquaintance with those instruments of cardinal importance, and is probably intended by the author to be useful to students having already a knowledge of the elementary principles of physics.

We may regret that no work of similar scope is available in English; but those British students possessing a knowledge of German will find in Dr. Fischer's book a store of information on technical points well worth their attention. There is an agreeable freshness and originality about the arrangement of the matter due perhaps to the way in which the author has succeeded in introducing, side by side with the purely chemical, the information having direct pharmaceutical importance.

PERUVIAN BALSAM IN TUBERCULOSIS.—By dissolving 50 Gm. of balsam Peru in a litre of cognac, Schmey (*Deutsche med. Zeit.*) obtains what he terms "Cognac de Perou," with which he claims to have cured cases of even advanced tuberculosis. It is administered in teaspoonful doses every two hours, either alone or in milk. A little food such as egg or milk should be taken immediately before the dose. It is stated that the cinnamic acid contained in the balsam acts as well when given in this way as when injected hypodermically. The favourable influence of cognac alone (in medicinal doses) in cases of tuberculosis has been previously pointed out by Dettweiler and others.—*L'Union Pharm.*, 40, 448.

PHARMACEUTICAL SOCIETY.

EXAMINATIONS IN LONDON.

January, 1900.

MAJOR EXAMINATION.

Candidates examined	19
" failed	13
" passed	6

ritton, Alfred Brook	Paterson, George Derwent
Edwards, John Griffith	Sykes, Henry Vincent
Normansell, John William	Taylor, Samuel

MINOR EXAMINATION.

Candidates examined.....	314
" failed	238
" passed	76

Andrew, Thomas Anthony	Jones, Rachel Ellen
Annesley, Sara	Kent, Arthur Stanley
Atkinson, Wilfrid Webster	Kilner, Thomas Charlesworth
Bailey, John Herbert	King, Alfred
Baldwin, Percy Montague Horace	Laverack, Ernest Wilson
Bennett, Oswald Edward	Miller, Alfred Edward
Bickford, Harding	Missen, Frederick James
Botham, William	Muscott, Rowland William
Browne, Arthur Hubert	Oldfield, Frederick Charles
Burnett, William	Oxley, Harold George
Butler, George Edward	Phelps, Alfred Henry
Buxton, Henry Arnold	Pickup, Ralph
Collins, Alfred	Pilgrim, Horace Grenville
Coney, Joyce Muriel	Poad, John Edward
Cooper, Thomas	Potter, Herbert
Craven, John Swift	Richards, Ellis
Cree, John Thomas	Ridge, Percy Littlewood
Crook, Thomas	Ringer, Alick Archdale
Davies, William	Roadknight, Frederick Arthur
Deane, Annie Margaret	Roberts, James
Dyson, John Arthur	Robinson, James Dugdale
Earl, Frederick Greenwood	Rowlands, David Roger
Eastland, Thomas Nix	Russell, Joseph Frederick
Ewell, Ernest William	Russell, Robert
Farquhar, James	Sampson, John William
Field, William, Joy	Samways, William Edgar
Finn, Francis Dudley	Scattergood, William J.
Freeman, Andrew John	Sharp, Ernest Thompson
Garside, Arthur William	Skerrett, Percy William
Gibbs, Harold Rodier	Sleigh, Frederick Bentley
Greaves, Sydney Chater	Smalley, Charles
Gregson, William Arthur	Theakston, Thomas Walburn
Haddock, John	Thompson, Edwin George
Halstead, Harold Broughton	Tibbit, Leonard Read
Holroyd, Asa	Tonge, Charles Bursal
Hopps, William Thomas	Turner, Levi
Illingworth, Thomas Bernard	Wilson, Francis Maurice
Johnson, Frank	Worth, Arthur James

FIRST EXAMINATION.

Certificates by approved examining bodies were received from the undermentioned in lieu of the Society's examination :—

Armstrong, Chas. Josslyn; E. Grinstead	Gibson, Hedley H. V.; Edinburgh
Aspden, Edward; Tranmere	Harcastle, Steph. Brindley; Brighton
Athron, William; Hemsworth	Henstock, Harold; Matlock Bath
Bell, James Douglas; Cardiff	Hughes, David Alford; Penarth
Bevan, Herbert Hudson C.; London	Lasham, Harold Frank; Guildford
Billington, John James; Birmingham	Lewis, Richard Robert; Bala
Bowling, Wm. Hy.; Willesden Green	Marrow, Alfred Charles; E. Dulwich
Brackenbury, Alice; Stroud Green	Martin, Percy Maurice; Clapham
Brook, Benjamin; Whitefield	Needham, Arthur; Stalybridge
Brown, Horace Wm. Cecil; M'nch'str	Reynolds, Benn Roland; Narberth
Cantrill, Arthur Wheeler; Horbury	Roberts, Lewis Ambrose; Kennington
Clark, Cicero Smith; Leeds	Saunders, Arthur T.; Chepstow
Clarke, Arthur; Malvern	Taylor, William H.; Droitwich
Cowap, John Chester; Over	Veale, Percy Coleman; Burgess Hill
Dallimore, Frank; Ormskirk	Waddams, William Shaw; Derby
Egan, Thomas F.; Bedford	Walsh, Lionel H.; Bedford
Ennals, William Selby; Clapham	Williams, Edward Thomas; Bala
Fullalove, William Arthur; Lincoln	Wiseman, George Henry; Weymouth
Wood, John Frederick; Wolverhampton	

Donations to the Library and Museum.

At a meeting of the Library, Museum, School and House Committee, on Wednesday, January 17, the Librarian and Curator presented the following reports of donations :—

TO THE MUSEUM (LONDON).

Dr. Geo. Watt, C.I.E., Government Reporter on Economic Products, Calcutta :—Six specimens of varieties of *Aconitum ferox*.

Mr. D. Hooper, Indian Museum, Calcutta :—Specimens of *Aconitum ferox*, var. *atrox*, and of the wood of *Aquilaria agallocha* from Assam.

Messrs. Potter and Clarke, London :—Specimen of the stem and root bark of *Daphne mezereum*.

Messrs. Hearon, Squire and Francis, London :—Fresh specimen of the Bergamot orange; specimen of aloes containing stony matter.

Messrs. Dalton and Young, London :—Specimen of so-called "ginger" from Porto Rico.

Messrs. Hale and Son :—Specimen of asafetida in the tear, and of *Strophanthus Kombe* seed, and *Strophanthus* seed in pod.

Messrs. Wright, Layman and Umney :—Specimen of *Sagapenum* in the tear,

TO THE HERBARIUM (LONDON).

Dr. Geo. Watt, C.I.E., Calcutta :—Six specimens of varieties of *Aconitum ferox*, corresponding to the roots sent.

TO THE MUSEUM (EDINBURGH).

Mr. Donald McEwan, Edinburgh :—Specimen of Mescal Buttons (*Anhalonium lewinii*).

Messrs. Finsler and Wheeler, London :—Specimen of "Iguana Stone," a calculus from the stomach of the iguana lizard, *Iguana tuberculatus*, of Nicaragua.

Messrs. Evans, Lescher, and Webb, London :—Fine specimens of asafetida in the tear.

Mr. F. M. Moir, the East African Lakes Co., Glasgow :—Specimen of *Strophanthus* stem, leaf, flower, and fruit.

TO THE LIBRARY (LONDON).

Ecole supérieure de Pharmacie de Paris :—Thèses par MM. Bondouy-Lépinos, Maronneau, Cordier et Tarible.

Thé Leigh-Browne Trust :—Biological Experimentation, by B. W. Richardson, 1896.

University of Durham :—Calendar, 1899-1900.

American Pharmaceutical Association :—Proceedings, 1899, v. 47.

TO THE LIBRARY (EDINBURGH).

American Pharmaceutical Association :—Proceedings, 1899, v. 47.

EVENING MEETING IN EDINBURGH.

The third evening meeting of the session was held in the Society's House, 36, York Place, Edinburgh, on Wednesday, January 17, Mr. PETER BOA, Chairman of the Executive, in the chair. The minutes of the last meeting were read and approved. Apologies were intimated from Messrs. Ewing, Guyer, Lunan, Dunlop, Gil-mour, Currie, Davidson, and Dey.

The CHAIRMAN said he had received from Mrs. Stanford an acknowledgment of the letter of sympathy sent by the last meeting. He regretted to say he had now to call attention to another loss sustained by the Society in Scotland, in the death of Mr. Daniel Frazer, of Glasgow. Having referred to his association with the Society in various capacities for many years, he said Mr. Frazer was very popular and generally liked by those who came in contact with him. He (the Chairman) had been a member of his staff, and could testify that he never lost touch with those who had been in his employment. It might be said that Mr. Kinninmont represented in Glasgow the scientific side of pharmacy, and Mr. Frazer the political. The meeting agreed to send a letter of sympathy to Mr. Frazer's family.

Mr. G. F. MERSON then read his papers on

COMMERCIAL MYRRH AND POWDERED MYRRH AND TINCTURE OF MYRRH,

which are printed in full at pages 42 and 44 respectively.

Mr. DOTT said they were indebted to Mr. Merson for a true contribution to pharmaceutical knowledge, such as was very appropriate for such meetings. More tests of the kind indicated would be an advantage. The percentage of extractive, and especially of ash, were valuable tests for gum resins, and easily determined. As to maceration and percolation, much depended on what was meant

by maceration. If well stirred, the result would be different than if the ingredients were merely shaken up. But he agreed that percolation where practicable was preferable to maceration.

Mr. FRASER thought that No. 40 powder was too fine. Coarse powder, he thought, meant anything between 16 and 20. He found no difficulty in obtaining myrrh of good quality at a fair price.

Dr. G. COULL said he had seen myrrh only coarsely bruised exhausted very thoroughly by percolation. He thought they should not depart from the official method.

Mr. HENRY said that the results submitted showed that little confidence could be placed in such trade names as "opt" or "elect."

Mr. GLASS said the main point as to the tincture seemed to be the fineness of the powder. It seemed that a finer powder than No. 40 might be entirely exhausted by maceration.

Mr. BARRIE asked if the percentage of undissolved resin in the maceration marcs was calculated on the original weight of drug used or on the residual marc.

Mr. J. RUTHERFORD HILL said a member had sent a note objecting to the vague description "coarse powder." Why should myrrh be in "coarse powder," kino in "powder," and asafetida "bruised"? The United States Pharmacopœia defined "coarse powder" as No. 20. Some grinders adopted No. 10 sieve as their standard for coarse powder, while others called it bruised when passed through a No. 10 sieve. There was no uniformity. Mr. Leman sent a note suggesting that a 1 in 10 tincture would be better. It was strong enough and much less liable to clot in gargles, and the drug was more thoroughly exhausted by the menstruum. The public did not appreciate the difference of strength in the new tincture, and expressed surprise at the increased price. Mr. Dunlop wrote that he preferred percolation to maceration in making the tincture. In making tincture of asafetida he found 3 per cent. of resin in the marc after completing the official process. In percolating myrrh he found it was practically exhausted when four-fifths of the menstruum had passed through.

The CHAIRMAN said many people tried to use up the lower grades of myrrh. In that connection the fineness of the powder was of importance. If a good fat myrrh were used, the resin was soft and easily dissolved, and the powder did not require to be so fine as when a cheaper and more compact sample of the "sorts" variety was used. Possibly that led the Pharmacopœia compilers to leave the point indefinite so that the operator in his discretion might adjust the fineness of the powder to the quality of the myrrh. Mr. Merson's figures should cause authors of books on materia medica to revise their figures. His own experience was that percolation was preferable to maceration for the tincture. But, like Dr. Coull, he felt bound by the official regulations. To make a percolation tincture of myrrh required some skill in the process, and possibly the fear that different operators might vary in such skill led the authorities to adopt maceration as on the whole less likely to give varying results.

Mr. MERSON, in replying, said in regard to Mr. Barrie's inquiry that the undissolved resin was calculated on the weight of the marc.

Mr. J. RUTHERFORD HILL then read a paper on

STRYCHNINE HYDROCHLORIDE, AND SODIUM ARSENATE, which is printed in full at page 45.

Mr. DOTT said he concurred in the conclusion come to by the author as to the cause of the separation of strychnine. It was not due to any slight hydrolysis of the arsenate in solution. They were apt to regard strychnine and alkaloids generally as stronger bases than they really were. The analogous dibasic phosphate of strychnine was very unstable, decomposing and depositing strychnine on warming. He did not think a tribasic alkaloidal phosphate had ever been formed. The point as to four washings with chloroform was important, and indicated the weak point in the official process for the determination of nux vomica. Where the quantity of chloroform was deficient the various mixtures shown by Mr. Hill emphasised what he (Mr. Dott) said at the last meeting, as to the

danger of doctors trying rash experiments in prescribing pharmacopœial salts.

Mr. DUNCAN said he was still in favour of the view that hydrolysis had much to do with the liberation of the strychnine, but he congratulated the author on the way he had worked out his results.

Dr. COULL said, assuming the accuracy of the results submitted, he was satisfied that his suggestion at the last meeting as to carbonate being the cause had been disproved.

Mr. COWIE said he could confirm most of the author's results. He had made a solution of strychnine hydrochloride by Cockburn's method, and on mixing it with liquor sodii arsenatis there was no precipitation, but on examination he found the strychnine solution distinctly acid. Mr. Dunlop's mixture, in his experience, took a few hours to precipitate, and the crystals were long and silky. With aqueous solution of strychnine hydrochloride, silky but much shorter crystals formed immediately. After a day a second crop of crystals similar to those in Mr. Hill's mixtures appeared. He thought there might be excess of acid in the strychnine salt, but on washing with ammonia the whole of the strychnine came out. He got similar results with sodium phosphate. He questioned the second equation, in which free ammonia was said to be liberated when ammonium chloride was added to sodium arsenate solution. That was how microcosmic salt was formed, and he would not have expected free ammonia unless the solution was warmed. As to the basic properties of strychnine, he had dissolved some strychnine arsenate in cold water and washed out with chloroform, and got a considerable quantity of free alkaloid, as if the salt had been split up. But he had not completed the experiment.

Mr. HILL having replied, he next directed attention to recent donations and additions to the library, including a specimen of the mescal button, the fruit of *Anhalonium lewinii*, presented by Mr. Donald McEwan, and seeds of *Oroxylum indicum*, from London.

On the motion of the CHAIRMAN, votes of thanks were awarded to authors of papers and donors of books and specimens. The meeting then closed.

LETTERS TO THE EDITOR.

The Pharmacopœia as a Standard.

The question suggested in the Journal of December 30 concerning the defence of cases under the sale of Foods and Drugs Acts being of such importance to every chemist and druggist, I hope you will permit me to point out, as others have done on other occasions, that the Pharmacy Act of 1852 recognised or established a distinction between qualified and unqualified persons. Likewise, the Medical Act, which created the British Pharmacopœia, also distinguished the unqualified from the qualified, and added in Section 55:—

Nothing in this Act contained shall extend or be construed to extend to prejudice or in any way to affect the lawful occupation, trade, or business of chemists and druggists.

Anyone moderately acquainted with the history of medicine and pharmacy in this country must know that for something like 250 years medical authorities did their best to keep the Pharmacopœia, with its mass of information—dangerous to the public when in the hands of the ignorant and vicious—out of the hands of the public. The Orders in Council did not refer to or interfere with domestic medicines, but only to those prescribed by medical men. There is nothing to show that the Legislature, or any Order in Council, ever required unskilled and unqualified people to be served with the same sort of remedies as those that would be proper for the Queen's physicians to handle. On the contrary, Parliament, while recognising the existence of unqualified persons, has consistently avoided giving countenance or encouragement to the practice of ignorant people, dabbling with drugs, and there is no room for doubting that unskilled or unqualified persons have no legally recognised right to have in their possession any medicine of the Pharmacopœia except by prescription of some physician in their

behalf. Nevertheless, it is well known that it has for a long time been the practice for legally qualified retailers of drugs and medicines to supply the public with some medicines of the Pharmacopœia, with more or less modifications of the official formula, such as in their trained discretion and as a result of their practical local experience have appeared advisable; excepting only those cases where very potent medicines, as laudanum, are asked for, when something near to practical uniformity of strength has been generally considered desirable. For whose benefit then is the policy followed for more than 250 years now to be changed? For what good reason is Bill, the bricklayer, or Sarah Gamp to be put on the same level with trained physicians? Would it conduce to the safety of the public? Have not the abuse and criminal use of drugs ever formed one of the great dangers that have dogged the advance of both ancient and modern civilisation? Would it be to the advantage of the public that public functionaries should declare the equal right of the unskilled and vicious to be supplied with any of the same agents for good or evil, such as are the medicines of the Pharmacopœia, which have been designed by skilled physicians for their own particular use? The sale of tincture of opium for laudanum seems perfectly justifiable, but the selling of spirit of nitrous ether 0.842 B.P. when sweet spirit of nitre is asked for at the retail counter looks very like a mischievous fraud without a shadow of legislative sanction. Moreover, if a chemist and druggist chooses to use either mineral or vegetable oil for preparing his camphorated oil for retail sale he is acting only within his rights as recognised by several Statutes. It is in the lawful exercise of his trained discretion whether he make this oil according to the Pharmacopœia or according to his own formula. It is a question of procedure which the special training of the pharmacist qualifies him alone to answer. Lawyers are trained to exercise their discretion as regards the best mode of conducting their legal processes. Medical men are likewise trained to exercise their discretion as regards the treatment of their patients. The law does not attempt to interfere with them in the exercise of their discretion. Chemists and druggists likewise are trained to exercise their discretion in the conduct of their business, and the Legislature has repeatedly expressed in very clear terms its recognition of their right to act according to their discretion. Not only is it the object of their training, but it is their duty to exercise discretion regarding the kind of preparation to be sold on demand of the ordinary unskilled retail customer.

London, N., January 10.

J. EAGLE.

Reclamation.

[The only excuse the Editor can offer for occupying space in the Journal by the publication of the following letters is consideration for Mr. Gifford's plea that his reputation is at stake: he cannot, however, extend that consideration so far as to comply with Mr. Gifford's further request that he should alter his decision as to the desirability of publishing the paper to which Mr. Gifford refers.—ED. P.J.]

Enclosed you will find copies of a letter I addressed to the Council and the Secretary's reply. Kindly publish these in *Pharmaceutical Journal*.

I exercise my privilege as a member in protesting against the practice—for such it has become—of occupying the best space of the Journal with lectures (presumably paid for) by an anonymous contributor. I refer to "An Ordinary Pharmacist." Is it not patent that these lucubrations have all value taken from them by the fact that we cannot appraise them and therefore they may be misleading, but it is altogether intolerable that perversions of the truth shall be allowed under a *nom de plume*. I will further draw your attention to a few facts.

1. On December 16, 1899, you printed a paper by one John Humphrey (a name not on the register) occupying two pages and a half-column (was this paid for?) of premises, reasonings, and conclusions I altogether object to.

2. On December 23, 1899, you print in leader type, by the way, was this report paid for? a speech by Mr. Harrington, a paper by Mr. Hills and speeches by Messrs. Parker and Glyn-Jones—with most of the arguments advanced I disagree.

Permit me to point out to you that you have effectively recognised my position in pharmaceutical politics over and over again during the last eighteen months. The Council has also officially recognised that position, therefore there is not a shadow of doubt that not only have I the right but it is an obligation on my part as the mouthpiece of *ordinary pharmacists* to combat these views.

It is my duty to tell Mr. Hills—for whom it should not need to be said that I have, for him, the very highest regard and esteem—that we need no lines of defence at all, as we have nothing to defend. It is my duty to tell Mr. Glyn-Jones and the president that it is most likely by combination, immediate action and agitation, that the intention of the Act of 1868 can be established viz. the text of my Darwen paper, so well put by yourself page 589. That this position (ours for the time being in the hands of the enemy) can only be taken by attacking movements, that we do not want to have considered how much we are prepared to accept to relinquish claim to the position. What we do need to be prepared with is a proper and common-sense Pharmacy Bill, based on the public needs and consistent with the privileges of qualification. This ought to have been before the world long ago but it is now a most urgent necessity.

It is my duty to tell Mr. Harrington that we ought to have had our flag (if we can find one) "nailed to the mast" long ago, in order that the world may know how just our claim is. It is further my duty to say that the traditional policy of the Council of strategical movements to the rear must end, and a manly open forward policy substituted. The Pharmaceutical Council has duties, public duties first, duties to members of the Society, in the second, and duties to all qualified persons in the third place, ordinary pharmacists say these duties have been neglected. It is my duty to take the responsibility of saying that I believe them to be right, that the Council has neglected its duties, and that it is doing so still in not facing the situation, also that the president's action in taking up a position which you allow may mean anything, is undignified and damaging to our interests.

Let me say that my reputation is involved, and I ask that my paper unsatisfactorily summarised this week, be printed in full and with as much prominence as the Western Chemists' report, or "An Ordinary Pharmacist" or "John Humphrey."—Yours faithfully,

Blackburn, January 15, 1900.

R. LORD GIFFORD.

[COPY.]

January 8, 1900.

The President and Council of the Pharmaceutical Society of Great Britain.

Gentlemen,—I claim your protection of my rights and privileges as a member of the Society. It is beyond argument that I represent the opinions of a large section of the members of the Pharmaceutical Society, and I claim that my views shall have as full exposition in our official organ as those which I endeavour to combat. May I crave the Council's serious consideration of my complaint.

On January 2, 1900, I read a paper, the preparation of which cost me the whole of three weeks' leisure, intended to oppose arguments advanced week by week, and which most certainly are not representative of the opinions of the great body of chemists. These opinions—as I think, fallacies and sophistries—I oppose with facts and arguments based upon known data: not by a mere *ipse dixi*. My paper is entirely suppressed in your issue of January 6, being dismissed with a sentence, which is untrue (*vide* page 3 of the market report supplement).

I further complain that persons skulking under *nom-de-plumes*

are allowed full liberty, and all the importance of leader-type and prominent position to misrepresent and abuse my views.

I ask you if it is honest or decent to allow such a person to attack the views of a vast majority of chemists in the way done in the Journal, page 3, where it is made to appear that we are acquiescing in proposals which I absolutely despise and abhor, whilst the management of the official organ have my reply in its possession and refuses publication. I may here say that the contemptible reference to myself lower down on page 3 is untrue, and even, as I am advised, libellous.

I beg the Council to understand I do not wish to become controversial, or even to correct misrepresentation—that is beneath me—but I do claim the right of stating my own case, and that my arguments shall be given in the official organ.

Gentlemen, I ask from you what I wish you to ask from the Legislature—viz., simple justice. I beg you to direct that my paper shall be printed in the official organ.—Believe me, yours respectfully,

(Signed) R. LORD GIFFORD.

[COPY.]

January 12, 1900.

R. Lord Gifford, Esq., Blackburn.

Dear Sir,—I have to inform you that your letter of the 8th inst. was submitted to the Council at its meeting on Wednesday, and, in reply, I am instructed to say that the Council does not propose to interfere with the discretionary power given to the Editor of the Journal with reference to the publication of reports of meetings.

With regard to the other matter referred to in your letter, it will on reflection, probably become obvious to you that as a public man you can hardly hope to escape from criticism and even attack.—I am, yours faithfully,

(Signed) RICHARD BREMRIDGE, Secretary.

Assistants' Testimonials—A Warning.

We wish to warn chemists against accepting any testimonial bearing our signature in favour of David Fettes, Montrose. This warning is necessary, as we find he is making use of a variety of testimonials with our name attached, which he did not earn, and which we did not write. He was dismissed by us after six months' service, in November last.

Dundee, January 13, 1900.

CUMMINGS BROTHERS.

PRACTICAL NOTES AND FORMULÆ.

Rubus ammobius (Focke) in Wales.

Last summer I went to explore the Lonely Llyn an Afon situated about 1,200 feet above Aber, in Carnarvonshire, in order to obtain a rooting specimen of *Potamogeton griffithii*, which a member of our craft—Mr. J. Griffith, of Bangor, the author of the 'Flora of Anglesey and Carnarvon'—discovered some years ago, and has not been found up to the present time in any other locality. In the recent excellent 'Monograph of the British Pond Weeds,' by Mr. A. Fryer, the author has given it full specific rank. The pond weed grows near the middle of the lake, and it went much against the grain to endure the coldness of the icy water and the sharp stones which formed the bottom of the lake in quest of it; however, specimens were obtained, which Mr. Fryer has in cultivation. Between Aber and the lake I gathered a bramble of the suberect group which was unfamiliar to me. Recently I have submitted it to my friend, the eminent Rubologist, Dr. Focke, of Bremen, who identifies it with his *R. ammobius*, which he described in the 'Synopsis Ruborum Germaniæ' of 1877, as follows:—

R. plicato similis; differt turionibus teretiusculis superne obsolete angulatis, foliis haud raro septenatis, foliolis latioribus supra obscure viridibus, adultis planis, junioribus plicatis subtus cano vel albo-tomentosis, foliolo terminali lato cordato-ovato acuto vel acuminato, floribus majoribus, petalis obovatis concavis, staminibus

stylis paullulum super antibus, sepalis in fructu reflexis, germinibus apice hirsutis, fructibus nigro-purpurascensibus.

Habitus R. plicati, sed folia majora supra obscura minus plicata floresque majores aspectum diversum praebent. Foliola juniora semper subtus cana vel albida, adulta in umbrosis viridia, in apricis discolora. Petioli basin versus canaliculati foliolis infimis longiores. Aculei paullo minores quam in R. plicato.

Differt a R. opaco aculeis minoribus, foliis septenatis haud raris, foliolis latioribus, terminali breviter acuminato, fructibus perfectis, sepalis in fructu reflexis.

R. ammobius occurs in the north-eastern part of Germany in sandy soil. In the 'Index Kewensis' it is given full specific rank, but Nyman in his 'Conspectus Floræ Europææ' puts it as a hybrid species under *R. plicatus*. This is the first time it has been authentically recorded for Great Britain, and the Welsh locality is a great extension of its known geographical range.—G. CLARIDGE DRUCE, Oxford.

The Official Tests for Copaiba.

Among the characters and tests for Copaiba in the Pharmacopœia occurs the following:—"The volatile oil should . . . rotate the plane of a ray of polarised light from 28° to 34° to the left (absence of African Copaiba)." These figures appear to have been taken from a paper on African Copaiba by J. C. Umney (*P.J.* [3], 24, p. 215), in which he gives -28° 55' and -34° 18' as the rotatory powers of two samples, Para and Maracaibo respectively. Mr. Umney, however, does not state that these figures represent the highest and lowest of a series, but conveys the impression that they are only two isolated samples; moreover, although not so stated in the table given, it is mentioned in the text of the paper that they refer to the rotation in a 20-centimetre tube. If, therefore, as seems to be the case, the compilers of the Pharmacopœia took their figures from the above source, the latter should at any rate be halved. Even then they will probably be too narrow; the figures given by Gildemeister and Hoffmann range from -7° to -35°.—F. W. SHORT, Hampstead.

Ext. Ipecac. Liq. B.P.

I have been a little astonished as to the statements made regarding the stability of this preparation. Having worked up large quantities of root, principally converting it into ext. ipecac. liquid, permit me to give one or two facts which I think go to corroborate your own remarks. A laboratory sample of a 12-gallon lot made six months ago shows no sign of deterioration. On examination it indicates the same alkaloidal value to-day as when made—viz., 2.1 per cent. Samples of more recent make bear out the same stability. Further, seven months ago I made some liquor containing 1.4 per cent. total alkaloids, using a 25 per cent. alcoholic menstruum, and its strength to-day is unimpaired; it still contains 1.4 per cent. From the above examples I do not find this preparation deteriorate so very readily, whether made with the B.P. menstruum or a weaker one.—J. W. THOMSON, Edinburgh.

To Gild and Silver Copper.

For gilding, dissolve potassium cyanide, 30, in a little water and add gold and sodium chloride, 10; potassium carbonate, 6; and calcium carbonate, 15. Then add enough water to make a soft paste; apply this to the surface to be gilded, wash off thoroughly with water and dry in sawdust. For silvering, take silver nitrate, 3; sodium chloride, 2; cream of tartar, 210; mix. Apply by rubbing with a damp rag. For surfaces subjected to rubbing, from which the silver has worn off, the following paste should be applied, and allowed to dry on:—Silver chloride, 1; cream of tartar, 2; sodium chloride, 3; water sufficient to make a soft paste. After remaining on the article for some hours, this is washed off with acidulated water, the article dipped in cyanide solution, and again washed.—*Union Pharm.*, 40, 509.

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LONDON: SATURDAY, JANUARY 20, 1900.

DANIEL FRAZER.

ONE of the few remaining Scotch pharmacists of the older generation and the head of the well-known firm of FRAZER AND GREEN, Glasgow, died at his residence Bowmore House, Garelochhead, on Wednesday, 10th instant, in his eightieth year. At the early age of ten years he was apprenticed to his elder brother Mr. N. B. FRAZER, who had opened a druggist's shop in Buchanan Street, Glasgow, in 1830. His brother died six years later and his widow ten years afterwards. She had assumed Mr. GEORGE GREEN, a Londoner, as a partner in the business, and the firm's name thus came to be FRAZER AND GREEN. At her death in 1847, Mr. DANIEL FRAZER became a partner. In 1849, Mr. GREEN died, and Mr. FRAZER became sole proprietor. He threw himself with great energy into everything he took up, and under his skilful guidance the business rapidly extended, the establishment becoming one of the best known in Scotland. In 1853 Mr. Frazer became a member of the Pharmaceutical Society. For eighteen years, from 1874 till 1892, he was a member of the Executive of the North British Branch, and for nine years, from 1872 till 1881, he occupied a seat on the Council. He held somewhat strong views, not quite in accordance with his colleagues, on legislation affecting pharmacy and on pharmaceutical policy generally. But his honesty and sincerity won for him universal respect. He was very keen in his loyalty to the Pharmaceutical Society and for a time resolutely refused to countenance the British Pharmaceutical Conference, imagining that it involved some antagonism to the Society. Afterwards he was entirely satisfied, and when the Conference visited Glasgow, in 1876, he was most liberal and princely in his entertainment of the Conference officials and leaders. He again showed his interest at the last visit of the Conference, in 1897, when a select party visited him at his home on the Gareloch. He was President of the Glasgow Pharmaceutical Association in 1876 and an honorary President at the time of his death.

He continued to take an active part in the management of the business until about seven years ago, when he had a stroke of paralysis. Since that time he has been wholly laid aside, though enjoying a fair measure of

health. He was a Justice of the Peace, as well as one of the best known and most highly respected citizens of Glasgow, always keenly interested in all that pertained to the prosperity of his native city. In politics he was an enthusiastic Liberal, taking great interest in the passing of the second Reform Bill, and in promoting the cause of Liberalism in the city. He was an elder of Free St. Stephen's Church, Glasgow, in which he took a very deep interest. He was proud of the fact that he "came out" in the famous Disruption of the Scottish Kirk in 1843. Few laymen were better known or more highly respected in the Church Courts or Committees. He possessed a strong literary taste, and has left an extensive library. He beguiled the leisure of his later years by writing a book entitled "A History of Buchanan Street," in which he gives a graphic account of the marvellous progress which the city had made during his lifetime. He was able to be about the house as usual until about three weeks ago. Two sons and two daughters survive. One son, Dr. JAMES G. FRAZER is a distinguished fellow of Trinity College, Cambridge, and one of his daughters is married to Professor STEGALL, of University College, Dundee. His death makes no change in the business. In 1897 it was formed into a private limited company, all the shares being held by members of his family, and by Mr. J. W. SUTHERLAND, pharmaceutical chemist, who has sole control and is assisted by qualified managers. The firm has four places of business in Glasgow, and it was Mr. FRAZER's care to follow up the rapidly extending boundaries of the city. This enabled him to retain and extend his connection with the business centre in Buchanan Street, as well as with the residential neighbourhoods of Charing Cross and Hillhead.

THE QUALIFYING EXAMINATION.

THE results of the qualifying examination just concluded in London afford powerful evidence of the necessity for insisting upon a compulsory curriculum in the case of candidates for registration as chemists and druggists. Of the three hundred and fourteen candidates examined, no less than two hundred and thirty-eight failed to satisfy the examiners, the percentage of passes being thus only slightly above twenty-four per cent. The proportion of failures, if not absolutely the lowest on record, closely approaches that point, and it would be difficult to advance a more saddening proof of the insufficiency of the methods of education usually resorted to by candidates for registration. Presumably, most of those who have been rejected—many not for the first time—have been engaged for at least three years in pharmacies, where they were supposed to be acquiring a practical knowledge of the business of a chemist and druggist; in addition, it may also be taken for granted that they have devoted a not inconsiderable period of time to the special work of preparing for examination, as that operation is usually understood. But in the case of more than seventy-five per cent. of the candidates, the training they have received has proved utterly insufficient for the attainment of their desired object. The remedy is not far to seek. It consists, as already indicated, in nothing short of the enforcement of a definite course of study.

ANNOTATIONS.

THE "MEDICAL PRESS" adheres to its assertion that compressed tablets afford facilities for the administration, in minute doses, of the very active alkaloids "which the practitioner prudently hesitates to order in a prescription," but the writer fails to adduce any evidence in support of that statement, and contents itself with calling the general practitioner (*sic*) as its witness. To avoid any misconception as to the position taken up, our contemporary goes more into detail, contending that strychnine, phosphorus, strophanthin, cocaine and atropine "cannot be compounded, even by the most capable and conscientious chemist, without the risk that the entire dose will be concentrated in one or two pills." Such a misstatement can only proceed from a person who is utterly ignorant of the subject he is writing about, or has deliberately determined to assert the superiority of certain manufactured articles at all costs. To maintain that "tableid makers" can effect in the way of sub-division of potent remedies what the individual dispenser cannot do, is palpably absurd, while the suggestion that pharmacists are setting up a "trades-union opposition to the public buying of tableids and other conveniently concentrated medicaments" is malicious and equally untrue. In conclusion, it is quite unnecessary for any medical journal to recommend pharmacists to adapt themselves to inevitable change in the public taste; it would be more to the point to advise medical practitioners to prescribe the medicines recognised in the authority provided for their convenience, and to cease to be dependent upon the makers of proprietary medicines for instruction in what should be their own especial art.

ANOTHER MEDICAL JOURNAL, the *Medical Times and Hospital Gazette*, has taken alarm at the decision of Mr. Baggallay in the compound rhubarb powder case recently reported in the Journal (see *ante*, p. 35), and remarks that it would be interesting to know how far a chemist may be permitted to exercise his discretion in such matters. The special reason for the alarm evinced is that the difference between selling a compound which is not in accordance with the B.P., but constituted according to the chemist's own fancy, and prescribing across the counter, is thought to be scarcely perceptible. The connection between the two things is not obvious, and we quite fail to see why Mr. Baggallay's decision should lead the *Medical Times* to ask "what earthly use is the British Pharmacopœia, and what possible certainty can any practitioner feel that any prescription of his will be properly dispensed?" But it is still more difficult to understand why, almost in the same breath, it should be asserted that the law relating to chemists requires revision, as it would be beneficial to all if its provisions were more stringent. The selling of "patent" medicines is alleged to be a great hindrance to proper legislation, but, since the benefit derived by Government through the duty upon patent medicines is very considerable, it is feared that nothing will ever be done to remove that obstacle. The following passage is especially unhappy. "Counter prescribing, too, requires putting down with a strong hand. The chemist says that as long as the doctor dispenses his own medicines so long will he continue to prescribe. The fallacy is so obvious as to be almost grotesque. The doctor is acquainted not only with the constitution but also with the effects of the drugs. The chemist knows little of the latter and nothing of medicine. The doctor by law is entitled to dispense." But what is to be gained by raking up these old grievances? The *Medical Times* expresses a great respect for pharmaceutical chemists, many of whom are hought to be admirably qualified for their special work. But at

the same time it is asserted that in trespassing on the doctor's province they have aroused a feeling of antagonism against themselves which has done their calling harm, so that signs are not wanting that in many districts "practitioners are uniting to fight the prescribing chemist on his own ground, by starting opposition drug stores which, supported by the profession and by adequate capital can undersell the retail chemist, and thus either reduce his profits to the vanishing point or compel him to seek another field for his energies." What useful purpose can be served by such idle threats?

THE AUTOMATIC ANALYST appears to a correspondent as great a bungler as the automatic dispenser would be, for though the latter has been much praised it is lacking in many respects, and as to the automatic analyst the scientific sophistication of sweet milk, according to the Master of the Belfast Workhouse, is carried out with such skill as to defy detection by the lactometer. One of the samples containing 10 per cent. of added water showed a normal specific gravity. He therefore concludes that a scientific analysis is the only accurate and reliable test. Another case has occurred where a farmer was repeatedly fined because of the lactometer's adverse decision, although he affirmed the fact of non-adulteration. He finally threw up the contract and, the local farmers refusing to tender, the District Board found it necessary to bring milk from great distances at a high price, also to purchase thousands of tins of condensed milk, and ultimately, with the sanction of the Local Government Board, bought an extensive farm and stocked it with cattle, prepared to produce milk as far above suspicion as Cæsar's spouse!

THE FOREGOING PARAGRAPH may direct attention to the inefficiency of many other mechanical methods so much in favour in the present age, for at the present rate of advance, unless there is a modified reversion to a saner method of medication, the automatic doctor may soon be at our door or upon our sidewalks. One wonders whether the Government will think it worth while to protect the legal status of the physician when every disease can be cured by dropping a shilling in the slot and the medical alumni of our universities shall have hired themselves as agents to the vendors to point out to the patient which particular slot to patronise; what with the gradual cessation of prescription-writing and the facile style of medical practice in prescribing proprietaries, the horoscope of the doctor for the new century is not greatly hopeful. For just as the "patent medicine" vendor has captured the pharmacy for the distribution of his wares, so also is the prescribing of proprietary medicines preparing the ground upon which Bachelors of Medicine will be called upon to surrender, bag and baggage, the practice of their profession.

A NEW ELECTRIC LAMP DANGER is pointed out by Mr. George C. T. Bartley, who has written to the *Times*, stating that, whilst turning on the electric light on his study table, the bulb exploded with a report like a pistol; the socket of the lamp was blown out, and the glass, in myriads of atoms, sent in all directions. Fortunately, a tilted shade saved his face, but he must have got some of the dust in one eye, for he is still confined to his room and cannot even read. The lamps had been supplied by the Westminster Company a week or so before Christmas, when all the lamps were changed on doubling the voltage of the current. The Company denies that doubling the voltage can have had anything to do with the accident, but cannot explain it, and Mr. Bartley rightly thinks that users of the electric light should be warned, as this danger exists, to put some protection on the lamps which they use close to their faces.

THE DRUG SALES IN JANUARY generally present a large quantity of material and not unfrequently contain items of unusual interest. Thus no less than 635 packages and cases of asafetida were offered this week, much of which is of very inferior quality. Two cases of the drug in tear, of fair quality, were noted, a dock sample of which afforded half its weight of good tear, yielding 10 per cent. of ash, and half of rather more earthy tear yielding 15 per cent. of ash, when examined by Mr. Moor. Messrs. Hale and Son, from whom the sample was obtained, were good enough to state that there was no difficulty in obtaining a supply of similar asafetida at anything from 80s. to 140s. per cwt. The same firm had 10 bags of *Strophanthus kombe* of recent importation, similar to that used by Professor Fraser, containing a mixture (as all previous importations have) of seeds, some of which give a red and others a green colour with sulphuric acid. Of the seed imported in pods a sample gave the red reaction only, and appeared to be of uniform character, affording an excellent opportunity for a chemical examination of seed of uniform character. Croton seeds of good colour, which have not been plentiful of late, were noticed. About 200 small gourds of Curaçao aloes were offered, 18 cases of Zanzibar, and 68 kegs of Socotrine aloes, some of which were of excellent quality, that in kegs being mostly firm, and that in tin-lined boxes was chiefly in the form of pasty liquid, loose or in skins. Dried orange-flower buds and pistachio kernels, the genuine *Pareira brava* root, four cases of sagapenum in fine tears, Korarima cardamoms, and reddish kino from Natal, were noticeable as drugs not seen at every sale. Of false drugs there were offered, Japanese aconite, Japanese star anise, woolly strophanthus seed, and a bark called "cuprea" bark, the presence of quinine in which is doubtful. We understand that about 70 bags of so-called ginger root, in the living state, have been thrown on the London market from Porto Rico. It differs from ginger in having a bitter taste, and is probably the rhizome of *Renalmia sylvestris*, which in Jamaica is known as "great wild ginger." The root is aromatic; the juice is said to stain a brown colour, and to have been used as ink.

THE MANX PHARMACY BILL was under consideration by a Committee of the House of Keys, on January 11. The Manx Society of Chemists was represented during the proceedings by counsel, who asked for the insertion in the Bill of a provision prohibiting companies from acting as chemists and druggists, or, failing that, of a provision prohibiting such companies from describing themselves as chemists and druggists. It was pointed out that such legislation would be in advance of British law, but counsel replied that it was only owing to an oversight in drafting the British Act of 1868 that companies had been allowed to act as chemists in Great Britain, and that the Lord Chancellor and others had strongly recommended an amendment of the law affecting companies. Counsel also asked that certain articles not already included in the scheduled list of poisons should be included, notably carbolic acid and rat poisons containing phosphorus. Mr. J. C. Radcliffe, chemist and druggist, gave evidence before the Committee. He stated that chemists have to serve an apprenticeship of four or five years, and undergo a system of special training. He, in common with others, had a strong objection to companies using the titles of chemists, giving the assumption that they were qualified. In the majority of cases, he said, the boards of directors are totally unacquainted with the profession, and oftentimes the managers of a shop have no voice in the matter of purchasing the drugs, and have to sell what is supplied to them. If the drugs were bad they would be injurious to the public. He thought there should be a clause put in the Bill to restrict the use of titles to qualified persons only, and he would prohibit company trading, except in the case of a qualified company. He also suggested that the name of a properly qualified person should be over each shop. The Committee promised to consider the suggestions carefully and to deal with them in the report on the Bill.

NEW REMEDIES.

ASPARAGUS AS A DIURETIC.—The well known fact that asparagus tops, when eaten, produce free diuresis, has caused H. A. Hare, of Philadelphia, to experiment with the fluid extract of the root stalks. This he has found to exert a powerful influence on the urinary organs, doses of one drachm of the preparation, three times a day, causing marked diuresis, even in one case where other remedies had been inactive. The drug appears to be quite free from any bad effects on the heart.—*Therap. Gaz.*, **23**, 589.

ALCOHOL DRESSINGS IN PSORIASIS.—H. Lau finds that an application of compresses of absorbent cotton soaked in rectified spirit, containing 2 per cent. of salicylic acid, to the œdematous and congested surfaces of the parts affected with psoriasis, exerts a very beneficial effect. He claims that the results obtained are at least as good as those with tar, pyrogallol, ehrysarobin, etc; the spirit dressing has the advantage of being cleanly and easy of application. The compresses are applied at night, covered with a protective layer, and removed the next morning, when the patches are cleaned with soap and a sterilised nail-brush. Should excoriations appear, the treatment is intermitted for a day, and lanoline ointment applied.—*Med. Press*, **58**, 329.

TANNIGEN IN DYSENTERY.—With doses of tannigen of 5 to 10 Gm., combined with 25 centigrammes of ealomel, the patient being carefully dieted, Cronkhite has cured twenty-one out of twenty-three cases of dysentery. Croja has also employed the same remedy in combination with milk somatose with very satisfactory results, feeding the patient with milk somatose immediately the excretion blood of and mucus ceased.—*Wien Klin. Rund.*, **13**, 466, after *Med. Review*.

UROSIN IN THE TREATMENT OF URIC ACID DIATHESIS.—Under the name of urosin a combination of quinic acid, 0.5 Gm., lithium citrate, 0.15 Gm., and sugar, 0.3 Gm., in tablet form, has been put on the market. It is stated that this combination brings about the rapid decomposition of uric acid, and thus eliminates the excess of that body from the system. It is given in doses of six to ten tablets daily.—*Pharm. Post*, **32**, 480.

EMOLLIENT PASTE FOR ECZEMATIC INDURATIONS.—To remove the hardened layers in chronic cases of eczema and psoriasis, P. Unna employs the following ointment:—Zinc oxide paste and resorcin, of each, 4; ichthyol and vaseline, of each, 1; mix. When the indurations are extensive, a less energetic application is employed, composed of zinc oxide paste, 3; resorcin and vaseline, of each, 1. A little of the paste is applied every morning until the epidermis begins to peel off. The application is then stopped, and if necessary, a soothing ointment is applied.—*Bull. Gen. de Therap.*, **138**, 636.

RUSSIAN METHOD OF TREATING ANTHRAX.—According to the *Deutsch. Med. Zeit.*, the following popular Russian treatment was successful in twenty cases of anthrax, in some of which both the local and general infection was very severe. Clean washed raisins a few drops of distilled water, and sal ammoniac are triturated together to the consistence of honey; the ammonium chloride forming about one-fifth of the whole mass. This is spread thickly on clean linen, dusted with powdered sal ammoniac and placed over the abscess, care being taken that the whole inflamed surface is covered with the poultice; the whole is covered with lint and a bandage, and the dressing renewed twice daily.—*Med. Press*, **68**, 300.

ENGLISH NEWS.

THE CHEMISTS' BALL.—The thirty-fourth annual chemists' ball—the last in the century—was held at the Portman Rooms, Baker Street, London, W., on Wednesday, January 17, and in spite of influenza and the war, which had doubtless fought against it, the ball was a complete success. Mr. Dan Godfrey's celebrated quadrille band provided music for an excellent programme of dances, which was thoroughly enjoyed. The stewards of the ball were Messrs. J. J. Arrow, John Attfield, A. R. Arrowsmith, W. A. Baiss, I. Bourdas, J. W. Bowen, E. N. Butt, M. Carteighe, R. L. Cassie, F. Clarke, A. Cooper, E. H. Farr, C. W. Langley Flux, W. H. Francis, T. H. Francis, F. M. Fisk, Thos. Farries, W. F. Gulliver, E. W. Hill, Walter Hills, A. G. Howard, D. Lloyd Howard, C. Hodgkinson, J. T. Humphrey, E. M. Holmes, E. A. Holloway, R. K. Harvey, C. A. Hill, E. A. Hugill, J. H. Hugill, J. C. Hyslop, Leonard Horner, Edward Horner, W. L. Howie, J. F. Harrington, T. H. W. Idris, W. Adpar Jones, Fred N. Layman, J. Lorimer, G. A. Lansdowne, S. Lynn, W. Martindale, C. W. Martin, Chas. Maw, Peter McEwan, Chas. Morley, Jno. H. Mathews, A. R. Morson, G. Matthey, E. R. Marsh, G. T. W. Newsholme, Henry A. Potter, B. H. Paul, A. J. Phillips, W. J. Ignatius Philp, R. Pain, Clifford Probyn, A. C. Preston, H. W. Kilby Pears, C. Rundle, J. Morgan Richards, Alfred Rose, A. L. Savory, A. H. Solomon, Charles Sanger, H. Silverlock, J. Thompson, A. E. Tanner, J. C. Umney, Ernest Umney, J. A. Wink, F. W. Warrick, H. Walker, W. P. Want, W. Warren, H. Wiggins, Harold Wilson, H. C. Wright.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.—The fifth meeting of the session was held in the Lecture Theatre, at 17, Bloomsbury Square, on Friday, the 12th inst., Mr. W. Garsed in the chair. The minutes of the previous meeting were read and confirmed. The Chairman, there being no business to bring before the meeting, then asked Mr. Pollard to read a paper on "Evolution." Mr. Pollard dealt with his subject in a most interesting and instructive manner, drawing numerous diagrams on the blackboard in order to illustrate the mode of development of the primary cells of the animal body. At the close of the paper, the Chairman invited members present to put questions; Messrs. Harris and Heslop responded, Mr. Harris contesting some of the views put forward in the paper. Mr. Finne-more, in a short speech, expressed the general appreciation of the paper felt by the meeting. Mr. Pollard having answered the questions put to him, the Chairman thanked him for the excellence of his paper, and the interest which he had imparted to the subject.

CHEMISTS' ASSISTANTS' ASSOCIATION.—On Thursday, January 11, the President, Mr. F. W. Gamble, took the chair at a social and musical evening, held in the Association's Rooms, 73, Newman Street, W. There was not a large attendance, but the excellence of the programme made up for the poorness of numbers. Mr. Ellis efficiently performed the duties of accompanist, songs being rendered by Messrs. Victor Blin, A. Latreille, C. J. Strother, and Marcus, the latter gentleman appearing in the uniform of the Honourable Artillery Company, being one of the candidates for active service in South Africa. A duet, "Excelsior," by Messrs. Blin and Ellis was perhaps the best item in the programme, but all the songs were highly appreciated. Mr. T. Morley Taylor recited in his well-known style "Dodd's Flat." Refreshments were provided, and a very enjoyable evening's entertainment terminated about eleven o'clock.

A CORONER ON COUNTER PRESCRIBING.—Mr. C. Luxmore Drew conducted an inquiry at the Hammersmith Coroner's Court on January 5 into the circumstances attending the death of Mrs. Laura E. A. Bartels (71), wife of a schoolmaster residing at 52, Devonport Road, Shepherd's Bush, W., on the previous Tuesday.—Evidence was given to the effect that deceased had suffered from

bronchitis, and the day before her death, as her breathing was very bad, deceased's son, Mr. H. H. Bartels, went to Messrs. Barnett, Newth, and Co., chemists, of Uxbridge Road, and asked for something to relieve bronchitis. The person who served him was stated to have said, "I think this will give almost immediate relief," and handed to him a bottle of "Stars and Stripes" mixture. Two doses of the mixture were administered. Next morning a change was noticed in the condition of the patient, and a doctor was sent for, but she died directly after his arrival. Mr. Bartels thought that the assistant who served him was Mr. Edgar Smith, who told the Coroner that he was an assistant to Messrs. Barnett, Newth, and Co., but was not a registered chemist and druggist. He remembered selling a bottle of "Stars and Stripes" mixture on the day in question. He was not aware at the time that it contained laudanum. It was a "patent" medicine, and was not labelled poison.—The Coroner said it was a very slack way of doing things for an unqualified assistant to prescribe—contrary to the Apothecaries Act—and at the same time to supply a mixture containing poison, although he did not know it.—Mr. John Arthur Barnett, pharmaceutical chemist, one of the partners of the firm of Barnett, Newth, and Co., in the course of evidence, said he believed he sold the particular bottle of medicine in question, although he could not swear to it. The assistants always, however, brought medicine to him before selling, and asked if it were the right thing to give. "Stars and Stripes" mixture was a "patent" medicine, and contained a weak preparation of opium or laudanum. It was an innocent mixture and was not labelled "poison," but in future—rather than there should be any doubt in the matter—he intended to so label it.—In reply to a question by the Coroner as to whether he did not know that it was contrary to the Apothecaries Act to prescribe, Mr. Barnett said he really could not say where prescribing begins or ends, and he asked "Are we to sell at all?"—The Coroner said chemists could sell, certainly. It was laid down by decisions in the High Court that if a person asks for a definite article they may sell; but if a chemist himself selects the medicine for the treatment of internal disease it is prescribing.—Medical evidence having been given to the effect that death was due to syncope from bronchitis, and that death was not affected by the medicine, Mr. Bartels was recalled, and said it was certainly not Mr. Barnett who served him. The assistant, to the best of his knowledge, served him direct off the counter and did not consult anyone.—The Coroner, addressing the jury, said it was a clear case of prescribing. The chemist's assistant had selected the medicine and, being unqualified, had no right to sell the poison, which he did. It was also sold without the necessary poison label. It was the duty of the person selling to know what he was really selling. In the present case, however, it had been sold blindly. After hearing the statement of Mr. Bartels, he could not think the assistant went to consult his principal. Mr. Barnett said it was his duty to have done so, and if he failed it was the fault of the assistant.—The jury returned a verdict that death was due to "natural causes." A rider was added to the effect that more care should have been exercised in the sale of such "patent" medicines.

THE ANGLO-COLONIAL CHEMICAL COMPANY, LIMITED.—A petition presented by a shareholder for the compulsory winding-up of this company was heard before Mr. Justice Wright, on Thursday, January 11. The company was formed to take over the benefit of certain inventions for the manufacture of artificial musk and other specialties in chemical or pharmaceutical products, together with certain letters patent already granted, and to manufacture, sell and deal in the said product of artificial musk. It was alleged that one patent was useless, and that the other could not be used owing to the Court having granted an injunction. Under these circumstances petitioner alleged that the substratum had gone, and the company ought to be wound up. On the other hand, it was contended that the company had power to buy musk if they did not choose to

manufacture it, and that an agreement had been entered into for the supply of musk, which would result in a profit of £40,000 a year to the shareholders. His lordship came to the conclusion that the substratum of the company was not gone, and dismissed the petition with costs.

PURCHASE OF A BUSINESS.—At Marylebone County Court on Monday, January 15, before Deputy Judge Fitzroy Cowper, and a jury, Mr. John Llewellyn Rowland, chemist and druggist, 17, Sussex Place, Queen's Gate, Kensington, London, W., sought to recover £48 15s. 1d. from Mr. Arthur John Sarson, also a chemist and druggist, 33, High Road, Willesden Green, N.W., the amount claimed said to be due under an agreement by which the plaintiff sold to the defendant a business at 9, Station Parade, Willesden Green. The defendant counter-claimed for £49 19s. for return of money said to have been over-paid by him for plaintiff's book debts, owing, it was said, to misrepresentation as to the amount of those debts.—Mr. W. H. Moresby was counsel for the plaintiff, and Mr. Stuart Sankey, counsel, defended.—Counsel for the defendant, at the outset, admitted the amount of the claim, and proceeded to deal with the counter-claim. The action, he said, had been remitted from the High Court. About June last the defendant, hearing the plaintiff's business was to be sold, wrote, and afterwards saw the plaintiff with a view to purchase. Subsequently an agreement was entered into by the parties by which the defendant purchased the goodwill, stock-in-trade, furniture, fittings, etc., of the business for £900, together with the book debts. The stock-in-trade was put down at £150, and if, on the valuation, it proved less, defendant was to receive the difference, and, if more, the surplus was to be handed to the plaintiff. There was no dispute as to entering into the agreement nor as to the amount of the stock-in-trade, which was valued at £198 15s. 1d. To the surplus above £150—namely, £48 15s. 1d.—the plaintiff was clearly entitled, and the only reason this amount had not been paid, as the rest of the purchase money had been, was that the book debts were represented as amounting to £170 or £180, whereas they really proved to be only £92 11s. Prior to the completion of the purchase defendant had asked to see the plaintiff's books, but owing to their not being made up, it was impossible to ascertain the amount of the book debts. A Mr. Green, accountant, had the disposal of the business, and it was he who represented the amount of the book debts as being £170 or £180.—Evidence having been given for both parties the jury found that there had been misrepresentation by Green as to the amount of the book debts; that this representation was made recklessly; that the defendant bought the book debts relying upon Green's representations, and they assessed the damages in favour of the defendant on his counter-claim at £33 16s. 4d., being the difference between £142 10s., the amount paid by defendant for the book debts, and £108 13s. 8d., their actual amount, excluding the £16 2s. 6d. said to have been paid to the plaintiff.—His Honour gave judgment for the plaintiff on his claim with costs, and for defendant on the counter-claim according to the jury's finding, with costs, and referred the question of the £16 2s. 6d. to an arbitrator, unless the parties could agree, the question of costs being reserved.

SALE OF SPIRIT OF NITRE.—At the County Police Court, Huddersfield, on Tuesday, January 9, the adjourned case against Dennison Priestley, grocer, Golcar, for selling sweet spirit of nitre not of the nature, substance, and quality demanded, came on for hearing (see last volume, p. 610c).—The case for the defence at the last hearing was that the wrong person had been summoned, inasmuch as the sale was made by the defendant's wife, and that she was the person to be proceeded against. Also that the analyst's certificate was bad.—Mr. F. A. Reed defended, and now stated that after closely studying the law on the subject he now withdrew the first objection. With regard to the analyst's certificate, it contained certain

observations respecting adulteration which ought not to have been there, and that fact invalidated it, as there was no charge of adulteration in the summons.—Mr. Wardle, for the prosecution, contended that the certificate was in good form.—The Bench accepted that contention, and imposed a fine of 12s. 6d., including costs. It was agreed, however, to state a case upon the following points:—(1) That the analyst's certificate was bad; (2) if the certificate was good there was no evidence as to adulteration.—At Boston Borough Police Court, on Friday, January 12, Thomas Bar Joans Booker, chemist and druggist, Main Ridge, was fined 10s. and costs for selling sweet spirit of nitre, 50 per cent. below the standard of the B.P., 1898.—At North London Police Court, this week, William P. Swift, pharmaceutical chemist, was fined £1 12s. 6d. including costs, for selling sweet spirit of nitre deficient in ethyl nitrite to the extent of 33 per cent. The defence was that the deficiency was due to evaporation, and the magistrate remarked that there were evident difficulties in the case, one remedy being a smaller bottle.

THE SALE OF CAMPHORATED OIL.—John Thomas Griffin was fined 15s., including costs, at Market Harborough Police Court on Tuesday, January 9, for selling camphorated oil containing only 15 per cent. of camphor instead of 21 per cent., as required by the B.P., and adulterated with 20 per cent. of cottonseed oil. The defence was that there was no guilty knowledge on the part of the defendant, as the oil in question was part of the stock taken over by him on coming into possession of the business.

SALE OF LIMEWATER.—At Stratford Petty Sessions, on Saturday, January 6, Henry W. Denny, of Katherine Road, East Ham, was fined 20s. 6d., including costs, for selling limewater which was not of the nature, substance, and quality demanded.

BELLADONNA LINIMENT TAKEN INTERNALLY.—An inquest was held on Tuesday, January 9, at the Islington Coroner's Court, concerning the death of Helen Lee (44), wife of Henry Walter Lee, a french-polisher, of 13, Bracey Street, Hornsey Road, N.—It appeared from the evidence that the deceased had received some liniment from University Hospital in a small blue bottle, but, having given some of it away, she had changed the rest into a bottle similar to that containing medicine, which she had also obtained from the hospital. On Saturday, January 7, she swallowed some of the liniment in mistake for the medicine, with a fatal result.—Dr. Foster, of the Great Northern Hospital, said the deceased had drunk belladonna liniment. Death was really due to pneumonia, but it had been accelerated by the overdose of liniment.—The jury returned a verdict of "Death from misadventure."

POISONING BY SODIUM SALICYLATE.—An inquest was held at St. Pancras, on Thursday, January 4, with respect to the death of Wm. Dugan (50), a Blackpool artist, who was said to have come to London to paint a large picture on the war. He lodged in Camden Town, and as he was suffering from a cold Dr. Malcolm Wheeler was called in to see him, and prescribed an 8-ounce mixture containing sufficient sodium salicylate for eight doses. Dugan, however, drank the whole at a draught, and died next day.—The jury returned a verdict of "Death from misadventure."

OVERDOSE OF LAUDANUM.—The Coroner for the City of Leeds held an inquest at Hunslet on January 15, on the body of Abraham Link (57), a core maker, of Hunslet.—The evidence was to the effect that deceased suffered from rheumatism, and was in the habit of taking laudanum to relieve the pain. On the previous Saturday he took two doses of the opiate and died early on Sunday morning.—A verdict of "Death from misadventure" was returned.

IRISH NEWS.

PHARMACEUTICAL SOCIETY OF IRELAND.—At the Pharmaceutical Assistant Examination, recently held, Messrs. J. S. Strange and J. Patton passed. One candidate was rejected. At the Registered Druggist Examination Messrs. J. Bell, E. J. Clancy, J. P. McEvoy, and D. Manson passed. At the Pharmaceutical License Examination Messrs. J. McGrotty, C. J. B. Dunlop; W. B. Conyngham, J. P. Myles (equal); F. C. Warren, and R. Kingston passed. Ten candidates were rejected.

NORTH OF IRELAND CHEMISTS' AND DRUGGISTS' SOCIETY.—At the general meeting of the Northern Branch of the Chemists' and Druggists' Society of Ireland, held recently at Belfast, the following resolution, proposed by Mr. Carse and seconded by Mr. Acheson, was unanimously adopted:—"Believing that the Pharmaceutical Council is agreeable to accept increased representation for chemists and druggists, we recommend the latter body in the north of Ireland to qualify as associates, with the view of securing further and adequate representation, as the members of this Society are strongly convinced such a course would tend to advance the best interests of both sections of the trade."

AN IRISH DISPENSARY SEIZED FOR POOR RATES.—At the last meeting of the Ennistymon, Co. Clare, Board of Guardians, the Clerk read a letter received from Dr. Peter O'Dwyer, Medical Officer, stating that the rate collector, Mr. Hynes, had seized on the Ennistymon dispensary for poor rates due. The dispensary could not be reopened for public use for some days in consequence, and he, in the meantime, had to procure medicines and drugs for patients from the local Medical Hall. Mr. Hagrave, a Guardian, said that the attention of the Local Government Board should be called to that letter. Mr. O'Dwyer, J.P., said that the bill for the medicines and drugs which had to be procured from the Medical Hall would be more than the amount of rates due. The Clerk of the Union, Mr. Griffy, explained that the rate collector had asked him for the rates due, and he (the Clerk) communicated with the Local Government Board as to whether it would be legal for him to pay the amount owing. To that communication he had received no reply. The Guardians made an order that the Medical Officer's letter should be inserted on the minutes for the observation of the Local Government Board.

CORK MEDICINE CONTRACT.—At the meeting of the trustees of the North Charitable Infirmary, Cork, held last week, the tender of the Cork Chemical and Drug Company was accepted for supplying the institution with medicines, drugs, oils, etc., for a period of twelve months. The contract is one of the most important of the kind in Cork.

INSPECTORS OF EXPLOSIVES IN IRELAND.—A largely-attended meeting of the Wexford County Council was held last week, at which Sir Thomas H. Grattan Esmonde, Bart., M.P., presided. An application of considerable interest to Inspectors of Explosives in Ireland came up for consideration. It was made by Messrs. M. J. O'Connor and Company, solicitors, Wexford, on behalf of the Petty Sessions Clerks of Wexford, New Ross, Gorey, Enniscorthy, and Aulart, for £50 compensation each for the abolition of their offices as Inspectors of Explosives under the Local Government (Ireland) Act. The work will henceforth be done by the Royal Irish Constabulary, and the present application for compensation has been the first of the kind made in Ireland. At the County Council meeting a long discussion took place as to whether the superseded Inspectors of Explosives who have been superseded all over the country

relieved of their offices by the Local Government Act. A letter was read from the Local Government Board deciding in the affirmative. The question then arose as to whether half the amount of the compensation to be allowed should not be contributed by the Government. This the Local Government Board also said they were not empowered to do under the Act. The County Council therefore decided to fight the matter out in Court, Mr. O'Connor, solicitor, having served processes for the amount of compensation claimed by each of the Inspectors of Explosives. The subject is of much public interest in Ireland, affecting, as it does, the Inspectors of Explosives who have been superseded all over the country by the Local Government Act.

FOREIGN NEWS.

WANTED! A NEW RAT POISON.—The anxiety caused by the enormous increase of rats in Paris during the last few years led recently to Dr. Henry Thiéry, of the City Hygiene Service, being commissioned by the authorities to look into the matter. Dr. Thiéry's report shows the urgent necessity of measures to destroy the vermin, and contains many interesting facts. The sewers are it appears, a refuge where the rats fear nothing but an inundation. When, however, their ordinary resorts were disturbed by the work connected with the 1900 Exhibition along the banks of the Seine they took refuge in the neighbouring houses, preferably the new ones. There are now, it appears, streets near the river where the inhabitants are afraid to allow their children to cross the garden or the courtyard after dark. The central markets are infested to such an extent that rat-hunting has been abandoned in despair. As soon as dark sets in armies of rats attack the reserve provisions, to which they have burrowed their way beneath the masonry. A singular detail is that the cats, which are very numerous at the central markets, live on the best of terms with the rats. They can be seen trotting about together. The city cat has lost its reputation in Paris. It still enjoys killing a mouse, but with other food at hand a rat has become rather large game from the feline point of view. For this reason the Budget Commission suppressed this year the credits for the cats kept in the storehouses of the Ministry of War. The cat as an official is now only to be found at the Ministry of Finance and the Council of State. No decision has yet been come to by the authorities as to how the plague is to be got rid of, though poisons with instantaneous effects, which have the additional advantage of mummifying the body, are favourably regarded. The system, however, has the disadvantage of making poison too readily obtainable, the results of which, in the hands of the unscrupulous, cannot be over-estimated. Dr. Thiéry mentions four terriers belonging to Monsieur Girard, chief of the Municipal Laboratory, which are excellent rat-catchers. They have cleared the cellars of the Prefecture of Police from the vermin, and are so ardent in the chase that they have strayed two miles from home, along the sewers, as far as Bercy, killing large numbers of rats on the way. Monsieur Girard's favourite English terrier can break instantaneously the back of a rat weighing a pound and a half. Paris could hardly, however, be freed from the plague by dogs. On Achèves Plain rats, estimated to be 10,000 in number, have been seen at one time on two acres of ground planted with beetroot. There is, therefore, fame in store for the chemist who can meet the wishes of the authorities and rid Paris of rats without endangering human life.

GERMAN MEDICAL CONGRESS.—The Committee of the Society of German Naturalists and Doctors met on January 13 to settle the date of the Congress to be held in Aix-la-Chapelle this year. It was proposed to hold the congress in August, so as to allow of a deputation being sent to the various congresses to be held in

Paris during the Exhibition. It was, however, seen that the Paris congresses are spread over such a space of time that such a deputation would be impossible. It was therefore resolved that the congress be held at the date originally fixed—September 17 to 21 next.

PROPOSED NEW THERMOMETER SCALE.—Monsieur C. Mocuery, President of the Académie des Sciences, Paris, and of other learned bodies, has proposed that we should abandon the conventional scales of our thermometers and adopt one starting from the absolute zero of temperature, which was so nearly attained by Professor Dewar in his solidification of hydrogen. This would be a rational and truly scientific scale. The absolute zéro corresponds to the cessation of molecular vibration, and is calculated as 273° below zero of the centigrade thermometer. With such a scale the troublesome negative degrees (or "below zero") would be avoided, and existing thermometers could serve by altering their gradation.

ARSENIC IN THE HUMAN BODY.—In a paper communicated to the Académie des Sciences, Monsieur Armand Gauthier showed that arsenic plays a part in the organism as important as that of iron. The Asiatics, as well as the Greeks and Romans, prescribed it as a medicine. Nevertheless, it is only now that the part played by arsenic, which is not found in the blood, has been made out. Last time, Monsieur Gauthier introduced an organic arsenic, under the form of cacodylic acid, for the treatment of phthisis, and with so much success that large quantities of it have been made. Knowing that the thyroid gland contains iodine, he suspected that it also produces arsenic, and investigation of these glands in cattle and in man proved that his idea was correct. The thyroid gland of man is the richest in arsenic, but the thymus gland also contains it. Arsenic plays the part of organic phosphorus in the organism, he says, and it occurs in the thyroid gland in the state of nucleine. Arsenic ought, therefore, to be present in the organism in sufficient quantity, or else myxœdemic troubles arise. A very little arsenic is also found in the brain and in the skin.

STARTLING SHELL EXPLOSION IN A CHEMICAL LABORATORY.—At the time of the Anarchist outrages in Paris in 1893, the Prefecture of Police had four shelters made in the walls of the fortifications at Montrouge, Aubervilliers, Bercy, and Point du Jour, where infernal machines or unexploded shells could be opened without danger. Since the shelters were made, 251 infernal machines and 113 shells have been opened under the direction of M. Girard, Director of the Municipal Laboratory. When it is found impossible to open the suspected machines by chemical means, the chemists proceed to crush it by hydraulic pressure in a well specially constructed in the hut, the operators seeking shelter in a casemate protected by a wall of earth three metres thick. On Tuesday morning last, at mid-day, M. Truchon, Chief Chemist of the Municipal Laboratory in the Point du Jour shelter, proceeded to crush a shell 22 centimetres in diameter and 53 centimetres high, which was found during the excavations for a house at the angle of the Boulevard Murat and the Rue d'Auteuil. M. Tramus, driver of the special waggon used to pick up the infernal machines, was with M. Truchon in the laboratory, working the hydraulic press, when suddenly there was a violent explosion in the well. A spark, produced by friction of the metal, had exploded the ten kilos of powder or guncotton with which the shell was loaded. The roof covering the well was blown to atoms, and the shock broke several panes of glass in the windows of a house over on the other side of the Boulevard Sachet, but, thanks to the precautions taken, the operators escaped with a slight shock. Great alarm prevailed

in the neighbourhood for some time, the residents fearing that a terrible disaster had happened.

COLONIAL NEWS.

A PHARMACIST ON THE WAR.—The following extract is from a letter received from an old student in the Pharmaceutical Society's School of Pharmacy, who is now in Durban:—"I suppose you are wondering how I came to be here, and no doubt anxious to learn my news, so I shall begin by telling you how I left the Transvaal. My partner and myself both decided to stay in Johannesburg if possible. So when the war broke out on October 11, and when all British subjects were given eight days wherein to leave the country, we both applied for permits to stay. Very few permits were given, and so it happened that my partner obtained one and I did not. I therefore had to leave. To have stayed and defied the Transvaal authorities would have been the height of folly. So I packed up a few things—just what I could carry—and went. I could not go *via* Natal route, as the war had started and the Boers were already in possession of the northern Natal towns, so I came out *via* Delagoa Bay, and now here I am, stranded in Durban. If I am lucky, after the war is over, I shall go back to my property in Johannesburg, for, of course, I had just to leave everything as it was. But if I am unlucky, I stand to lose every penny, with a very doubtful chance of getting compensation, and shall have to begin life over again. Meanwhile, I am stranded here with nothing to do, in consequence of every vacancy which occurs being instantly snapped up by other refugees. I tried to get work, not caring to remain idle, and I offered my services as dispenser to the military; but up to date I have not been accepted anywhere, and so am having an enforced holiday. I need not say that this is very unpleasant. I have not volunteered as a "scout," because I cannot shoot, but I do not despair of yet getting accepted as a dispenser later on. The war is a terrible war, as you will know from the home papers. I have spoken to many of the eye-witnesses of the various fights, and all agree as to the horror of modern warfare. Yet the war was absolutely necessary, and I am glad it has come about, for, not until we give the Boers a thorough beating, will this country be fit for Englishmen to live in, and no prosperity is possible till then. Yet it is sad to see how everybody here is affected by the war. Many are utterly ruined and rendered destitute. One old lady, staying at the same place as I am, has nine grandchildren at the front fighting, five are Free State burghers, fighting for the Dutch, and four are Natal Colonists fighting for the English. Owing to intermarriage many years ago, this war becomes often akin to civil war. Another man staying here has two sons at the front fighting. He also is a Johannesburg refugee, and stands to lose all he possesses, while his daughter had her lover killed at the front. But I suppose similar things happen in all wars—it is so always—but personal contact with war makes one realise it so much better. Well, enough about the war. Let me talk of other things. I met Mr. Wood, the botanist of the Natal Botanical Gardens, and I took the opportunity to ask him about the Natal aloes. Mr. Wood tells me that no one has been able to discover where the aloes grow which produce the variety hitherto called 'Natal Aloes.' This agrees with my own results. You will remember that when I was in Ladysmith I tried to obtain aloes from local plants. The aloes I obtained answered to the tests of Cape aloes, and I never succeeded in getting an aloes to answer to the test for Natal aloes. Mr. Wood tells me he has tried the Mooi River districts with the same result. I cannot, therefore, explain how it is that the Natal aloes used formerly to have different characteristics to the present kinds. Travelling in Natal here away from the railway line is very costly, and also just now impossible, because of the war, and so I have not been able myself to pay the Mooi River district a visit."

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

'THE OFFICIAL CALENDAR OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN FOR 1900' is now obtainable from the Secretary, price 2s. Members of the Society and student associates are given the privilege of having the Calendar they purchase sent to them post free, but other purchasers are required to add 4½d. to their remittances to defray postage. It is difficult within the limits of this notice to enumerate the many claims of the book to be regarded as a valuable adjunct to the pharmacist's reference library, but it may be said without much risk of incurring a charge of "puffing" that if more chemists and druggists were to consult this official publication there would be fewer misconceptions among the general body as to the constitution, aims, work, and limitations of the Society, and a more widespread knowledge of the statutes intimately affecting the calling of pharmacy. In the present edition several noteworthy additions and amendments have been made. The old recommendations for the keeping, dispensing, and selling of poisons have been removed from their hiding-place, and are now prominently printed in all the glory of heavy type as poison regulations. The new conditions to be fulfilled after August next by persons desirous of registering as "Apprentices or Students" are also clearly set forth, side by side with the regulations which expire in July. With regard to that portion of the Calendar dealing with legal information, considerable care appears to have been given to revision, and the matter may be safely relied upon as being accurate. The new medical scales under the Merchant Shipping Acts are published in full, and though it may be a moot point whether the space they occupy might not have been better utilised, they afford a good example of the desire of the Council to give the fullest information possible to every section of the calling. It may be stated in passing that those scales were brought into conformity with the latest edition of the Pharmacopœia by a committee of the Board of Trade on which pharmacists were represented by Mr. A. J. Phillips, of Kensington. Other important additions are the London County Council order respecting the use of petroleum spirit by chemists, and the new Sale of Food and Drugs Act—both of which merit close attention. For a summary of the principal contents of the Calendar readers are referred to our advertisement pages.

'INTRODUCTION TO THE OUTLINES OF THE PRINCIPLES OF DIFFERENTIAL DIAGNOSIS, WITH CLINICAL MEMORANDA.' By Fred. J. Smith, M.A., M.D. (Oxon.), F.R.C.P. (Lond.). (London: Macmillan and Co., 1899. Pp. 253. Price, 7s. 6d.)—In this work Dr. Smith does not lay claim to much that is new except some original ideas which are the outcome of long study and research. The book has been written more with the object of arranging the old phenomena of disease in such a manner as to show more clearly their fundamental meaning and relationship, the author drawing his inferences from the data of physiology and facts of pathological anatomy which constitute a critical analysis of clinical symptoms and so lead up in a scientific and systematic manner to the underlying principles which govern disease and health. No one reading this work can fail to appreciate the able manner in which the varying signs and symptoms of pathological conditions are classified, and the author has built up from fundamental and scientific principles a system which proves the relative dependence of the various conditions upon one another. Isolated, or apparently isolated facts, thus lose their isolation, becoming members of a related community, and so fall naturally into their places as deductions from a universal law. The book deserves the most careful reading, and this is rendered the more easy and entertaining by the lucid and logical style of the author. The latest results of bacteriological investigation are fully considered, and the whole work is written in accordance with the latest discoveries of medical research.

Obituary.

ARROWSMITH.—On January 6, at Rensburg, South Africa, Sergeant Henry Raymond Saddler Arrowsmith, son of Mr. G. Arrowsmith, Chemist and Druggist, Whitstable. Aged 24.

BARRETT.—On January 9, James Barrett, Pharmaceutical Chemist, late of Bayswater. Aged 57. Mr. Barrett had been a member of the Pharmaceutical Society since 1866, and was a subscriber to the Benevolent Fund. He had been in business at Chichester only a few weeks before his death.

COOPER.—On January 8, Mrs. Cooper, widow of the late Benjamin Cooper, Chemist, of 93, Kingston Road, Wimbledon. Aged 69.

FENNINGS.—On January 7, Alfred Fennings, Chemist and Druggist, West Cowes, I.W. Aged 85. Mr. Fennings, who was well known as the proprietor of various preparations for children's ailments, contributed regularly and generously to the Pharmaceutical Society's Benevolent Fund.

FRAZER.—On January 10, at Rowmore House, Garelochhead, Daniel Frazer, J.P., Pharmaceutical Chemist, in his 80th year. Mr. Daniel Frazer was head of the well-known firm of Frazer and Green, Glasgow, but had for some years past been laid aside from work consequent on a shock of paralysis, and had ceased to take any active interest in pharmacy, imperial politics, or ecclesiastical affairs, to all of which he had for some many years given great attention. His remains were interred on Saturday last at Row Churchyard, in the presence of his relatives, a few personal friends, and some of the heads of departments of Frazer and Green. Mr. Frazer was born in 1820, and served his apprenticeship with his brother in a shop at 105, Buchanan Street. On the death of Mr. N. B. Frazer, his widow took Mr. Green into partnership, an arrangement which subsisted for ten years. At the close of that period Mrs. Frazer retired, and on January 1, 1847, Mr. Daniel Frazer was assumed as a partner, so that for more than half a century he has been associated with the great concern that he built up by his unaided and untiring energy, Mr. Green having died in 1849, leaving him sole proprietor. In an account of the early days of his brother's business, Mr. Frazer mentions that for the first six months the takings were less than £20 a month, there had been only two days in the half year when the drawings were over £2, and it was as low one day as 3s. 6d. To Mr. Frazer alone is due the credit of having reared and carried on with success the splendid business of Frazer and Green, which says much for his industry, caution and ability. Mr. Frazer took an active part in pharmaceutical politics, and was from 1871 to 1881 a member of the Council of the Society, in which position he was distinguished by an outspoken frankness which was sometimes unpleasantly candid, but so kindly was his nature that no one ever took offence at his criticism, and when he resigned his post on account of the illness of his wife, his colleagues were unanimous in deploring his loss. He was a Liberal in politics, and an active member and office-bearer of the Free Church of Scotland.

HUME.—On January 13, Nathaniel Hume, Chemist and Druggist, Torriano Avenue, London, N.W. Aged 77.

LINES.—On January 10, George Lines, Pharmaceutical Chemist, Hertford. Aged 85. By the death of Mr. Lines the Society loses one of its most steadfast supporters. The deceased gentleman was a Founder of the Society, and had he lived a few months longer might have celebrated his diamond jubilee of membership. For very many years he acted as local secretary for his district, and was always ready to speak a word in good season in furtherance of the best interests of pharmacy. The little band of surviving founders is now reduced to half-a-dozen—five of whom still figure on the list of members published in the 1900 Calendar.

MUIR.—On January 8, George McCartney Muir, Chemist and Druggist, Newcastle-on-Tyne. Aged 34.

BLACKPOOL PHARMACEUTICAL ASSOCIATION.

Business and pleasure were united in an eminently successful dinner on Wednesday evening, January 10, by the chemists of Blackpool and district, at the Palatine Hotel. The chair was occupied by Mr. T. CARTER, of S. Shore, and Mr. Councillor J. Laurie the vice-chair.

Letters were read by the local secretary from Messrs. Billington, Weidham, Henderson, and Councillor Lofthouse (Fleetwood), expressing sympathy with the objects of the meeting and regret at being unable to be present.

After the usual loyal toast had been ably dealt with by the CHAIRMAN, the VICE-CHAIRMAN, and Mr. H. WITHERS, Councillor J. LAURIE, who has acted as local secretary for a number of years, proposed the toast of:—

THE PHARMACEUTICAL SOCIETY.

Mr. Laurie, in dealing with the toast, spoke of the necessity for an association of chemists for the Fylde. Nothing could be done except by union; if anything was wanted from Parliament one of the first things asked was, "Who are you and what are you?" and a Society that represented only a fraction of the trade could not expect to carry the weight that it otherwise ought to. Mr. Laurie spoke of the difficulty there would be in preventing limited liability companies carrying on the business of chemists and druggists, but maintained that they ought only to be allowed to do so when putting the name and qualification of the person responsible on the label. He thought it would be better to form an association under the auspices of the Blackpool Tradesmen's Association. Local chemists had taken an important part in its formation and support; there were four local chemists on its executive council and two were hon. officials.

Mr. TAYLOR, of St. Anne's, supported the toast. He often heard it asked, "What is the Society doing for us?" Before he answered this question he would ask, "Are you a member? because, if not, you have no right to ask it"; if you are a member, "What do you want the Society to do?" His experience was that in many cases the Pharmaceutical Society had no means of knowing what pharmacists do want. The business of the evening was the formation of a local association, and it was by means of such associations as it was proposed to form that they could get their wishes expressed, and also be able to exert a greater influence on public opinion in the country. As a watering-place he believed Blackpool to be without a rival in the world, and it was high time that some means were adopted of obtaining the collective opinions of the pharmacists there and in the district. The company question was the question of the hour, and the position of pharmacists was a very peculiar one. The pharmacist, he contended, is a professional man, for the fact that he has graduated as a scientific man and has to go before the Examination Board of the Pharmaceutical Society, and the titles Ph.C. or M.P.S. are as much degrees as an M.D., and as much a personal degree, too. No company could pass those examinations, no company could be an M.A. or Mus. Doc., no more could a company be a chemist and druggist; and pharmacists had a right to ask that that degree shall be confined to qualified men only. But they were also tradesmen, and as tradesmen must meet competition, and if their predecessors of thirty years ago had taken the steps they now found necessary, they would not have been in the position they are in to-day. He had a theory—he believed advancement may be in a personal direction, and they must start with the apprentice and the preliminary examination. There should be an entrance fee that would raise the social standard of the candidates, as is done in other professions. He believed the Council of the Pharmaceutical Society saw this—perhaps it was afraid of interfering with other legislation. Mr. Taylor concluded by predicting a better future for pharmacists, and asking them to be more particular as to the stamp of young men they admitted as appren-

tices; it would entail some inconvenience now which would be well worth enduring for the future benefit to be derived.

Mr. W. C. RICHARDSON supported the proposal. At present the facilities for a high-class technical training for the youths committed to their charge was not what it might be. The Technical Instruction Committee provided classes in pure science, but classes in pharmacy were also required, and an association would provide the necessary machinery.

Mr. ASHTON also supported the scheme. In company with the local secretary, he had called on a number of chemists in Blackpool, South Shore, St. Anne's, and Lytham, and they had been most cordially received, especially at the three former places. Opinion was strongly in favour of forming an association. He believed the committee who had assisted in getting up the dinner had stated the same thing.

Mr. BUCKLEY said he had been associated with a very large association of chemists in the South of England, which had done a very good work, especially in the matter of classes for young men.

Several others spoke in favour, and a resolution was then submitted by Mr. W. WITHERS, seconded by Mr. SEDGWICK, that steps be taken to form such an Association.

It was also resolved, on the motion of the CHAIRMAN, seconded by the VICE-CHAIRMAN, that Mr. C. H. Turver be appointed Secretary *pro tem.* and call a further meeting at some convenient date.

The LOCAL SECRETARY, Mr. C. H. Turver, on behalf of the Pharmaceutical Society, suitably responded, thanking those present for the hearty manner in which the toast had been received. Thanks to the exertions of the late local secretary, Mr. Councillor Laurie, the Society was well represented in Blackpool, and nearly every member of the craft in the town were subscribers to the P.A.T.A., and he hoped to have those yet. An association was a *sine qua non*. If bricklayers and engineers could combine, and had combined, to raise their social status, and everyone knew what the engineers had done, then it was a reflection on the intelligence of chemists that they were not a closely-united body. When that came to pass they might do anything.

Among those present were Messrs. Ashton, Buckley, Carter, Bailey, Keeley, Councillor Laurie, Johnson, Greenwood, Richardson, Sankey, Sexton, Sedgwick, Turver, Withers, Turnbull (Blackpool), Kershaw (Paulton), Taylor and Evans (St. Anne's).

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

At a meeting of this Association, held on Thursday, January 11, Councillor CRITCHLEY presided, and Mr. W. S. GLYN-JONES addressed the members upon the advantages of

THE CHEMISTS' DEFENCE ASSOCIATION, LIMITED.

At the outset he remarked that if every town of the size of Blackburn could show meetings of the size and character of that one, then pharmacy, on both its professional and trade sides, would be in a very much better position than it was. He did not think the Council of the Pharmaceutical Society had so far recognised the power for good or evil which local associations might exercise. Proceeding to explain the merits of the Defence Association, Mr. Glyn-Jones remarked that it was notorious it was the minority who joined trade organisations and worked and paid to secure benefits of which the whole body of chemists reaped the advantage. The P.A.T.A. therefore welcomed the opportunity of giving to their members, in this Defence Association, something to which only members would be entitled.

The CHAIRMAN spoke strongly in favour of the Association, giving instances which had occurred within his own knowledge of proceedings against chemists in which expert knowledge on the part of the chemists' solicitor would be most valuable.

Councillor SHORROCK (Darwen) also expressed decided approval of the Association. A most vexatious methylated spirit prosecution, in which he had been involved, might have been avoided had he had at command the services of a lawyer who understood the Acts bearing upon the matter.

MESSRS. HOWARTH, BEAN, and YATES having also expressed approval of the objects of the Association,

Mr. HOLT said he thought the defence scheme an admirable one; but he wished to ask Mr. Glyn-Jones why, as a member of the Pharmaceutical Council, he gave away the position as to the practice of pharmacy as he did.

Mr. R. LORD GIFFORD said that meeting would disabuse Mr. Glyn-Jones of the idea that Blackburn concerned itself solely with ideals. The North-East Lancashire Chemists' Association had insisted, perhaps at the cost of some misunderstanding, that the profession of pharmacy must be absolutely dissociated from the ordinary drug trade. He appreciated the remarks of Mr. Glyn-Jones as to the minority having to work for the whole body. If the majority, who took advantage of the work of the minority, would be a little more liberal in their views, and a little more tolerant of other workers, it would be a good thing.

Mr. GLYN-JONES, in reply, explained at length how the Defence Association would act in cases quoted by the different speakers. Mr. Howarth had expressed the opinion that the taking up of prosecutions should be the work of the Pharmaceutical Society. He quite agreed that it was the proper work of the Pharmaceutical Society, and he was certain that that Society had not in the past done enough of such work. But it would be useful for chemists to have an Association able to force the hands of the Pharmaceutical Society in such matters, while there were prosecutions which it would not be to their interests that the Pharmaceutical Society should take up, but which an independent association might take up with advantage. As to

THE QUESTION OF COMPANY PHARMACY,

upon which his opinion had been asked, they must not for a moment think that he was sacrificing the position. He was accused of relinquishing a position which had never yet been occupied, owing to the supineness and apparent indifference or incompetency of the men who had constituted the Pharmaceutical Council for the last twenty years. The position which they imagined those who were now trying to do something had abandoned was never occupied by them. Twenty years ago, when certain decisions were given against them, those members of the Pharmaceutical Council who waited for the members of the Society to lead them instead of leading the trade let an opportunity pass and were guilty of a breach of trust which it was unfair to suggest those who came to the Council twenty years too late were responsible for. He was not the man to abandon any position he had the slightest chance of maintaining, and he was quite prepared to be a party to a deputation from the Society which should take up the position of the Law and Parliamentary Committee, and ask the Government for everything he believed they had a right to claim. But he did contend that in the event of their getting a straight "No," a definite refusal, from the Government, they should be prepared to fall back on the next best thing for them, rather than let their opponents, Mr. Jesse Boot and his kind, in conjunction with the Lord Chancellor and the Government, make arrangements to suit themselves and not the trade. They as a trade would never secure any legislation apart from the Government. For twenty years, he was told, the Pharmaceutical Society had been trying to get Bills introduced which would remedy that, but apart from the Government he was convinced that no private Bill would stand the ghost of a chance. It was getting more difficult every year to get private Bills through the House, and their only chance was to get the Government to see their position. If the Government refused, let them not neglect the opportunity to

get a good step in advance because they could not have everything they had a right to get. They were in a rather helpless position, but he refused to take the responsibility of giving away something which, through the supineness of the Pharmaceutical Council, they had never possessed. As to Mr. Gifford's remarks about minorities, some members of the Pharmaceutical Council, as well as persons in other walks of life, would be very glad if some of the minorities would not be quite so much in evidence. He himself had great sympathy with the minority, and unfortunately he found himself in that position almost every month. His experience was that unless the minority was particularly noisy it stood not a shadow of a chance against the majority. It was always a satisfaction to him when in a minority to remember that Carlyle once said that the majority of the population of this kingdom were not wise men.

Mr. GRIMSHAW, in moving a vote of thanks to Mr. Glyn-Jones, expressed a hope that other members of the Council would come amongst the members and let them know how matters stood.

Mr. PICKWELL seconded the motion, which was supported by Mr. JEPSON, and carried with applause.

Mr. GLYN-JONES said he certainly endorsed the statement that it would be well if the members of the Pharmaceutical Council and the officers of the Society got into closer touch with local associations, and attended their meetings, prepared to answer questions which they, as members of the Pharmaceutical Society, were entitled to ask. He hoped they would give him credit for having his own welfare and that of his brother chemists at heart, and if he had the time to discuss the question, they would find that between the position he held and that of the North-East Lancashire Association there was not the difference of a sheet of paper. If the Association did him the honour to ask him to come down and discuss the matter in public or in private he should be very glad to avail himself of the opportunity.

IRISH PHARMACISTS' ASSISTANTS' ASSOCIATION.

On Friday, January 12, Dr. J. A. WALSH, M.C.P.S.I., delivered before the above Association a lecture entitled

Nerves,

In the course of his remarks, Dr. Walsh stated that, in advocating the study of the action of drugs upon the body, and more particularly upon the nervous system, and the necessity for the pharmacist having some knowledge of the arrangement and structure of the nerves, he did not intend that such knowledge should be applied to the development of the much-discussed sin of counter-prescribing. As to the usefulness of a knowledge of therapeutics to the pharmacist there could be no question. They could call to mind many occasions on which they had been handed a bundle of prescriptions by a customer with the statement that one was for his liver and another for, perhaps, influenza or asthma, and he would be a very sorry pharmacist who could not solve the difficulty. Materia medica and therapeutics were closely connected, and should be studied together. In some of the older works upon materia medica the various articles were grouped according to their therapeutical action. For instance, all the astringents were considered together, and in the same manner the tonics, carminatives, antacids, etc. He thought the arrangement a good one. In studying therapeutics they would constantly meet statements as to the action of drugs upon different nerves and nerve endings. For instance, the endings of the third nerve are paralysed by atropine, the sensory nerves by opium, in their action on the pupil, he would endeavour to explain some of these items in the hope that it would be of some help to them studying the materia medica. The lecturer then proceeded to describe the appearance of a nerve. Before commencing his medical studies he

imagined that a nerve was a kind of vague ethereal substance, not a tangible body, but upon commencing to dissect and having removed the outer layer of skin and fat he came upon a number of slender thread-like strings somewhat like fine twine, these were nerves containing an internal nerve fibre and an outer protective sheath.

The lecture was illustrated by lantern slides, the first slide showing a piece of the Atlantic cable, also a transverse section contrasted with a nerve. The internal copper wire which conveys the current might be considered the axis cylinder of the nerve, and the outer layer of insulating material the medullary sheath. The next slide illustrated the arrangement of the nerves in the body, the spinal cord arising in the brain and terminating in the base of the spine. Several excellent photos of the brain were shown and described by the lecturer, and finally the cranial nerves were fully described.

Dr. McWALTER, in proposing a vote of thanks, stated that after hearing a lecture containing such an immense amount of information, delivered extempore, they might well place Dr. Walsh in the front rank of intellectual pharmacists.

Dr. WALSH, in replying, stated that he wished to express his thanks to Professor Birmingham, who had kindly lent him the slides to illustrate his lecture.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.

At a meeting held on Wednesday, January 10, Mr. FRASER McDIARMID, President, in the chair, Mr. A. P. Grainger read an interesting historical *résumé* on "Cinchona: Its introduction into Medicine," for which he was cordially thanked; after which Mr. J. G. MURDOCK read a paper on—

AN APPRENTICE'S IDEA OF THE RETAIL TRADE.

He said: The large number of prizes offered by this Association and the relatively small number of competitors has suggested to me the general inquiry why apprentices in the drug trade show such lack of studious habits? The conclusion that has been arrived at is that the occupation and not the worker is the source of this regrettable condition. The prominent reasons observed were long hours and the amount of work. Time to enable the pharmaceutical student to take a real interest in his occupation should fall to his lot, but never comes his way. The hours of work in a retail shop are long, and the weekly or fortnightly half-holiday comes as a boon to the apprentice. But when the half-holiday has to be given up for the time required off for classes, then these classes become a bore, and the reading needed for them in truth a "weariness to the flesh." This, however, is no real excuse for the fault I am dealing with. One who is determined to work will overcome such difficulties. Even if allowed it can only hold good for such subjects as botany and physics. But the prize schemes, such as the Ewing and the McLaren, call for a knowledge of practical pharmacy, materia medica, and prescription reading. The student is required to recognise the various galenical preparations of the Pharmacopœia. To do this he must have had a thoroughly practical knowledge of them, and this can only be gained by the making and keeping in constant touch with them. How many of these preparations is it the good fortune of the small-shop apprentice to make, and how many are the instances in which he does not even have a chance of handling such articles. The preparations of the Pharmacopœia are not so generally known to doctors as they should be, and when such galenicals are not prescribed the chemist has no call to make them, and the knowledge gained by the apprentice is nil. Even in establishments where the greater number of the preparations of the Pharmacopœia are stocked, how many of them are made on the premises. When economy, standardisation, and

other considerations are taken into account the products of the wholesale house are found to be most suitable. The retailer cannot be blamed for this. The apparatus required for the manufacture and standardisation of certain drugs is too expensive, and the processes too protracted to make the manufacture of small quantities a financial success. Still, the fact remains that it is the apprentice who suffers. Illustrating this want of practice, I quote my own experience. Confident of my nearly five years' apprenticeship in two shops, I entered for the Ewing Pharmacy Competition. In the practical part of the examination, out of four galenicals for recognition two I had never come across. The third I knew in its old B.P. form, but had never had a chance of making it according to its new formula. The fourth, a powder, was, in at least one of its ingredients, powdered by hand, what I had been accustomed to handle being powdered by machinery. The appearance of the two was entirely different, and but for the smell I would not have recognised even it. Of course, the remedy is for the apprentice to go over the Pharmacopœia and make up small quantities of all the preparations that he is able to make. Such a remedy, however, depends on the generosity of the employer, and even when permission is granted it has to be done in spare time, which is very little, or after hours, and thus in still another way the few leisure hours are encroached upon. The advice given to the student of an enquiring disposition is not conducive to his perseverance in study. Questions about the apparatus which he reads about, but has small chance of seeing, elicit the answer that he will see enough of them when he starts his Minor classes at one or other of the schools. This time for preparation for the great examination looms up before him as something awful to be faced, and if at the end of it he is successful in getting his certificate he has the prospect of going back to the handling of wholesale houses' goods, and forgetting what little he at one time knew concerning the manufacture of all but the simplest galenicals. These are not the observations of one who was unwillingly forced into the wholesale drug trade. The glamour of the hand-bottles attracted me in my school-days, making me pass the preliminary examination some three months before I started my apprenticeship, and the reading about the processes seems to point out that there is still something of interest in the occupation. But more than mere reading is required, and while the retail business remains as I have found it, while concentrated preparations and liquors hold sway, and all the apprentice does is to dilute them in their proper proportions, so long will there be a lack of those studious habits and interest in all that relates to the real practice of pharmacy, which it is the desire of this Association to promote by our prize schemes.

The reading of the papers was followed by a discussion taken part in by Messrs. Gorrie, Grainger, Harley, Hill, Kidd, Lennox, McDiarmid, Murdoch, Reid, and Selator. The meeting closed with a vote of thanks to the authors and Mr. Harley.

XEROFORM IN MILITARY SURGERY.—Noguera, from experience with xeroform, gained on the field during the recent war in Cuba, considers it to be the antiseptic *par excellence* for use in the treatment on the spot of gunshot and sword wounds. The wound, after being cleansed, should be freely dusted over with xeroform, and then covered with a protective layer of sublimate gauze and carbolised cotton. A single treatment with xeroform will render wounds aseptic for forty-eight hours, thus allowing the more serious cases, which cannot be treated on the spot, to be set aside without risk, until means for treatment are available. Simpler wounds under its influence heal at once by primary intention. Where there is loss of substance, xeroform favours the formation of small healthy granulations, without the production of soft and fungoid proliferations, often observed in cases treated with iodoform and other antiseptics.—*Bull. Gen. de Therap.*, 138, 634.

EXTRACTS FROM CONSULAR REPORTS.

OIL AS A DUST PREVENTIVE.—According to a recent report, experiments have been made on the line of the Baltimore and Potomac Railroad between Baltimore and Washington, to keep down the dust by spraying the track with oil of a high fire test and of high gravity. Those experiments are said to have been most satisfactory, and to have proved excellent for the purpose, especially where the tracks are ballasted with gravel. The non-existence of dust reduces the wear and tear on the rolling stock, and preserves the upholstery of the carriages, besides making travel much more comfortable and enjoyable. The oil is said to sink into the ballast to a depth of four inches on first application, destroying vegetation and remaining effective for about a year. A second or third application penetrates below the cross-ties and subsequent treatment is unnecessary unless fresh ballasting is used. A specially constructed car is used for sprinkling the oil, and is connected by rubber hose with an ordinary tank car. The cost of oil per mile of single track for the first application is from £6 to £9, depending on point of delivery, and the quantity used is about 2,000 gallons. Subsequently an expenditure of £1 to £1 10s. per mile annually is sufficient. About 1,000 miles of track in the United States is said to have been treated with oil.

THE WHOLESALE DRUG TRADE of Baltimore is reported to have been better in 1898 than it has been for the past ten years, while the manufacture and sale of chemicals has increased about 25 per cent. Baltimore is the second city in the United States for the manufacture of drugs and chemicals, Philadelphia being the first in importance. The retail sale of drugs, however, is said to have been most unsatisfactory, the cause being attributed to the existence of too many retailers. It is also stated that the sale of "patent" medicines fell off nearly 25 per cent., on account of the cutting of prices leaving no profit to the retailer.

ALTHOUGH THE EXPORT OF VANILLA from Mexico in 1898 was over 9,000 lbs. in excess of 1897, the value decreased from £83,240 to £65,011. The average price of vanilla in the London market during 1898 was a little over 15s. per lb. In New York it ranged from 8 dols. 25c. to 14 dols. gold per lb., according to quality. Owing to the frosts which prevailed during last winter, affecting the warmer climates where coffee, sugar, and vanilla are cultivated, it is expected that this year's crop of vanilla will be very small.

THE MEXICAN EXPORTS OF CHICLE GUM—the produce of the white zapote tree, which grows wild in the warmer parts of the country, especially in the States of Vera Cruz, Tabasco, and Oaxaca—fell off both in weight and value in 1898. The exports for 1897 amounted to 3,840,874 lb., value £118,796, as against 2,113,962, value £59,904 last year.

THE EXPORTS OF QUICKSILVER by sea from California during 1898 show a fair increase upon those of 1897, but the quantity sent overland is considered to have been even larger. The total yield was 31,092 flasks, value 1,188,626 dollars, or an increase on the preceding year by 16 per cent. Owing to a fear of the production and shipment of Spanish quicksilver being affected by the war, prices improved from 38 dol. 50c. to 42dol. 50c., and closed at 40dol. per flask.

ONE OF THE RUBBER-GIVING VINES of the Upper Congo is stated to give a delicious fruit, in size about as big as a tennis ball. The rind is hard, streaked with red and yellow, and full of a sticky paste much liked by the natives as a palatable thirst-quencher.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Aloinum.

ALOIN is the generic term applied to the bitter, crystalline, purgative principles found in all varieties of aloes, but only those obtained from Barbados and Socotrine aloes are official. The aloins are anthracene derivatives, varying in composition according to their source, and to them are due the colour reactions of aloes. Barbados (Curaçao) aloes yields barbaloin, $C_{16}H_{16}O_7, 3H_2O$ (eq. 371·36); Socotrine and Zanzibar aloes yield socaloin, which seems to have the same composition. The aloes are made into a thin paste with alcohol, the aloin allowed to crystallise out, then purified by recrystallisation from alcohol and, subsequently, from water. The medicinal properties of aloin are similar to those of aloes. The dose is from 0·5 to 2 grains.

CHARACTERS.—The needle-shaped yellow crystals, which occur in tufts, are inodorous, but possess the characteristic taste of aloes. They are sparingly soluble in cold water (1 in 400), more soluble in 90 per cent. alcohol (1 in 18), freely soluble in hot water or alcohol, but nearly insoluble in ether. Aloin is not readily altered in acidulated or neutral solutions, but it is rapidly altered in alkaline liquids.

NOTES.—Aloin is anhydrous and has the formula $C_{16}H_{16}O_7$ when crystallised from absolute alcohol, but on recrystallisation from water it takes up three molecules of that liquid. Barbaloin exists in two varieties, α -barbaloin, which imparts a crimson colour to cold nitric acid (s.g. 1·42), and β -barbaloin, which requires fuming nitric acid or hot acid of s.g. 1·42 to give the coloration. Both varieties, when oxidised, yield oxalic, chrysammic, and picric acids. Socaloin is a rarity in the market, the commercial aloin being α -barbaloin. Nataloin, from Natal aloes, yields picric acid when oxidised, but not chrysammic acid. It has less effect on man than any other aloin, whereas capaloin is the most powerful. The amount of aloin contained in aloes varies considerably, and is believed to increase with age. Barbados aloes yields from 10 to 18 per cent. of aloin, besides which it contains a very minute quantity of essential oil to which the odour is due, the so-called resin of aloes, and a small quantity of emodin, which appears to be easily formed from aloin by oxidation. The resin, which is a compound of aloresinotannol with cinnamic acid, appears to vary somewhat in composition—the one constant constituent of it being the alcohol—aloresinotannol.

Ammoniacum.

AMMONIACUM is a gum-resin which exudes from the flowering and fruiting stem of *Dorema ammoniacum*, D. Don (N.O. Umbelliferae), and probably other species, the plants that yield it being widely distributed throughout Persia and extending into Southern Siberia, though the drug is chiefly collected in Central Persia. It possesses antispasmodic, stimulant and expectorant properties, and enters into the composition of emplastrum ammoniaci cum hydrargyro, mistura ammoniaci, pilula ipecacuanhæ cum scilla, and pilula scillæ composita. The dose of ammoniacum is from 5 to 15 grains. The stem of *D. ammoniacum*, and especially the bark, abounds in a milky secretion, contained in large schizogenous ducts. During the fruiting season large numbers of boring beetles are attracted to the plant and puncture the stem, so causing the secretion to exude in the form of milky drops, some of which harden into tear-shaped masses on the stem, while others fall to the ground and there become mixed with stones, dirt, stalks of the plant, mericarps of the fruit, and other impurities, so forming the masses known in com-

merce as lump ammoniacum. Towards the end of July the ammoniacum is collected by peasants and shipped in a crude state from ports in the Gulf of Persia to Bombay; there the drug is sorted and exported to Europe.

CHARACTERS AND TESTS.—The tear ammoniacum alone is official, but that includes nodular or irregular rounded masses, varying from 6 to 26 Mm. in diameter, in addition to the small tears. Both are hard and brittle when cold, soften when warmed, and are of a dull pale yellow colour externally when fresh, though the colour darkens to brown on keeping. Internally the tears are opaque, and the colour varies from milky white to pale brownish-yellow, the freshly fractured surface having an opaque waxy appearance and being coloured yellow by solution of potassium hydroxide, or dark red or orange by solution of chlorinated soda. The drug possesses a faint, non-alliaceous, but thoroughly characteristic odour, and a bitter acrid taste. It forms a white emulsion when crushed and triturated with water; the emulsion is coloured yellow by solution of potassium hydroxide, deep orange-red by solution of chlorinated lime (distinction from African ammoniacum), and a transient violet colour, due to the presence of free salicylic acid, is imparted on adding solution of ferric chloride. The gum-resin does not contain umbelliferone, as proved by strongly heating a small fragment in a dry test-tube and, after cooling, treating the contents of the tube with boiling water; on largely diluting the solution thus obtained, with cold water, and making it alkaline with solution of ammonia, no blue fluorescence is exhibited as in the case of African ammoniacum, asafetida, or galbanum.

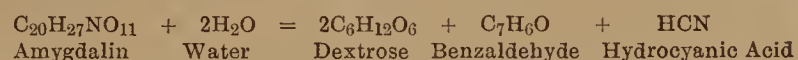
NOTES.—The distinctive characters of ammoniacum are its occurrence in clean, hard pieces, which do not crumble between the fingers, the characteristic odour, presence of salicylic acid, and absence of umbelliferone. The name *Dorema* is derived from the Greek δῶρημα, a gift, being indicative of the high esteem in which the gum-resin was formerly held; the specific name *ammoniacum* has been alleged to be derived from Jupiter Ammon, in the vicinity of whose temple the plant yielding the gum-resin originally known as ammoniacum is somewhat improbably supposed to have been discovered. That gum-resin was probably the non-official African ammoniacum, the product of *Ferula tingitana*, Linn., which contains umbelliferone and does not yield the orange-red colour with solution of chlorinated lime. Ammoniacum is only sparingly soluble in water, but yields 80 per cent. when digested with about seventeen times its volume of 90 per cent. alcohol, and 60 per cent. to the same volume of 60 per cent. alcohol. Umbelliferone or oxy-coumarin, C₉H₆O₃, is an anhydride corresponding to coumarin. It occurs in African ammoniacum, asafetida and galbanum. Dieterich's test for umbelliferone is more delicate than that of the Pharmacopœia. He boils 5 Gm. of the suspected substance, for fifteen minutes, with 15 C.c. of strong hydrochloric acid, dilutes with 15 C.c. of water, and filters the liquid. Any umbelliferone present is split off from its natural ester and causes an intense blue fluorescence in the clear filtrate when that is supersaturated with ammonia. Ammoniacum of good quality contains 1 to 2 per cent. of volatile oil, 65 to 70 per cent. of resin, about 20 per cent. of gum, 2 to 12 per cent. of moisture, 1 per cent. of ash, and 3.5 per cent. of insoluble residue. Luz has found that the resin is a mixture of two resin-alcohols—galbaresinotannol (also found in galbanum) which is combined with salicylic acid, and ammosinotannol, which is peculiar to ammoniacum. The gum is said to be allied to gum acacia. According to Dieterich, ammoniacum should not yield more than 15 per cent. of ash.

Amygdala Amara.

BITTER ALMONDS are the ripe seeds of *Prunus amygdalus*, Stokes, var. *amara*, Baillon (N. O. Rosaceæ), a native of Persia, Asia Minor, and Syria, naturalised in the Mediterranean basin and Central Europe, and maturing its fruit in some parts of England. The fruit of the almond tree is a green velvety drupe, from which

the fleshy mesocarp and thin epicarp separate as ripening proceeds, leaving the seed enclosed in the shell-like endocarp. The seed is exalbuminous, free from starch, contains two large plano-convex oily cotyledons, and is covered with a thin, rough, cinnamon-brown testa or seed-coat. There are several varieties of the bitter almond, the best being imported from the South of France, and others from Sicily and Northern Africa (Barbary). They possess sedative properties, and an emulsion of bitter almonds is sometimes prescribed as a lotion, but they are chiefly used for flavouring.

CHARACTERS.—Bitter almonds agree in general appearance with sweet almonds, resembling more particularly the Valencia variety, but generally speaking they are shorter, proportionately broader, and usually smaller and less regular. The bitter taste is characteristic, as is also the odour of hydrocyanic acid and benzaldehyde given off by the white emulsion formed when the seeds are triturated with water. Bitter almonds contain amygdalin, C₂₀H₂₇NO₁₁, to which their bitter taste is due. It is a colourless crystalline glucoside, soluble in alcohol and water, and is decomposed in the presence of water by emulsin, an enzyme found in both sweet and bitter almonds. Dextrose, benzaldehyde (essential oil), and hydrocyanic acid are the products of the reaction, thus:—



Being localised in the parenchyma of the cotyledons, the amygdalin is unable to come in contact with the enzyme (which resides in the axile parts of the embryo and the vascular bundles of the cotyledons) until the seeds are crushed and water is added, as in preparing the emulsion; under those conditions the reaction can take place. Bitter almonds contain various proteids and from 42 to 44 per cent. of a bland fixed oil, which can be separated by heavy pressure. They also yield nearly 0.9 per cent. of volatile oil and 0.25 per cent. of hydrocyanic acid, which can be extracted together from the cake left after expression of the fixed oil. Water is added and the mixture left for some hours, after which it is distilled. The hydrocyanic acid in the distillate is partly free and partly combined as benzaldehyde-cyanhydrin. It can be separated by shaking the oil with milk of lime, with which the acid combines to form calcium cyanide; the addition of ferrous sulphate converts that into Prussian blue, and, on redistillation in a current of steam, the volatile oil is obtained pure.

NOTES.—The distinctive characters of bitter almonds are their small size, broadly ovoid shape, bitter taste, and the characteristic odour of the emulsion formed on triturating them with cold water. The name *Prunus* means a plum tree; *amygdalus* is from the Latin *amygdalum* (Gr. ἀμυγδάλη), an almond. Bitter almonds are only official as a source of the fixed oil, and they yield the bulk of the commercial product, the fact that the essential oil can subsequently be obtained from the residual cake rendering their use more profitable to the oil pressers than would be the case if sweet almonds were used. Amygdalin occurs in the seeds, young-shoots, or flower-buds of many other rosaceous plants; it is closely allied to, if not identical with, laurocerasin, which is found in cherry-laurel leaves, and to a similar glucoside found in the bark of *Prunus serotina*, Ehrh.

Amygdala Dulcis.

SWEET ALMONDS are the ripe seeds of *Prunus amygdalus*, Stokes, var. *dulcis*, Baillon [Bentley and Trimen, 'Medicinal Plants,' vol. 2, plate 99], which is not distinguished from the bitter almond tree by any permanent character, but grows in the same districts and is cultivated more largely. The seeds known in commerce as Jordan almonds are alone official. Other varieties of the sweet almond, distinguished in the order of value, are the Valencia, Sicily, and Barbary. Jordan almonds are imported from Malaga, free from the endocarps, and are distinguished from all others by their large size and long, narrow shape. They are demulcent and nutrient, and are used for making pulvis amygdalæ compositus and mistura amygdalæ.

CHARACTERS.—In general appearance sweet almonds resemble the bitter ones, the Valencia variety resembling them closely, but Jordan almonds are 2.5 Cm. or more in length, nearly oblong in outline, more or less compressed, pointed at one extremity and rounded at the other; the thin rough testa or seed-coat is cinnamon-brown, the seed exalbuminous, free from starch, and containing two large plano-convex oily cotyledons. Sweet almonds have a bland taste, and the white emulsion formed when they are triturated with water is distinguished by no marked odour. Like bitter almonds, they contain various proteids (about 20 per cent.), including the enzyme emulsin, together with 50 to 55 per cent. of the same fixed oil that is found in bitter almonds. They do not contain amygdalin and, consequently, yield no volatile oil or hydrocyanic acid when crushed and triturated with water.

NOTES.—The distinctive characters of Jordan almonds are their elongated shape, bland taste, and the freedom from marked odour of the emulsion formed on triturating the seeds with cold water. The seeds are readily freed from their coats or skins (blanched) by steeping in cold water; they must be thoroughly dried subsequently if they are to be used for preparing pulvis amygdalæ compositus, as they can then be rubbed to a smoother consistence and the resulting powder keeps better.

ANSWERS TO QUERIES.

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

Incompatibility (J. S. W.—16/40).—No further instalment has appeared since the date you mention.

Chemists' Assistants' Union (J. P.—37/30).—The present address of the Union is 67, Shaftesbury Avenue, W.

Solder for Aluminium (F. J. C.—37/23).—The formula you refer to was: Aluminium, 1; phosphor-tin (10 p.c.), 1; zinc, 11; tin, 29.

Blueing Gun-Metal (R. D.—36/27).—See Spon's 'Workshop Receipts,' second series, page 246. The details of the process are too lengthy to be given here.

Names for Proprietary Medicines (R. P.—38/3).—The names seem equally trivial, and we should advise you not to use any of them. Why not describe the articles in plain English?

Cement for Glass (A. W. W.—37/29).—Marine glue is the only thoroughly satisfactory cement for the purpose. It is applied by the aid of heat, and requires a considerable amount of skill to use it properly.

Stove Polish (J. S.—37/2).—You will probably find the addition of a little common brown glycerin prevent the drying of the cake and, if not used in excess, without effect on the polishing properties.

Patenting a Medicine (E. P.—38/1).—Apply to the Comptroller, Patent Office, Chancery Lane, London, E.C., for information respecting the method of securing Letters Patent or registering a title.

Sale of Poisons (F. S. H.—38/2).—(1) The sale of any preparation of strychnine must be entered in the poison-book.

(2) There is no restriction of the kind you suggest, and the matter is entirely one for the exercise of your own discretion.

Massage Training (J. A. H.—37/27).—We do not know of any classes in your district, but you should be able to get the information you require and the necessary instruction at any institution where hospital nurses are trained. Have you seen Miss Ellison's 'Manual for Students of Massage,' published by Bailliere and Co., at 3s. 6d. net?

Chemists in South Africa (C. E. F.—37/36).—If any gold mines be left after the war is over, you will find that the best qualification for the post of assayer is a thorough knowledge of analytical work, particularly in connection with the assay of metals. But you would also doubtless find it an advantage to be a Fellow of the Institute of Chemistry.

Divison of the Minor (R. B. G.—17/13).—"The beginning of another century" has not yet "dawned," except in Germany, and even if it had, we fail to see why the fact that certain hypothetical burdens afflicting "Minor students" are "unredressed" should justify us in publishing unsupported charges against the Society's examiners, especially when advanced in an anonymous letter.

Oil of Juniper (F. W. J.—37/24).—There is no good reason for assuming that the sale of oil of juniper, other than the B.P. oil, would be regarded as an offence, so long as what was sold was a pure article. Oil of juniper may be none the less oil of juniper because it departs to some extent from the B.P. standard. At the same time, the use of the suggested label would put the matter on a more satisfactory footing.

Panbotano (B. A. M.—37/31).—It is the root or root-bark of *Calliandra houstoni*, Benth., or *C. grandiflora*, Benth., anti-periodics from which a tincture is prepared of such strength that each dose represents half an ounce of the drug. Four doses are administered during twenty-four hours. Messrs. Potter and Clarke, Artillery Lane, E., or Messrs. Parke, Davis, and Co., North Audley Street, W., could doubtless supply the drug.

Starch Gloss (J. S.—37/22).—The following, from a German source, is said to give very good results:—Boric acid, 5; borax, 3; stearin, 1; white wax, 1; are mixed with sufficient caustic soda solution, s.g. 1.16, to produce a uniform mass, which is then evaporated to dryness. The product thus obtained is next mixed with the finest rice starch in the proportion of 1 to 10 to form a starch, and that is said to produce an excellent gloss and a very stiff surface.

Koumyss (T. L.—37/28).—Mix new milk with an equal volume of water, and to each quart of the mixture add 15 grains of pure compressed yeast, previously rubbed down gently with a little of the diluted milk. Bottle off into champagne bottles, and to each bottle add 1½ ounce of powdered white sugar. Leave the bottles uncorked for twenty-four hours, at 63° F., then cork and wire down, and keep in a cool cellar for five days. On the sixth day the koumyss is ready for use.

Tinct. Camph. Co. (F. W. J.—37/24).—Such an addition is not justifiable, but it is doubtful if the local authorities would take any action in regard to so comparatively trifling a matter. It should be borne in mind that any standards of colour, etc., for official galenicals must be based on the characteristics of preparations made in the quantities and by the methods presented in the British Pharmacopœia. Preparations made on a very large scale frequently differ more or less in appearance, and sometimes in other ways, from the same preparations made in the quantities that are usual in pharmacies. You should give preference to galenicals made by yourself, strictly in accordance with the B.P.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

LEMON ESSENCES.

A. S. Mitchell has examined a number of lemon-flavouring extracts, and reports the presence of some curious sophistications. The "spiritus limonis" of the U.S.P. should be prepared from 1 part of oil of lemon, 1 part of fresh-grated lemon peel, and 20 parts of 95 per cent. deodorised alcohol, the oil being dissolved in 18 parts of the alcohol, the lemon peel macerated in the mixture for 24 hours, and, after filtration, sufficient alcohol added to make up to 20 fluid parts. But a preliminary examination of preparations supplied by grocers showed them to contain alcohol in amounts varying from 14 to 94 per cent., and oil of lemon from none to 8 per cent. The extracts low in alcohol had in many cases a fine aroma, derived from agitation with new oil of lemon in some cases, but more frequently produced by citral and so-called "soluble oil of lemon," or by lemon-grass or citronella aldehyde, and frequently with the addition of tincture of mace, nutmeg, or capsicum. The cheaper grades contained so little oil in solution that the addition of water frequently failed to produce turbidity. Among the colouring matters found to have been used in preparing the extracts were naphthol-yellow, tropæolin, and dinitrocresol.—*Journ. Am. Chem. Soc.*, **21**, 1,132.

ACETIC EXTRACT OF BELLADONNA.

Dr. E. R. Squibb has now experimented with acetic acid in preparing some sixty drugs and spices; the results tend to support two generalisations. In the first place, a menstruum of ten per cent. acetic acid is about the weakest that will surely extract, protect, and preserve the active principles of many drugs, and such a menstruum leaves not less than six nor more than eight per cent. of free acid in the finished fluid extract, being about equivalent to alcohol of forty-one per cent. Secondly, it is found that from one-fourth to one-third of the fluid extracts made with acetic acid give a small deposit within three months, but the proportion is not greater than that from preparations made with alcoholic menstrua, and the two deposits are equally inert. In the case of belladonna root, the acetic and alcoholic (U. S. P.) extracts appear to be of equal value, the total alkaloid present being 0.688 and 0.683 per cent. respectively. The acid preparation, however, is of much lighter colour, yields no deposit on standing for three months, and does not precipitate on being added to water, whereas the alcoholic preparation is very dark, yields within three months a slight precipitate containing traces of alkaloids, and precipitates on being added to water.—*Ann. Journ. Pharm.*, **72**, 1.

MERCURY IN URINE.

Drs. Schumacher and Jung describe in the *Lancet* for January 13, p. 92, what they term a simple and thoroughly trustworthy method for the determination of mercury in urine.

It depends upon the fact that stannous chloride, when added to solutions of mercury salts, reduces them to metallic mercury, and the finely divided metallic particles thus obtained in suspension can be combined with gold to form an amalgam. The gold must be in an extremely fine state of sub-division, obtained by soaking fine asbestos fibres in a concentrated solution of gold chloride, and reducing the gold salt by heating the fibres in a current of dry hydrogen gas. The resulting "gold asbest" is cleaned with diluted hydrochloric acid, then dried and used as a filter for the liquid containing the mercury in suspension. A thick pad of asbestos is first placed in the narrowest part of the filter tube, a layer of "gold asbest" is placed next, then a layer of granular spongy gold, and, finally, a second layer of

"gold asbest." The dilute mercury solution, after being heated to about 70° C., is mixed with about 50 C.c. of clear, freshly prepared stannous chloride solution. After cooling a little, the mixture is aspirated through the filter amalgam tube, which is afterwards washed with moderately warm diluted hydrochloric acid, followed by three or four lots of warm water, then with alcohol and, lastly, with ether. The tube is next warmed at about 40° C., dried by drawing a stream of dry air through it, and weighed; the asbestos is then ignited and the loss equals the amount of mercury in the liquid examined. The editor of the *Lancet* is of opinion that the method, though ingenious, is unnecessarily complicated, inasmuch as the whole of the mercury in urine, even when the quantity is very small, can be readily separated in a short time by merely using the electric current.

COLOURING MATTER OF DIGITALIS LUTEA.

From the residue obtained in the preparation of crystalline digitalin from the Hungarian *D. lutea*, Adrian and Trillat have isolated a yellow colouring body which they consider to be distinct from the digitoflavone of Fleischer, and to which they attribute the formula $C_{16}H_{12}O_4$. It is remarkably resistant to the action of chemical reagents, boiling hydrochloric acid does not decompose it, nor is it affected by acetic acid nor by phenylhydrazine. It is insoluble in water, in dilute acids and in petroleum ether, but dissolves in alcohol, in chloroform, and in amylic alcohol. It gives a bright red colour with alkali. It is not a decomposition product of chlorophyll and differs from carotin. It forms fine yellow silky felted needles, which melt at 217–218° C.—*Comp. rend.*, **129**, 889.

CONSTITUENTS OF TOBACCO SMOKE.

H. Thoms has detected in tobacco smoke a very poisonous oily substance which produces violent headache, trembling, and giddiness. The chief part of this oil boils between 220°–230° C. By treatment with 2 per cent. potash solution, a phenol-like body may be separated which has an odour resembling creosote and which boils at 190°–200° C. To the presence of this oil, the observed toxic effects of tobacco may be attributed, since it is known that those are not altogether dependent on the proportion of nicotine in the tobacco.—*Pharm. Centralh.*, **40**, 706; after *Zeitsch. d. Nahr. u. Genussm.*

PHOSPHORUS IN ORGANIC COMPOUNDS.

The following method is employed by C. Marie to destroy organic matter in the determination of the phosphorus combined with it:—The substance is first dissolved in a considerable excess of nitric acid, the solution is heated on the water bath, and a small quantity of finely powdered potassium permanganate is added. This addition is repeated several times, as the red colour disappears, until, finally, the red tint persists for five or six minutes. The amount of permanganate requisite will be generally five or six times that of the organic matter. The mixture is then cooled, and a ten per cent. solution of sodium or potassium nitrite is added, drop by drop, until the precipitated manganese oxide is dissolved, and a perfectly clear liquid is obtained. The solution is then heated to drive off nitrous fumes, and excess of nitric acid, and the phosphorus precipitated in the usual way, as phosphomolybdate. Care must be taken to wash the phosphomolybdate perfectly free from manganese, otherwise the results will be vitiated, and the magnesium ammonio-phosphate finally obtained will contain manganese. The washings must, therefore, be tested with lead dioxide, and filtration continued until no reaction for manganese is obtained. This method of analysis is much more convenient than the ordinary one of oxidising in a sealed tube. It has given good results in the analysis of glycerophosphates.—*Comp. rend.*, **129**, 766.

THE MATERIA MEDICA OF THE SOCIETY'S MUSEUM.*

BY E. M. HOLMES, F.L.S.,
Curator of the Pharmaceutical Society's Museum.

BUCHU LEAVES.

Barosma betulina, Bart. and Wendl.—This species, which yields the official buchu, is represented in the Materia Medica Museum by the leaves only. Of the other species official in the previous British Pharmacopœia, viz., *B. crenulata*, Linn., and *B. serratifolia*, Willd., specimens of the plants occur in the Herbarium, and in the Materia Medica Museum there are specimens of the twigs, leaves, flowers and fruits of *B. crenulata*, and of leaves and fruit of *B. serratifolia*. Of the constituents of the leaves, the essential oil, and the stearoptene, diosphenol, and an eclectic preparation, called barosmin, are exhibited. The diosphenol occurs most abundantly in the leaves of *B. betulina*, from the oil of which it is usually deposited on cooling. This is filtered off by some wholesale dealers and distillers, and the oil sold in the clear state. The oil of the other species is said not to deposit the stearoptene on cooling. The properties of the drug are due to the volatile oil. Not feeling sure how far these properties might not be lessened by the removal of the stearoptene, which is present to the extent of about 30 per cent., I sent a specimen to Professor Cash, of Aberdeen University, who kindly undertook to report upon it. He found that diosphenol was distinctly antiseptic and prevented decomposition of the urine. The *B. betulina* appears to be the richest in oil and other constituents (*P. J.* [3], 21, 940; *Proc. Amer. Ph. Assoc.*, 1863, 211). Nevertheless, the leaves of *B. crenulata* are preferred by some, and at the present time are worth 25 to 30 per cent. more in the drug market. The peppermint odour of the diosphenol appears to be due to traces of a hydrocarbon with a peppermint odour that occurs in the oil (*Journ. Chem. Soc.*, 72, p. 227).

A number of species of this and allied genera are used in South Africa for the same purpose as buchu. These are: (1) *Adenandra fragrans*, Roem. and Schult. (2) *Agathosma Cerefolium*, G. Don.; (3) *A. microphylla*, Mey., which has an anise odour; (4) *A. chortopila*, Eckl. and Zeyh., which has a cummin odour; (5) *Diosma ericoides*, Linn.; (6) *D. oppositifolia*, Linn.; (7) *D. succulenta*, Thunb.; (8) *Barosma eckloniana*, Bartl.; (9) *Empleurum serrulatum*, Sol. Of these No. 1 occurred in the London drug market in 1882; the leaves are about the length of those of *D. crenulata*, but entire, oblong, obtuse, and more leathery in texture, and have a slight caraway odour. No. 8 occurred in 1873, and is represented in the Hanbury collection of materia medica, and again in 1898. The leaves are like those of *B. crenulata*, but rather broader and more distantly crenate-serrate. No. 5 has small heath-like leaves. It has occurred several times in the drug market during the last twenty-five years, and is said to be preferred by the natives to the ordinary buchu. Another species (10) *Barosma venusta*, Eckl. and Zeyh., was offered in 1884. It has small obovate or oblanceolate serrate leaves, from 2—4 lines long and about 2 lines broad.

Empleurum serrulatum is the substitute which most frequently comes into the market and is designated as a "Fine long buchu." It is distinguished by its acute apex, in which no oil gland is present, the apex of the leaves of the three species formerly official having a gland in the slightly obtuse apex. The fruits of *Empleurum* are sometimes present with the leaves and are then easily distinguished by having only one follicle, while those of *Barosma* have five. The leaves have not the same odour as those of buchu, but yield about 0.74 per cent. of an essential oil, described by Mr. J. C. Umney (*Pharm. Journ.* [3], 25, 796).

Nos. 1, 8, 9 and 10 are represented in the Cape Colony collection in the Reference Museum.

* NOTE.—The object of the series of notes of which this communication forms part was explained in an introductory article which appeared in the *Pharmaceutical Journal* for September 9, 1899, page 237, and the first notes in the series appeared in the issue for November 25 last, page 495 *et seq.*

THE CHEMIST AND SOME OF THE LAWS THAT PARTICULARLY AFFECT HIM.*

BY W. S. GLYN-JONES.

The subject of my paper is such a wide one that I fear, even if I were capable of doing so, it would be impossible to deal with it exhaustively in one paper. I have thought, however, that it might be interesting and perhaps instructive, if I called attention to a few of the more important features of some of the Acts of Parliament which we are called upon as retail chemists to comply with. The consideration which I have been able to devote to this paper has been sufficient to strengthen my opinion that if ever a curriculum for the Minor Examination is enforced it should include a course of lectures upon the various legal enactments which the chemist is required to fulfil. There are, I think, few chemists' shops in which offences, more or less technical, are not being unwittingly committed almost daily.

Apothecaries Act, 1815.

Apart altogether from its importance, our journals might use their space to very much less advantage than printing in full the Apothecaries Act, 1815. It is full of interest. The preamble, which commences as follows, is an indication of this:—

Whereas His Majesty King James the First, by Letters Patent, under the Great Seal of Great Britain, bearing Date the Sixth Day of December, in the Fifteenth Year of His Reign, did for Himself, His Heirs, and Successors, grant unto William Besse and divers other Persons therein named, and to all and singular other Persons whomsoever, brought up and skilful in the Art, Mystery, or Faculty, of Apothecaries, and exercising the same Art, Mystery or Faculty, then being Freemen of the Mystery of Grocers of the City of London, or being Freemen of any other Art, Mystery, or Faculty in the said City of London (so as they had been brought up and were expert in the Art or Mystery of Apothecaries), that they, and all such men of the said Art or Mystery of Apothecaries of and in the said City of London and Suburbs of the same, and within Seven Miles of the said City, might and should be one Body Corporate and Politic, in Substance, Deed, and Name.

POWERS TO SEARCH SHOPS FOR UNFIT DRUGS.

The charter referred to gave the Apothecaries Society the right to go into any shop or shops, house or houses, cellar or cellars, of any person whomsoever using or exercising the Art or Mystery of Apothecaries within Seven Miles of the City of London, and to search, survey, and prove if the same Medicines, simple or compound, Wares, Drugs, Receipts, Distilled Waters, Chemical Oils, Syrups, Conserve, Lohocks, Electuaries, Pills, Powders, Lozenges, Oils, Ointments, Plaisters, or any Thing or Things whatsoever belonging to the Art or Mystery of Apothecaries aforesaid, be and shall be wholesome, medicinable, meet and fit for the Cure, Health, and Ease of His Majesty's Subjects.

POWERS TO GO AND EXAMINE APOTHECARIES.

The charter also gave the Society full Power and Authority to examine and try all and singular Persons professing, using, or exercising, or which hereafter shall profess, use, or exercise the Art or Mystery of Apothecaries, or any Part thereof, within the aforesaid City of London, the Liberties or Suburbs thereof, or within Seven Miles of the same City, as well within Liberties as without, touching or concerning their, and every of their Knowledge, Skill, and Science, in the aforesaid Art or Mystery of Apothecaries, and to remove and prohibit all those from the Exercise, Use, or Practice of the said Art or Mystery, whom hereafter they shall find either unskilful, ignorant, or insufficient, or obstinate, or refusing to be examined by virtue of these Presents, in the Art or Mystery aforesaid;

and also to remove all the articles above enumerated which they shall find unlawful, deceitful, stale, out of use, unwholesome, corrupt, unmedicinable, pernicious, or hurtful, to burn before the Offender's Doors.

The 1815 Act repealed those powers, and in lieu of them gave the Society the right to enter into any shop or shops of such persons in any part of England or Wales, and to burn or otherwise destroy the deceitful drugs, etc., though they are not enjoined to make the bonfire in front of the offender's doors. This power, contained in Section 3 of the Act, is still in force, though I have never heard of its having been exercised. Section 5 of the Act is also of interest:—

* Read at a meeting of the Chemists' Assistants' Association, Thursday, January 18, 1900.

APOTHECARIES BOUND TO DISPENSE PHYSICIANS' PRESCRIPTIONS.

And whereas it is the Duty of every Person using or exercising the Art and Mystery of an Apothecary, to prepare with Exactness, and to dispense such Medicines as may be directed for the Sick by any Physician lawfully licensed to practise Physic. And it also enjoins that if an Apothecary shall knowingly wilfully, refuse to compound, to mix, prepare, give, supply, or administer, or in any way to sell, set on sale, put forth, or put to Sale to any Person or Persons whatever, any Medicines, Compound Medicines, or Medicinable Compositions, or shall deliberately or negligently, falsely, unfaithfully, fraudulently, or unduly, make, mix, compound, prepare, give, apply or administer, or in any way sell, set on Sale, put forth, or put to Sale to any Person or Persons whatever, any Medicines, Compound Medicines, or Medicinable Compositions as directed by any Prescription, Order, or Receipt, signed with the Initials, in his own Handwriting, of any Physician so lawfully licensed to practise physie,

he shall be liable to a fine of £5 for the first offence, £10 for the second, and for the third forfeit his certificate.

THE SECTION IN FORCE BUT NOT ENFORCED.

I have yet to learn that the Society is in the habit of enforcing this section, and I know a number of L.S.A.'s who would certainly refuse, perhaps contumaciously, to dispense a Harley Street prescription. I doubt whether many of them would be in a position to faithfully mix, compound, and prepare some of the prescriptions which many of us have to deal with almost daily. Section 14 provides that for persons who do not hold a certificate from the Apothecaries' Society to practise as an apothecary is illegal. Mr. Justice Creswell held that an apothecary is a person "who professes to judge internal disease by its symptoms and to cure the disease by medicine." Clearly such practice is not to-day confined to Licentiates of the Society. I should contend that such a definition would equally apply to the medical practitioner, whether holding the L.S.A. certificate or not. It is clear from the Medical Act of 1858 that all medical practitioners are entitled to demand reasonable charges for professional aid, advice, cost of medicine, and other surgical or medical appliances supplied by them to their patients, and this, I take it, gives them the right not only to diagnose and prescribe, but also to supply the medicine. It will sooner or later be important to get the present-day legal definition of an apothecary. In my opinion the answer is, a Licentiate of the Societies of Apothecaries. A decision on this matter will have an important bearing upon the question of dispensing in doctors' surgeries. If it be held that every general practitioner is an apothecary, then under Section 17 of the Act no person could act as an assistant to a medical man "in compounding or dispensing medicines without undergoing an examination by the said Court of Examiners, or the major part of them, or by five apothecaries, so to be appointed as hereinafter is mentioned, and obtaining a certificate of his or their qualification to act as such assistant from the said Court of Examiners, or the major part of them, or from the said five apothecaries who are hereby authorised and empowered to examine all persons applying to them for that purpose, and to grant a certificate of such fitness and qualification."

A "MINOR" MAN CANNOT LEGALLY ACT AS A DISPENSER TO AN L.S.A.

It is quite evident that any chemist holding either the Minor or Major qualification who acts as a dispenser to an L.S.A. is as much breaking the law as the doctor's coachman would be if he so acted. This is the only Act of Parliament which in any way restricts the practice of medicine. It is under this Act that chemists are liable to be prosecuted for prescribing. I have before given a legal definition of what constitutes acting as an apothecary, and judges in the High Courts have held that a chemist who systematically sets himself to diagnose by questioning his customers as to their symptoms and uses his judgment in supplying them with medicines for the treatment of such symptoms is contravening this Act.

CHEMISTS AND PRESCRIBING.

At the same time it was pointed out by the courts that if a chemist supplied something to a customer in answer to a request

for "something for a headache," though there might be a technical offence, no one would think of instituting proceedings. It is difficult to draw a line as to what a chemist can legally do in the direction of prescribing, and I for one would welcome a House of Lords' decision on the matter. I am confident that if the Act was strained so as to prohibit the supplying by chemists, across the counter, of remedies for simple ailments, its repeal would be certain.

EXAMINERS TO BE IN ACTUAL PRACTICE.

This Act contains a principle I would like to see adopted by the Pharmaceutical Society. Section 4 stipulates that an examiner shall have been engaged in actual practice as an apothecary for at least ten years previously to his being appointed. I have every respect for university professors, but I think we should have less than 60 per cent. of rejections if the examiners were all actual chemists. I think no candidate should be expected to pass an examination in any subject of such a character that our own pharmaceutical chemists are not qualified to examine in. I have dealt with this Act at this length because of its important bearing upon the question of the relation between the medical man and the pharmacist, a question which, I think, is bound to come to the fore in the immediate future.

Dentists Act, 1878.

The Dentists Act of 1878 prohibits the use of the title dentist, or of any name, title, addition, or description implying that they are registered under the Act or are specially qualified to practise dentistry. It does not prohibit the practice of dentistry by unqualified individuals, though the law will not assist such persons to recover any fee or charge in connection with such work. The dentists have attempted to interfere with the use by chemists of such a phrase as "Teeth skilfully extracted." Their contention apparently is that it is not an offence for an unqualified person to say he extracts teeth, but that he must not say he does it skilfully, on the ground that such language implies special qualification. The *Chemist and Druggist* some two or three years ago took up this question and organised a fund to contest the next suitable case. The dental authorities have not since provided such a suitable case.

Veterinary Surgeons Act, 1881.

The Veterinary Surgeons Act of 1881 does practically neither more nor less for veterinary surgeons than the law does for the dentist.

Adulteration Laws.

The Sale of Food and Drugs Acts.—These Acts alone would require a volume if they were to be in any way satisfactorily dealt with, and I will therefore confine my observations to the more important features, especially the effect of the recent addition to the law on this subject, the Act which came into force on the 1st of this month. In reading up this subject I have found a pamphlet—"The Adulteration Acts"—issued by the Federation of Grocers' Associations, published at 6d., of the utmost value. It has been written by Mr. Frederick W. Beck, solicitor to the Federation, and also the solicitor of the recently-formed Chemists' Defence Association. I have no hesitation in saying that every chemist in business should procure a copy of this pamphlet. It is a serious drawback that the law upon adulteration, etc., is not comprised or consolidated in one measure. The chemist at present who wishes to know where he stands has to consider three separate Foods and Drugs Acts—namely, those of 1875, 1879, and 1899, because, as amended, they are all of them still in force.

CUSTOMS CAN EXAMINE FOODS, BUT NOT DRUGS, AT THE PORT OF ENTRY.

The first section of the 1899 Act bears evidence of class legislation. It makes it illegal to import any adulterated or impoverished *article of food* to which her Majesty may by Order in Council direct that this section shall be applied, unless the same be imported in packages or receptacles conspicuously marked with a name or

description indicating that the article has been so treated, and the Commissioners of Customs shall, in accordance with directions given by the Treasury, *after consultation with the Board of Agriculture*, take samples. This section shows a greater desire on the part of the authorities to protect agricultural interests rather than the general interests of the consumer, otherwise drugs would not have been specially excluded from this arrangement. The drug trade has as much right to expect the Government to deal with adulterated or impoverished drugs at the port of entry as have the grocers and agriculturists in regard to articles of food. If such was the law, and it was enforced, nothing would do more to prevent adulteration in the drug trade.

Section 2 is of the greatest importance. In effect it gives the Local Government Board control over the local authorities in the matter of enforcing the Food and Drugs Act.

LOCAL GOVERNMENT BOARD CAN ENFORCE THE ACT.

Hitherto, there can be no question, some local authorities have neglected their duty in taking samples and enforcing the Act, so much so that it has in those districts practically been a dead letter. Under this new Act the Local Government Board are empowered to take samples, and to compel the authorities to take action where necessary; or, failing that, to take proceedings themselves, and charge the local authorities with the expenses incurred. It is well that chemists should recognise this important change in the enforcement of the Act.

WANTED A STANDARD.

Section 4 gives the Board of Agriculture power to determine the standard for milk, cream, butter, or cheese. This suggests the need for an authoritative standard, not only for the articles mentioned, but for all foods and drugs.

In reference to drugs, it is sometimes argued that the B.P. is the standard under the Food and Drugs Act. There is not a sentence in any of the Food and Drugs Acts which warrants the assertion, and no magistrate could rightly convict a defendant on the ground that the analyst's certificate says the article in question is not of B.P. strength. He must have oral evidence to prove to him that the B.P. is the commercial standard for that particular article.

THE B.P. NOT THE LEGAL STANDARD.

At Plymouth, Dr. Attfield, surely an authority as to what the Pharmacopœia is or is not, stated that it was not the legal standard, that it was not prepared with that object in view, and in answer to certain criticisms on the Pharmacopœia, where it was pointed out that articles made according to the Pharmacopœia would not answer the tests there given for that article, the reply was that the money at the disposal of the compilers was not sufficient to enable all the processes and tests to be adequately checked and verified. Surely it is the duty of the Government to provide an efficient standard for foods and drugs under the Act, and I think that the proper authorities to produce that standard would be a combined committee of the Medical and Pharmaceutical Councils. I quite agree with the suggestion thrown out by Mr. Tyrer at Plymouth that the Society's research laboratories should be used for the purpose of investigating these processes and tests, and that the Government should properly subsidise the work.

POWERS TO SAMPLE FOODS BUT NOT DRUGS IN PROCESS OF DELIVERY.

Section 14 confers fresh powers upon the authorities; here again, unfortunately for chemists, the powers are confined to articles of food. The 1879 Act gave inspectors the power to take samples of milk, in course of delivery, and to proceed where the milk was adulterated. Under this section samples of milk have been taken at railway stations on its way from the farmer to the retailer, and great protection afforded to the retail dairymen in consequence. The new Act gives the authorities similar powers in relation to all

articles of food. I quote from Mr. Beck's pamphlet the following extract from his notes on this section:—

The retail customer, suspecting that a shopkeeper is dealing dishonestly, and supplying adulterated articles, may order goods to be delivered, and may arrange with the local inspector to meet the goods on delivery and take samples of them with a view to prosecution. Remembering this new power, the vendor should be careful that ordered goods are properly labelled and correctly described in the invoice.

2. The retailer who has been supplied with a sophisticated article can first assure himself by getting a sample analysed, and, finding his suspicions confirmed, can order a fresh delivery of the same goods and arrange with the inspector to sample them at the railway station or at the moment of delivery, and the inspector will thus be enabled to proceed against the wholesaler or manufacturer—a proceeding which he otherwise could not adopt, as no power exists to take samples in warehouses and factories.

By careful usage this section may be made the means of putting a healthy check upon firms who are known to be adulterators, and who have in the past exposed the retail trade to prosecutions and to serious injury.

Samples may also be taken by inspectors without the request, but with the consent, of the purchaser, and if any inspector sees goods being delivered from a van there is nothing to prevent his introducing himself and obtaining the consent of the purchaser to his taking samples of the goods.

It is obvious that a similar protection for retail chemists would have been of the utmost value.

TINS OR PACKETS NEED NOT BE OPENED.

The 1875 Act makes it illegal to refuse to sell articles for analysis on the demand of an inspector, and before now inspectors on being offered, say, a labelled tin of mustard, have asked for loose mustard. The chemist has served this from the tin, and, unwittingly neglecting to use a wrapper stating perhaps that the article is a mixture, has been convicted of an offence.

Section 18 of the new Act states that no person shall be required to sell articles exposed for sale in unopened tins or packets, duly labelled, except in such tins or packets.

PROCEEDINGS TO BE TAKEN WITHIN TWENTY-EIGHT DAYS.

The 1879 Act stated that proceedings should be taken within a given time where perishable articles are concerned.

Section 19 of the new Act provides that all proceedings under these Acts should be commenced within twenty-eight days from the purchase. It also contains a most important and beneficial alteration from the defence point of view, in that the summons must now be accompanied with a copy of the analyst's certificate obtained by the authorities. The defendant will now know exactly what he is being charged with. Section 22 of the new Act is also an amendment in the interest of the trader.

DEFENCE CAN USE A PUBLIC ANALYST'S CERTIFICATE.

In the old Act the authorities were not bound to call their analyst unless the defendant demanded it. His certificate was evidence; but if the defendant wished to put in analytical evidence he had to call his analyst in person. His certificate was not sufficient. What is sauce for the goose is now to be sauce for the gander. The public analyst's certificate produced by the defence will be accepted as evidence unless the authorities give notice that they require his attendance, but it should be remembered that a copy of such certificate must be sent to the prosecutor at least three days before the summons is returnable.

WHAT IS A WARRANTY?

The vexed question as to what constitutes a warranty is still somewhat an undecided one; but Mr. Beck advises us, as an Association, that each invoice must be accompanied with a written statement that the article invoiced is guaranteed pure, etc. A rubber stamp impression, provided the statement was signed, would be sufficient. I know of a number of cases in which retail chemists have required wholesale houses to warrant their goods, and letters have been sent by the wholesalers in question stating that they thereby give a general guarantee and undertaking that all B.P. articles sold by them as such are warranted to be B.P. It is well that the retail trade should remember that such a letter does

not constitute a legal warranty except for the particular consignment of goods which it might accompany. Each consignment of goods must be separately and specifically warranted.

Section 26 gives a new definition of a food.

BAKING POWDER NOW A FOOD.

It is important to chemists, in that such articles as baking powder, egg powder, etc., will now be within this definition. The new Act provides enhanced penalties, and for a third offence under the same sentence the defendant may in future be sent to gaol.

Two other amendments of importance suggest themselves—namely, that now the magistrate is bound to refer the third sample to the Government laboratory if either party ask him to do so. He had previously the option.

PUBLIC ANALYST TO BE QUALIFIED.

Section 2 of the new Act says:—

Any public analyst appointed under the Sale of Food and Drugs Act shall furnish such proof of competency as may from time to time be required by regulation framed by the Local Government Board.

NEED FOR ORGANISATION TO WATCH TRADE LEGISLATION.

This new Act is a striking example of the need that exists for some organisation which would put before the authorities the views of chemists and druggists in regard to such Acts of Parliament by which they are to be so particularly affected. The interests of the grocery trade were splendidly watched by the Grocers' Federation, and Mr. Long, the Minister in charge of the Bill, received repeated deputations from that body. The Act, as now passed, bears evidence to the benefits resulting to the grocery trade from such deliberations between the Government and their representatives.

Merchandise Marks Act.

Under this Act it is illegal to forge any trade mark, to use any colourable imitation of a trade mark, to make any die, block, machine, or other instrument for the purposes of forging a trade mark or apply any false trade description to goods. It is also an offence to sell or expose for sale anything with a forged trade mark or false trade description unless the accused can show that, having taken all reasonable precautions against committing an offence, he had no reason to suspect the genuineness of the mark or trade description, that he is ready to give all information in his power as to where he obtained the goods, and that he had otherwise acted innocently. Penalties are severe, more so than under the Foods and Drugs Act, the offender being liable to imprisonment on the first offence. The authorities have recently used this Act in order to get at the manufacturing and wholesale houses who supply foods or drugs—any goods, in fact—under a false description, and heavy penalties have recently been imposed upon wholesalers of camphorated oil not of B.P. quality.

Weights and Measures Acts, 1878, 1889, 1897.

The 1878 Act lays down that every contract, bargain, sale or dealing shall be deemed to be made or had according to one of the imperial weights and measures ascertained by the Act, or to some multiple or part thereof; and if not so made or had, shall be void. It also prohibits the use of local or customary measures. The use of the avoirdupois weight is enforced for all articles except gold, silver, platinum, diamonds, precious metals or stones, which may be sold by troy weight; and drugs, which, when sold by retail, may be sold by apothecaries weight. By the 24th Section it is illegal not only to use, but to have in possession for use in trade, a weight or measure which is not of the denomination of some Board of Trade standard. It is also an offence to wilfully use, knowingly make, or cause to be made or sold, any false or unjust weight, measure, scale, balance, steelyard, or weighing machine. Every weight, unless it is too small, must have the denomination on the top or side in legible figures or letters, and measures must be similarly stamped on the outside. In addition to being correct, every measure or weight whatsoever used for trade must be verified and

stamped by an inspector with a stamp of verification. Lead or pewter weights must be substantially cased with brass, copper or iron before being stamped. It is the duty of local authorities to appoint a sufficient number of inspectors for the enforcing of the Act in their district. Section 45 states that if a weight or measure is stamped by an inspector under this Act it may be legally used throughout the United Kingdom unless found to be false or unjust, and it does not need restamping by the local authority where it is for the time being in use. The inspectors have authority in writing from the magistrate at all reasonable times to inspect weights, measures, scales, etc., used within his jurisdiction. The same power is given to every Justice of the Peace, and any person who neglects to produce such weights, measures, and scales, etc., is liable to be fined. Under the 1889 Act if a person is convicted of a second or subsequent offence, and if the Court is of opinion that the offence was committed with intent to defraud, he may be sent to prison. The Court can also, if it thinks fit, order the publication of any conviction. Equivalents of metric and imperial weights and measures have been issued from the Standards Office of the Board of Trade, but the 1897 Act legalises the use of metric weights and measures, and these should be verified and stamped by the inspector.

Petroleum Acts, 1871, 1879.

Section 3 defines the term "Petroleum" as follows:—

For the purposes of this Act the term "Petroleum" includes any rock oil, Rangoon oil, Burmah oil, oil made from petroleum, coal schist, shale, peat, or other bituminous substance, and any products of petroleum or any of the above-mentioned oils; and the term "petroleum to which this Act applies" means such of the petroleum so defined as, when tested in manner set forth in Schedule 1 to this Act, gives off an inflammable vapour at a temperature of less than one hundred degrees of Fahrenheit's thermometer.

Section 14 states that by an Order in Council this Act or any part thereof may be made to apply to any substance, and shall be construed as if such substances had been included in the definition of petroleum above referred to. Where any petroleum is kept for seven days after it is imported, or is sent or conveyed by land or water between any two places in the United Kingdom, the vessel containing it must have attached thereto a label in conspicuous characters stating the description of the petroleum, with the addition of the words "highly inflammable," and also in the case of a vessel kept, the name and address of the consignee or owner; in the case of a vessel sent or conveyed, the name and address of the sender; and in the case of a vessel sold or for sale, the name and address of the vendor. Section 7 prohibits petroleum being kept except by persons licensed by the local authority. Petroleum kept in contravention of the Section shall, together with the vessel containing it, be forfeited, and the owner of the place shall be liable to a penalty not exceeding £20 per day during which he keeps the petroleum; but the Section does not apply to petroleum kept for private use or sold if it is kept in special glass, earthenware, or metal vessels, each of which does not contain more than a pint, and is securely stopped, and that the aggregate amount kept does not exceed three gallons. The local authorities have power to endorse the licence with conditions as to the mode of storage, etc. The test for petroleum was altered in the subsequent Act of 1879, reducing the flash point to 73 degrees—"the deadly low flash."

The Pharmaceutical Society last year induced the London County Council to issue instructions in reference to persons keeping petroleum spirits, and they will not be required to obtain a licence provided—

That the total quantity kept does not exceed three gallons (*i.e.*, of everything coming under the designation "Petroleum").

That the spirit is kept in securely-stopped vessels, each of which contains not more than one pint.

That not more than one of such vessels is opened upon the premises at one time, whether for use or for rebottling for sale.

In the absence of such instructions chemists cannot legally keep benzine, etc., in open bottles in their premises for serving small

quantities. By Orders in Council issued in 1897 carbide of calcium comes under the definition of petroleum, thus necessitating a licence before it can be stored or sold. Five lbs., however, may be kept in 1-lb. sealed packets without a licence. Such packets, if sold or exposed for sale, must contain the label:—"Carbide of Calcium. Dangerous if not kept dry," with the addition of the following notice:—"The contents of this package are liable, if brought into contact with moisture, to give off a highly inflammable gas."

Explosive Acts.

By the Explosive Act, 1875, the term "explosive" included every substance used or manufactured with a view to producing a particular effect by explosion or a pyrotechnic effect. Such substances cannot be manufactured except by licensed persons at registered premises.

Shop Hours Acts.

The important thing to remember under this Act is that no person under eighteen can be employed for longer than seventy-four hours a week, including meal times, and that a notice concerning this Act must be exhibited in every shop where such young persons are employed. Under the Shops Seats Act, which came into force on the 1st of January, in all rooms of a shop where goods are retailed and female assistants employed for the retailing of goods to the public, the employer shall provide seats in suitable positions in the proportion of one seat for each three female assistants. I trust I am not ungallant in hoping that this Act will never have much bearing upon the business of a chemist and druggist.

Criminal Laws.

I want to refer to two Criminal Laws which I am convinced chemists and their assistants are in danger of breaking. I would have preferred not to have had to deal with them, but I feel I should be lacking in my duty if I did not use the occasion to solemnly warn a number of my fellow chemists and their assistants from what I know to be a danger which many almost daily run of standing in a criminal dock. I refer first to Offences against the Persons Act, 1861. I quote from the Act Clauses 58 and 59, which are as follow:—

58. Every woman being with child who, with intent to procure her own miscarriage, shall unlawfully administer to herself any poison or other noxious thing, or shall unlawfully use any instrument or other means whatsoever with the like intent, and whosoever, with intent to procure the miscarriage of any woman, whether she be or be not with child, shall unlawfully administer to her or cause to be taken by her any poison or other noxious thing, or shall unlawfully use any instrument or other means whatsoever with the like intent, shall be guilty of felony, and being convicted thereof shall be liable at the discretion of the Court to be kept in penal servitude for life, or for any term not less than three years, or to be imprisoned for any term not exceeding two years, with or without hard labour, and with or without solitary confinement.

59. Whosoever shall unlawfully supply or procure any poison or other noxious thing, or any instrument or thing whatsoever, knowing that the same is intended to be unlawfully used or employed with intent to procure the miscarriage of any woman, whether she be or be not with child, shall be guilty of a misdemeanour, and being convicted thereof shall be liable at the discretion of the Court to be kept in penal servitude for the term of three years, or to be imprisoned for any term not exceeding two years, with or without hard labour.

I say nothing as to the immorality of the practices aimed at here, but I urge every chemist and assistant to carefully study the plain English of those sections. I know that many chemists, actuated by motives of pity or gain, are constantly sailing far too near the wind if they desire to avoid being convicted felons.

The other Act is that to Suppress Indecent Advertisements, 1889. Section 5 of that Act says:—

5. Any advertisement relating to syphilis, gonorrhœa, nervous debility, or other complaint or infirmity arising from or relating to sexual intercourse, shall be deemed to be printed or written matter of an indecent nature within the meaning of Section 3 of this Act, if such advertisement is affixed to or inscribed on any house, building, wall, hoarding, gate, fence, pillar, post, board, tree, or other thing whatsoever, so as to be visible to a person being in or passing along any street, public highway, or footpath, or is affixed to or inscribed on any public urinal, or is delivered or attempted to be delivered to any person being in or passing along any street, public highway, or footpath.

This needs little comment from me except to say that there are many chemists within a radius of two miles of this spot who, while priding themselves on their professional standing, are exhibiting articles with labels attached which contravene this Act. They are liable to a penalty of forty shillings or a month with or without hard labour.

Pharmacy Acts.

I have left myself little time to deal with the law which above all others affects us as chemists most particularly. I refer to the Pharmacy Acts of 1852 and 1868. The chief provisions of these Acts are surely known to every chemist. They ought to be known to every chemist's apprentice, but there are various points in the 1868 Act as to the force or meaning of which it would be rather difficult to make an authoritative statement. Under the 15th Section it is an offence for any person to compound any medicines of the British Pharmacopœia except according to the formularies of the said Pharmacopœia. This particular feature of the 15th Section is practically a dead letter. The only body who can take action is the Pharmaceutical Society, and, so far as I have been able to gather, the Society has never taken any proceedings in that connection. It would be useful to have a legal decision as to what constitutes such compounding, and I am personally of opinion that the Pharmaceutical Council owes it as a duty to the public, and would enhance its value from the public point of view, if it would enforce this portion of the 15th Section. There can be no doubt that cheap and nasty medicines are being sold, and that the practice constitutes the worst form of competition which we as chemists have to put up with. Anything that the Society can do in putting down such practices would be of use to the public. There are a number of unsettled points in the 17th Section and, for the present, I should prefer having nothing to say about them except to point out the important duty devolving upon the chemists and their assistants to see that the provisions of this Section are effectually carried out. I have reason to believe that there is a great deal of neglect in omitting to label poisons, especially proprietaries containing poisons, with the name and address of the seller.

I must apologise for the length of my paper and the dryness of my subject. I have not pretended to speak with any authority, or to assume the technical knowledge of the lawyer in dealing with it. I hope the paper will show chemists the importance of making themselves thoroughly conversant with not only the various laws I have been able to touch upon, but the others (quite as many again) which they are liable to contravene. I should personally be a strong supporter of the establishment at our School in Bloomsbury Square of a Professorship of Pharmaceutical Jurisprudence. I hope also that one result of the paper will be to show the need there was for some such organisation as that which has already been provided by the Association of which I am the secretary—namely, the Chemists' Defence Association. It will be part of the duty of that organisation to keep its members in touch with those laws and any alterations which may be made in them. It will be its duty to keep in touch with the proper authorities, with the view to securing legislation which is at least just to us as a body. If the Defence Association does no other work than this, and does it well, I claim that its existence will be amply justified.

OXAPHOR IN DYSPNŒA.—R. Jacobson finds that oxaphor has not the same injurious effect on the heart as camphor. He prescribes it as follows:—Solution of oxaphor (50 per cent.), 10; rectified spirit, 20; extract of liquorice, 10; distilled water, to 150. A tablespoonful three times daily. In eighteen cases of heart and lung disease, and chronic nephritis, it gave very good results. Senator has also obtained good results in cases of chronic nephritis with asthma, angina pectoris, and emphysema.—*Wien Klin. Rund.*, 13, 626.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Pharmacopœia as a Standard.

I have read with great interest Mr. Eagle's letter (*ante*, p. 52), in which he contends that pharmacists have a right to exercise their discretion as to what preparations they should supply in the ordinary course of retail trade. His point appears to be that, when dispensing medical prescriptions, B.P. preparations should be used exclusively unless the contrary is indicated, but that the special training of the pharmacist legally entitles him to exercise his discretion whether he sells B.P. preparations or not. The argument I am disposed to urge is that, undoubtedly, he is entitled to exercise such discretion, and practically does so in many instances—*i.e.*, when he knows definitely that his customer does not require the B.P. article, milk of sulphur. But, I fear, it is much too late in the day—or, is it too early?—to maintain such a position in its entirety. To determine the point we require to have a test case carried up to the House of Lords, for the purpose of deciding if, and to what extent, the Pharmacopœia is a legal trade standard for the sale of drugs and preparations thereof. Until that is done, pharmacists would do well to continue loyal to the official standards and exercise their discretion very discreetly indeed. After all, it is well to support the intention of the British Pharmacopœia in regard to medical practice, and with that view to maintain one and the same standard for the medicinal preparations used throughout the length and breadth of the land, whilst—in trade and so far as local or special requirements are concerned—there is nothing to prevent the pharmacist supplying what he knows his customers require.

B.P. Standards for Drugs.

I notice that, in his paper on myrrh, published in last week's Journal, Mr. Merson suggests—including in the British Pharmacopœia monograph of that gum-resin—standards for ash and alcohol-insoluble residue. Judging from the results of his experiments, the suggestion appears thoroughly justified, but the question arises whether—in the event of such standards being fixed—the official article would be readily obtainable. To take an analogous case, the B.P. already fixes standards for ash and alcohol-insoluble matter in asafetida, but a member of one leading firm of wholesale druggists asserts that B.P. asafetida is not a commercial article, and I observe that his firm does not quote B.P. asafetida in its latest price-list, nor do other firms to whose price-lists I have referred specifically quote the B.P. article. The prices quoted for the non-official gum-resin range from 1s. to 2s. per pound; apparently no firm cares to quote anything much higher in price than its competitors. But, according to last week's Annotations (see p. 57), asafetida which would appear to contain half its weight of gum-resin up to the B.P. standard can be obtained without difficulty, in the open market, at 1s. per pound or less. Surely, therefore, it ought to be possible for wholesale druggists to supply a B.P. article to retailers at or about 2s. or 2s. 6d. per pound. But no; they say the B.P. gum-resin is not a commercial article, and if the pharmacist requires something which will answer the B.P. tests he must buy purified strained asafetida—an imperfect substitute which has lost a considerable proportion of its volatile constituents—at a cost ranging from 2s. 3d. to 3s. 6d. per pound, according as it has been treated with methylated or rectified spirit.

Wanted, a New Apothecaries' Hall.

Why does not some enterprising firm of wholesale druggists, whilst prepared to supply lower grade goods at the same prices as their competitors, make a point of quoting drugs up to the B.P. standards, however high the price may need to be fixed? It has long been known that the pareira root usually supplied by wholesale houses is not the B.P. drug, which should be the dried root of *Chondrodendron tomentosum*, but a Menispermaceous root of unknown

botanical origin. To such an extent has the custom developed that wholesale druggists now ignore the falsification and boldly offer the substitute as Rad. Pareiræ. But they quote an absurdly impossible price for the root, and therein lies the clue to the mystery of an official drug being practically unobtainable in the ordinary course. For genuine pareira root can be produced in sufficient quantity if a fair price be paid for it; but, apparently, no wholesale house cares to be the first to raise its price. Why not, however, continue to offer the lower grade article at the lower price and quote the B.P. drug at its proper price? Consider, again, the case of aconite root. The B.P. article, grown in Britain, can readily be obtained by wholesale druggists, if they are prepared to pay a reasonable price to growers for producing it. But they are averse to paying more than 6d. or 8d. per pound, a price at which the B.P. drug cannot be produced. As a consequence, the supply fails, and we are coolly told that—because of that failure!—recourse must be had to Continental aconite root to fill the gap. But, again I ask, would it not be wiser and better for wholesale druggists to help pharmacists to maintain the official standards, by securing and offering B.P. drugs at appropriate prices, whilst also stocking goods of lower grade for those who require them. There would almost appear to be a good opening for an establishment—say, run on similar lines to the Apothecaries' Hall—which should supply B.P. drugs and preparations, and no others. In any case, it seems to me that pharmacists who want the best articles, and are prepared to pay for them, should be able to get them, so long as it is not physically impossible to produce them.

The Weed-Killer Case.

The chief thing that struck me on reading the detailed report of the weed-killer appeal, which appears in the *P.J.*, was the off-hand way in which the judges decided the matter. They seem to have considered the letter of the law only, without the least consideration for public policy. What the judgment amounts to is virtually that the defendant was an agent only, and, therefore, not liable, so that, if the principals cannot be got at because of a defect in the law, no one can be made liable, and the public must suffer until the law is amended. What a contrast this affords with the House of Lords' decision in the case of the London and Provincial Supply Association. If memory serves me correctly, the judges then declared that, though companies were not specifically mentioned in the Pharmacy Act, they would have felt bound, in the public interest, to give a decision in favour of the Pharmaceutical Society if they had not felt that—in the particular case under consideration—sufficient protection was afforded by the qualification of the actual seller, who had not long before been the proprietor of the business afterwards carried on by him as the servant of the London and Provincial Supply Company, Limited. Whilst, therefore, Justices Grantham and Channell may have decided the case rightly on the strict point of law, I think it is far from improbable that the Court of Appeal and the House of Lords may reverse that decision on grounds of public policy. At any rate, I am strongly of opinion that the higher courts should be afforded the opportunity of dealing with the question and, if the original decision should then be upheld, the need for serious amendment of the Pharmacy Acts will be more manifest than ever.

The Next Pharmacy Bill.

Whilst referring to the possibility of a new Pharmacy Bill being called for before long, I may point out that the difficulty created by the decision just referred to, like that created by the House of Lords' decision thirty years ago, takes its rise in the dual character of the Pharmacy Act, 1868. The 1852 Act constituted an ideal basis for the establishment of a real pharmaceutical qualification, but its successor was spoiled by grafting upon it Sections regulating the sale of poisons. I fear the two objects can hardly be separated now; an amending Act, therefore, should complete the scheme of the 1852 Act, whilst also doing what is necessary

to protect the public against the indiscriminate distribution of poisons. The professional qualification in pharmacy should be fully protected, no unqualified individual or corporate body being permitted to usurp the privileges rightly attaching to that qualification, or to do what the possession of that qualification alone fits an individual to do. It must be recognised that the pharmacist cannot perform his professional duties by proxy or delegate to unqualified persons the functions which he is required to show himself specially fitted to perform; on the other hand, the public safety requires that the dispensing of medicines shall be restricted to individuals who are duly qualified to deal with those matters, and in like manner that the sale of poisons shall be subject to similar control; and that, in brief, represents the ground which, in my opinion, the next Pharmacy Acts Amendment Bill should cover; the details may safely be left to the consideration of those whose special duty it must be to draft and legalise the measure.

POLITICAL GOSSIP.

THE ELEVATION OF SIR JOHN LUBBOCK to the peerage has involved the University of London in both a Parliamentary and an academic contest—a struggle within a struggle. It is not only the question of choosing a political representative that is placed before the graduates, but also the wider consideration of whether that representative should be selected for the orthodoxy of his politics, or on the higher recommendation of intellectual endowment or academic distinction. There are at present three names mentioned in connection with the vacancy—two of them belong to politicians, who are popularly supposed to put party above every other earthly consideration, but the third name is that of Sir Michael Foster, who has consented to go to the poll in what may be termed the intellectual interest; and a very proper interest it seems for safeguarding in the House of Commons. Dickens used to maintain, in one of his delightful occasional pieces, that "Verbosity" was the best represented place in Great Britain; similarly one might say that Intelligence has the worst parliamentary representation in the world. Not that political candidates have no intellectual side. To say so would be to speak slightly of the brilliant career of Dr. W. J. Collins, the Radical candidate, and of Mr. E. H. Busk, who appeals to Liberal Unionist graduates. Dr. Collins was a scholar and Gold Medallist of the University, has occupied a high position in the profession of medicine, and is a past-Chairman of the London County Council; whilst Mr. Busk graduated with high honours, is a Fellow of the University, as well as Chairman of Convocation, and is one of the Commissioners under the University Commission Act. Both gentlemen are, however, said to be of opinion that while the University sends a member to Parliament the election should be on political lines. There is reason to believe that this opinion is not generally shared by the electorate, and that a large body of influential graduates welcome the advent of the personality of Sir Michael Foster, and will express their sense of his non-political attitude in a practical manner. Pharmacists, as a body, will not be slow in congratulating Sir Michael in the event of his adding M.P. to the long procession of honourable affixes attached to his name, and they will not be displeased, on their own account, to have in Parliament an additional member who has heard of the Pharmaceutical Society and is not disposed to sneer at its work, or snub its members.

SHOP ASSISTANTS have been urged by Mr. Yoxall, M.P., to rise in their thousands and form a Union, with a view to putting an end to the underpaid and overworked career which is too generally their lot in life. Mr. Yoxall maintained that shop assistants are about the worst paid body of workers in England, but he did not specify the particular class of business in which the offence is most rife. Can someone have brought to his notice the remuneration offered to qualified chemists for twelve hours a day skilled work of a professional nature? Naturally, the assistants addressed by the member for West Nottingham were eager to adopt any suggestion for improving their position, and therefore passed a resolution protesting against the "living in" system with its accompanying social and political isolation, and further, they resolved to support the Shops Bill brought in last Session by Sir Charles Dilke. The remedies appear to be rather heroic to say the least.

NEW REMEDIES.

IODOPYRINE.—Junkers considers iodopyrine to be superior to antipyrine and other antipyretics, since it is tasteless, not nauseating, never causes collapse, and, at the same time, has marked antiseptic properties. It occurs in acicular crystals melting at 160° C. It is insoluble in cold water, but gradually dissolves in cold alcohol or ether. Chemically iodopyrine is antipyrine, in which one atom of H is replaced by iodine. The doses are, for adults, 1 Gm. every 3-4 hours daily; for young children, 10 to 50 centigrammes; for those above ten years, 50 to 75 centigrammes, three times daily, are without any ill effect. It provokes profuse diaphoresis, followed by decrease of temperature, the pulse becoming regular. Albumin is not found in the urine after its administration.—*Therap. Monats.* 13, 604.

ANTIPHLOGISTON AND ANTITHERMALIN.—Under these names a mixture of kaolin and glycerin has been introduced in the United States as a substitute for poultices for local application. As the mass requires no heating or preparation, and need not be renewed for twelve to forty-eight hours, while at the same time it gives almost instantaneous relief in most cases of inflammation or congestion, the advantages are considerable. The application is, moreover, easily washed off with cold water. Any medication may be added to the basis. According to J. Wilbert it is prepared as follows:—Kaolin, 1,000; glycerin, 1,000; boric acid, 1,000; peppermint oil, 1; Wintergreen oil, 1; eucalyptus oil, 2. The kaolin is put through a 60 sieve, and heated to 100° C. for one hour to sterilise it, the glycerin is then added, and heated again for 30-40 minutes, and then rubbed up till it forms a homogeneous mixture; after cooling the acid and oils are added and the preparation filled into well closed tins or bottles to prevent action of air. A trace of iron in the kaolin sometimes causes a little colouring, but in no way affects the value of the preparation.—*Pharm. Post*, 32, 630.

CLINICAL USES OF LIQUID AIR.—Pearce states that liquid air has been satisfactory as a local anæsthetic, minor operations being done with no pain at all, and no injury to surrounding tissues. In neuralgias and pain of herpes zoster it has given prompt relief. It was used in a case of erythematous lupus without producing the deep searing attending other forms of treatment. A case of epithelioma of the face yielded easily. In cases of small tumours of the face, nævi, etc., it can be used, and leaves a scar which is hardly perceptible. Cases of boils, carbuncles, and bubos showed marked modification in their course. A case of facial erysipelas was subjected to the spray until the infected surface felt very cold, and when the patient returned three days later, having had no other treatment, the inflammation was found to have subsided completely. Sluggish ulcers seem to take on a new growth when they have been subjected to a spray of liquid air, which appears to have all the effects of a caustic without its attendant inflammation.—*Inter. Med. Mag* 8, 775.

SULPHOSOTE.—This is, according to Gehe and Co., a syrup containing 5 per cent. potassium guaiacol-sulphonate and 5 per cent. potassium creosol-sulphonate.—*Pharm. Centralh.*, 40, 576.

LETTERS TO THE EDITOR.

The Society's Examinations.

I wish to endeavour to remove the somewhat unjust as well as unkind suggestion of "An Ordinary Pharmacist" that my letter on the above subject in a previous issue of the Journal was a personal attack on the examiners. Lest others should have gained the same impression, allow me to say that such was far from my intention. What I endeavoured to do was to plead the cause of the student from the student's standpoint. Naturally, in an examination which gives such absolute power to examiners, they were necessarily involved in my remarks, but it was more against a system which gave such power than against the use made of it that my words were directed.

I am sorry "An Ordinary Pharmacist" did not criticise or discuss the real question at issue, as put forth in my letter, rather than single out two phrases for comment. I can only understand the exception he takes to these expressions after reading his words:—"So far as the moral sense of examiners is concerned, I fail to see what that should have to do with the question of testing the fitness of candidates to practise pharmacy." Now, surely my choice of expression was not incorrect in an examination where so much is left to the examiner's sense of what is right or wrong. Even the most rigidly legal matters have sometimes to be tempered by this moral guidance. If, however, "An Ordinary Pharmacist" thinks I suggested that examiners are without this quality or without kindness of feeling, he is quite mistaken. Such would be opposed to my own experience of them. But if, as I have, he has come in contact with hundreds of students, and listened to accounts of their examination (supposing only a fraction of what they recount to be actual fact), I should be surprised if he has not sometimes felt, as I felt, that a little more consideration might have been shown in a matter which is a very serious drag, both pecuniarily and otherwise, on many students. In the light of my own experience it would require more than even the word of eminent authorities to cause me to accept the Minor as a fair examination. It has not been my experience that the knowledge of students on any subject needs to be approaching absolute zero for them to risk chance of failure, and I venture to think that if a census of student opinion could be taken throughout the country, even "An Ordinary Pharmacist" would be compelled to slightly alter his views.

Finally, let me say that I entirely agree with "An Ordinary Pharmacist" when he says that nothing could be more harmful than to cause candidates to feel that examiners are their natural enemies. If such a feeling exists it has not been drawn from any outside source, but is the result of the present system, and due largely to examiners themselves. I feel most strongly that our Society cannot afford to ignore the feelings of students on a subject of such vital importance. How many a student waves a good-bye to the Society when he grasps his Minor certificate, who could be won as a strength to that Society but for the bitter feelings born of a system which his own experience tells him is unjust. I believe this is the greatest reason why, as a Society, we are so numerically weak, and I call upon those who have had better opportunities than myself of mixing with our students to express an unbiassed opinion on the subject.

Newcastle-on-Tyne, Jan. 15, 1900. THOS. HY. FLEMMING.

Liquor Bismuthi.

Messrs. Cowley and Catford seem to have misunderstood the point of my previous letter. My Conference paper did not attempt to remedy the slight deficiency of potassium citrate in the B.P. formula, but to ensure the entire formation of soluble bismuth citrate and not a variable and partly insoluble mixture of citrate and oxynitrate, and this aim it effects with a minimum of trouble to the pharmacist and deviation from the present formula. The

chief cause of deficient strength in commercial potass. citrate is absorption of moisture owing to its hygroscopic nature, and the B.P. requires a minimum purity of 98.33 per cent. If a damp salt be used, of course there will be a greater deficiency of citrate. With regard to their criticisms on my paper:—(1) Having reference to the 1898 formula, it could not have been affected by a criticism made in 1886 of the 1885 process. (2) Mr. J. C. Unmey in 1898 pointed out the deficiency of citrate, but I have not a copy of his original paper, and am unaware if he also noticed the inadequate amount of potass. carbonate. If he did not, I am not aware of anyone else who has done so. I fail to see anything in my paper which would lead anyone to believe that an increased quantity of carbonate will remedy a deficiency of citrate. It will, however, prevent loss of citrate through solution in excess of unneutralised acid. The reversal of order of mixing will prevent formation of an insoluble basic salt in the precipitate. I have yet to learn that the order of mixing is an unimportant consideration in pharmacy. In reply to query (a) I tried mixing the liquids in the B.P. manner after increasing the quantity of potass. carbonate—with unsatisfactory results; (b) I did not quantitatively determine the actual amounts of bismuth in the finished liquor and in the washings, but made relative and comparative tests with H₂S water on the washings from samples containing respectively the B.P. and increased quantity of carbonate, resulting greatly in favour of the larger quantity. Lastly, I would again recognise the complete and careful manner in which Messrs. Cowley and Catford have dealt with the subject. The correct amount of potassium carbonate per litre, using 100 per cent. citrate, is almost 27.1 grammes. The quantity I suggested was 27 grammes.

Newcastle-on-Tyne, Jan. 16, 1900. FRANK R. DUDDERIDGE.

Science and Agriculture.

The last issue of the *Journal of the Royal Agricultural Society* contains matter that should be of interest to chemists residing in agricultural centres. The apathy which seems to have existed amongst chemists regarding poisonous substances used in agriculture in letting the sale of poisons of any kind used as weed-killers slip through their hands, when they are the most competent to devise means and to impart knowledge to protect the public from the dangers arising from such preparations, is extraordinary. A study of the work that is being done on the scientific side of agriculture deserves careful perusal by country chemists, and the *Journal of the Royal Agricultural Society* affords them the means of keeping pace with the progress made in that direction. Thus, it is stated (*l.c.*, p. 659), that sulphate of copper is being sold in various degrees of purity, often containing a large amount of sulphate of iron, a substance that any chemist could easily detect and estimate, but which farmers are not always competent to do. The chemist should be able to determine the value of feeding-stuffs, such as linseed and cotton-cake, and of manures, basic slag, superphosphates, etc., and his special training and knowledge should enable him to examine and report upon them better than others less well equipped. There is plenty of room for enterprising chemists to devise remedies for attacks of botworms in horses, grass ticks in sheep, and for killing the various insects that cause serious injury to the fruit crops, fungoid diseases in plants, etc. The consulting chemist to the Royal Agricultural Society reports that a sample of lawn sand for killing weeds in lawns consisted of sulphate of ammonia and sand. The sulphate shrivels or burns up the plants upon which it immediately falls, and when the excess is washed away it exerts a forcing effect upon the grass around. Useful information as to the time of year when such remedies can be effectually used can be gathered from the pages of this valuable publication. The report of the consulting botanist indicates that during the past year *Ranunculus acris* has proved poisonous to sheep in Yorkshire, and *R. flcaria* was suspected of being injurious to cattle. A

much more frequent cause of mischief, *R. flammula*, is, however, not noticed. The statement that the laurel (*Laurus nobilis*, Linn.) and the cherry laurel (*Prunus laurocerasus*, Linn.), both contain an essential oil rich in prussic acid is new to me, and the suggestion that the action of the poison has been arrested by artificial respiration, accompanied by the injection of atropine, seems rather an unwise one to make in a journal whose readers are scarcely likely, as a rule, to know how atropine should be administered.

London, January 24, 1900.

E. M. HOLMES.

The Company Pharmacy Problem.

Although I strongly disagree with Mr. Lord Gifford's mode of attacking "An Ordinary Pharmacist" concerning his anonymity, I consider that any person writing articles for a journal should follow the fashion adopted by all writers on the Continent of publishing the contributor's name therewith. "An Ordinary Pharmacist's" excuse regarding his obscurity is somewhat lame. If he has anything worth saying, I should imagine that his brethren of the pestle are sufficiently enlightened not to depreciate his efforts on that account. The overwhelming genius of a Junius might think it necessary to let his name stand under a shade, but for one who is so modest in his description of himself, viz., "An Ordinary Pharmacist," it can hardly be so important to conceal his identity. On the company pharmacy question I think I am on all fours with Mr. Lord Gifford. I trust the great majority of chemists will insist upon their rights and titles being defended tooth and nail. To my mind, it is not only egregiously absurd, but also the symptom of a despicable, craven, abject, cowardly spirit, to entertain for a single moment the idea of according the slightest recognition to, or of making any compromise with, a class of persons who are stealing our clothes—either by way of company legislation or any other way. Let persons who wish to be on the same platform with us undergo the same ordeals; the remedy is simple enough, and in their own hands. Let our policy be one of no surrender, and let us quit ourselves like men.

Hitchin, Herts, January 23, 1900.

E. A. MORGAN.

What has the Society Done?

The Pharmaceutical Society has been in existence for over fifty years, and what has it accomplished in that time? If the retail trade is any better off it is due mainly to the business capacity and shrewdness of the individuals engaged in it. True, the Society has been a little more active the last few years, but in a very half-hearted way. But what has it done for that hard-working and long-suffering class of men, the public dispensers? As your correspondent, Mr. A. C. Stark, points out, they are about the only men who make pharmacy, pure and simple, their sole occupation. Most of them, I think, are members of the Society, yet how much sympathy or help have they received from the Society in their particular difficulties?

First, as to pay: The maximum allowed by the regulations of the Local Government Board is £140 per annum (a little more in the metropolis), while a relieving officer, who needs no special qualification, can receive considerably more. Has the Pharmaceutical Society ever used its influence to remedy this? Did it make any protest when the standard for these posts was lowered a few years ago? Again, look at the terms offered by the War Office for compounders in the Transvaal war. What protest does the Society offer to this scandalous insult to the whole of our profession?

In fact, the pay and status of union and hospital dispensers is lower than it was twenty or thirty years ago. It is absurd to argue that the Society is not a trades union. Whether it is one or not, it is its duty to protect, as far as it has power, the interests of its licentiates, and hitherto, it cannot be denied, it has signally failed in that duty. What more powerful trades unions exist than the General Medical Council, which, after all, is composed of representatives of the different medical societies and colleges,

and the Incorporated Law Society? Look, again, what power the National Union of Teachers has.

I have subscribed to the Pharmaceutical Society for many years now, but, unless its leaders show more spirit in furthering the interests of those they are supposed to represent, I shall soon cease to subscribe to its funds.

Stoke-on-Trent, Jan. 16, 1900. A HOSPITAL DISPENSER (17/36).

The Storage of Poisons.

As pharmacists who have the welfare of the public at heart, I think we ought not to rest until medical men who do their own dispensing are placed under the same restrictions in the storage of poisons as we are. It certainly ought to be impossible to keep liquor strychninae side by side with aqua chloroformi, for every dispenser knows how easy it is to pick up the wrong bottle.

January 22, 1900.

CORPUS (18/15).

The Public and Poor Law Dispensers' Association.

I wish to ask any past or present Public or Poor Law dispenser who has not received a copy of the rules, etc., of the Public and Poor Law Dispensers' Association, to communicate with me at the Shuttleworth Club, Fye Foot Lane, Queen Victoria Street, London, E.C., or to attend our next meeting at St. Bride's Institute, Ludgate Circus, on January 31, at 8 p.m.

G. F. FORSTER,

Shuttleworth Club, January 22, 1900.

Hon. Gen. Sec.

The Pharmacopœia as a Standard.

I trust that the letter signed "J. Eagle," in the *Pharmaceutical Journal* for January 20 (see p. 52), will not be allowed to pass unchallenged. That the authority of the Pharmacopœia as a standard should be disputed is not surprising, in view of the conflicting views of different authorities, but that it should be seriously maintained that we need no standards at all would be amusing if it were not sad. The too ready access of the public to potent medicines should be remedied by an extension of the Poisons Schedule, certainly not by adjusting the strength to the supposed needs of the purchaser. If any pharmacist prefers his own formula for camphorated oil to that of the Pharmacopœia he is perfectly justified in using it, but he should not call the product by the official name, without qualification. "Substitutes," as the *Lancet* remarks this week, "may be even better than the original article, but that does not justify deception." "In any case the purchaser has a right to get exactly the article in nature, in substance and in quality that he demands." The course advocated by your correspondent would be a suicidal one for pharmacists to adopt, and could only result in the present confusion being worse confounded.

Exeter, January 23, 1900.

H. WIPPELL GADD.

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LONDON: SATURDAY, JANUARY 27, 1900.

CHEMICAL CONSTITUTION AND PHYSIOLOGICAL ACTION.

THE connection existing between the almost infinite diversity in the constitution of carbon compounds and the physiological action of particular bodies on the animal organism, is one of the most interesting revelations of modern research, and though the knowledge of the conditions of chemical constitution, capable of producing various kinds of physiological effect, is but slender and fragmentary at present, the field of inquiry to which it points is a specially fascinating one. A very interesting illustration of the manner in which the presence of a particular organic group in a carbon compound appears to be connected with the power of producing physiological effects, as well as the manner in which a particular group appears to be capable of determining different physiological effects of the compounds in which it exists, according to the way in which it is chemically associated with other organic groups, has recently been pointed out by Mr. WATSON SMITH in a paper read by him at a meeting of the Society of Chemical Industry. The difference between the bodies referred to is manifested in the effects produced upon the senses of smell, taste and sight, while the character common to all of these bodies is the presence in them of a nitrogenous group related to the radicle of benzoic acid, but containing NH in the place of one atom of hydrogen in the ortho position. Anthranilic acid, or ortho-amido-benzoic acid $C_7H_7NO_2$ —which has been long known as a product of the oxidation of indigotin—is a body of this kind, its constitution being $C_6H_4 \begin{matrix} \langle CO \cdot OH \\ NH \cdot H \end{matrix}$ and that of the corresponding methyl ester—which has recently attracted attention on account of its odour being like that of orange blossom oil, and of its being found as a constituent of other essential oils — by the formula $C_6H_4 \begin{matrix} \langle CO \cdot OCH_3 \\ NH \cdot H \end{matrix}$ Methyl anthranilate is described as forming colourless crystals having an intense odour of orange blossom and exhibiting a blue fluorescence. The crystals melt at $23 \cdot 5^\circ C.$ and distil in a partial vacuum at $127^\circ C.$ The ester dissolves readily in mineral acids, alcohol or ether, and the solutions exhibit a beautiful blue fluorescence.

Indigotin, $C_{16}H_{10}N_2O_2$, is the substance to which the

colour of indigo is due, and its constitution—as represented by the annexed formula—presents a close relation to that of anthranilic acid, inasmuch as the same ortho-benzoyl-imido group is present in that body as well as in anthranilic acid and its methyl ester. The close relationship of these bodies is also shown by the circumstance that just as the indigotin structure is broken down by oxidation, with removal of the $=C=C=$ group in the state of formic acid, while the two ortho-benzoyl-imido groups unite with the elements of water and form anthranilic acid, so by the reaction of ortho-nitro-benzaldehyde $C_6H_4 \begin{matrix} \langle COH \\ NO_2 \end{matrix}$ —a body related to anthranilic acid—with acetone, the indigotin structure can be built up, by a reverse process, and a body produced which is characterised by its action on the sense of sight through its intense blue colour.

Another compound in which a variation of the group above referred to, is present and the body itself is marked by an intense sweet taste, is saccharin, the constitution of which is represented by the formula— $C_6H_4 \begin{matrix} \langle CO \\ SO_2 \end{matrix} NH$ the NH group being in close juxtaposition with the CO group, though its place, relatively to the CO group, is taken by the sulphonic group SO_2 . In these three bodies anthranilic methyl ester, indigotin and saccharin, the presence of the remarkable ortho-benzoyl-imido group, is a common feature, and the marked difference of their effects upon the senses is coincident with differences of arrangement in the molecules of the respective compounds. A fourth body, indole C_8H_7NO —the constitution of which is still more closely related to that of indigotin than anthranilic acid, anthranilic methyl ester or saccharin— $C_6H_4 \begin{matrix} \langle CO \\ NH \end{matrix} CH_2$ may be mentioned in this connection, since it has lately been discovered as a constituent of the essential oil of jasmin flowers associated with anthranilic methyl ester (see *ante*, p. 42). The known characters of indole are not such as would suggest its being contributory to the perfume of jasmin oil; but Hesse states that when highly purified and in very small proportion it has the effect of very considerably enhancing the perfume of mixtures of essential oils. As indole is a possible condensation product of methyl anthranilate, the source of it in essential oils containing that ester may be accounted for in that way as shown below—



In the course of the discussion of Mr. SMITH'S paper, Dr. POWER mentioned that anthranilic methyl ester was discovered by Messrs. SCHIMMEL to be a constituent of neroli oil, and the artificially prepared ester was introduced into commerce by them in 1895. According to the specification of a patent recently taken out by the firm of MEISTER, LUCIUS AND BRÜNING, anthranilic methyl ester can be made a source of indigotin by reducing a mixture of it and ethyl acetyl anthranilate with sodium, so as to produce indoxyl-methyl-ketone, a pale yellow substance melting at $153^\circ C.$, and readily soluble in ether, alcohol or benzene. When this body is heated with caustic alkalies it forms a yellow mass which yields indigotin when the water solution is exposed to the air, or when a solution of the yellow mass in concentrated sulphuric acid is heated.

LONDON WATER.

THE Royal Commissioners—appointed to inquire into and report upon the water supply of London as it is at present and as it may require to be adapted to the wants of an increased population at a future time—have now completed their task, and their final report on the subject has just been published. One of the most important features of this lengthy report, in regard to the desirability of the water supply of such a population as that of London being in the hands of a public authority, is the expression of an opinion that the circumstances of the case take the duties to be performed out of the category of purely municipal or local functions and make them a matter of national as well as local concern. That view, while tacitly condemning the system of leaving water supply to the enterprise of joint-stock companies, does not by any means indicate approval of the proposal to transfer the water supply of the metropolis to the control of the London County Council. On the contrary a definite recommendation is made that this important function should be entrusted to a special permanent authority, or Water Board, of a representative, as well as executive character and so constituted as not to give preponderance to any of the conflicting interests concerned.

The Commissioners suggest that the Water Board should consist of not more than thirty members to be appointed by the London County Council and other interested bodies. They also suggest that the Water Board should include delegates of the Local Government Board, in order that the influence of the executive government might be continuously felt, as it is considered necessary that the proceedings of such a Water Board should be brought periodically and automatically under the influence of Parliament. A further suggestion is that the Local Government Board should appoint the chairman and vice-chairman, who are to receive adequate salaries, while a sum would be allotted annually for division among the other members of the Board according to their attendances, as in the case of the Conservators of the River Thames. This Water Board is to have power to acquire the undertakings of all the eight metropolitan water companies, either by agreement or arbitration, and to assume all their existing powers and obligations.

In regard to provision for prospective requirements, the Commissioners express their opinion that, from the present sources, a supply may be obtained to suffice for the needs of London up to 1941. While admitting the attractiveness of the scheme for bringing water from the Welsh mountains, they consider that extra expense to be unnecessary now; but that, if the population of London continued to increase at the rate adopted for the purpose of calculation, the resources of the Thames would be more sorely tried after 1941 and the finding of some other source of supply would assume a different degree of importance. On that point the Commissioners consider that nothing but experience can show whether twelve or thirteen million inhabitants would be accumulated within the area in question, and the conclusion arrived at by the Commissioners appears to point to the desirability of posterity being left to provide for themselves as their necessities may require.

ANNOTATIONS.

THE COUNCIL OF THE PHARMACEUTICAL SOCIETY is alleged to be "hopelessly out of sympathy with its constituents," and that in spite of the fact that several policies have been asserted by members of the Council to represent the views of different sections of their colleagues. Moreover, each of those policies is warmly supported by a greater or less proportion of the members of the Society. Inasmuch, therefore, as each member of the Council may fairly claim to represent the views of part of the electorate, it is hardly correct to assert that the Council is out of sympathy with its constituents. Indeed, whether regarded as parts or wholes, the two bodies appear to be in very close sympathy, and if the Council hesitates before entering upon what is certain to be a very serious struggle, its apparent timidity is fully justified by the irresolution and lack of agreement manifested by registered chemists, whether members of the Society or not. Instead of referring to an assumed lack of sympathy between the Council and its constituents, it would, perhaps, be more correct to say that the Council is not disposed to commit itself to what is absurd and impracticable at the bidding of irresponsible critics. And even if the alleged "deadlock" in pharmaceutical affairs should continue a few months longer, it reveals a strange lack of originality to suggest that the electors must either get Mr. Glyn-Jones off the Council "as an ineffectual member," or return "seven others like him." The extravagance of the supposition that seven such could be found is only equalled by the implied reproach that the latest addition to the Council—who, by the way, cannot be turned off for two years—has not done his duty.

THE PRACTICAL ANTI-CUTTER naturally prides himself upon his superiority to the "arm-chair strategist" and "amateur theorist," even though the latter individual be capable of dissociating himself from all mundane conditions and, while in a state of mental ecstasy, can deliver himself of "pharmaceutical beatitudes," whatever they may be. But it may be questioned whether the writer who has been good enough to direct special attention in the *Anti-Cutting Record* to the article on pharmacists as traders, which recently appeared in the *Pharmaceutical Journal*, has the least conception of what the position of the pharmacist as a professional man is or might be. Indeed, it is too much to expect that he should. As a mere trader, imbued with an aggressive fighting spirit, he is doubtless well fitted to be a leader among those of his own particular type. Unfortunately, while endeavouring to be a little too smart, he fails to realise how exaggeration, even when playful, may spoil an apparently good case. His main point, it may be stated, is that chemists should defend themselves to the uttermost when attacked, but he overlooks the fact that some methods of defence are vastly superior to others. The position taken up in the *Pharmaceutical Journal* was that when a chemist finds himself at fault, it would appear better on the whole, from the professional standpoint, for him to own himself in the wrong and have as little as possible said about the matter. It must be remembered that carelessness or neglect is no excuse under the Sale of Food and Drugs Acts, and in the case of those who claim a professional position it is not safe to assert that carelessness or neglect is a more excusable offence than a wilful infringement of the law. That may, naturally, seem a mere empty platitude to Mr. Glyn-Jones's tame humorist, but it nevertheless represents what he would probably recognise as sound common sense if he were concerned in matters where the conduct of a medical man or a lawyer was in question.

CARELESSNESS IS THE UNPARDONABLE SIN for professional men, and though it may appear sheer idealism to the *A.C.R.* hard and fast commentator, the assertion may be repeated that no pharmacist with any respect for professional reputation can afford to plead

in open court, in extenuation of an offence under the Sale of Food and Drugs Acts, that a medicinal preparation supplied by him has been allowed to deteriorate before he sold it, and that he was unaware of the fact. Such a stupid admission of neglect would be a reflection upon pharmacists generally, for some of the mud with which the offender wilfully daubs himself must of necessity attach and cling to the class of which he is a more or less unworthy member. That drugs, chemicals, and galenic preparations can deteriorate is well known, but that affords no sufficient reason why the pharmacist should sell deteriorated articles. It is his special duty to prevent deterioration, to recognise its existence before anyone else can do so, and to decline to dispense or sell anything that is not exactly what it ought to be. The anti-ideal commentator of Stonecutter-street apparently thinks otherwise. Doubtless he is a firm believer in turning everything to account—even his deteriorated stock. He has no time to test the articles he sells, and would seemingly prefer to trust to luck, hoping that inspectors may not ask for drugs or galenicals liable to go wrong, or that he may be able to escape the penalty of his neglect by some legal quibble. In fact, he takes things as he finds them. He is content to know that his stock is only "occasionally deficient in quality, either through being improperly made or through deterioration," and consoles himself with the reflection that, when prosecuted, he need not "forego the inalienable right of even the meanest criminal to defend himself," nor "betray that instinct of self-preservation inherent in man from time immemorial." That very unambitious doctrine may be consoling to the *A.C.R.* critic; but what if he has no case to defend, or if a successful defence should carry in its train worse disaster than could be brought about otherwise?

AS A CONTRAST to the utilitarian comments in the *Anti-Cutting Record*, we have something approaching unadulterated idealism in the remarks of Mr. Glyn-Jones on some of the laws that particularly affect the chemist (see p. 70). He refers to important features of the Apothecaries Act, Sale of Food and Drugs Acts, and other measures concerning which chemists should know much more than they do—not with the object of showing how the provisions of the Acts may be evaded, but rather that it may be brought home to chemists what they can legally do in certain directions and what is prohibited. Presumably Mr. Glyn-Jones would be one of the first to acknowledge that chemists frequently get into difficulties through ignorance of the law; they do not offend wilfully, but, through neglect or carelessness, offences are proved against them from time to time. In such cases a plea of ignorance may prove effective in reducing the penalties imposed; but the more serious consequence is the slur cast upon the reputation of the chemist—as a professional man—willing to own in public that he has neglected to make himself conversant with matters about which he ought to have been fully informed? Here again, ignorance is itself a crime, and especially so in the case of one who aspires to be regarded as a professional man. Merc traders may save themselves trouble by remaining ignorant through choice; but in that event they are neglecting what should be a cardinal principle with shrewd business men. In the end, therefore, ignorance is a mistake anyhow.

THE CHEMISTS' BALL went with more than its usual spirit last week, for, although influenza had kept many away, the ball room was comfortably filled, and the dancing never flagged till the last strains of Mr. Dan Godfrey's band ceased, at about 4.15 a.m. Mr. J. W. Bowen and Mr. J. F. Harrington officiated as M.C.'s, and under their care everything went smoothly. It was particularly noticeable that all the ladies present appeared to be well supplied with partners. About two hundred and twenty persons sat down to supper, and—perhaps because it was the last senior ball supper of the century—a greater spirit of revelry and fun pervaded that function than is usually found. It was difficult

therefore, to catch all the President of the Pharmaceutical Society said, when—as Chairman—he inflicted upon the hon. sec. the usual chaff about his bachelor condition. Mr. Warren, in responding, said, as this was his last year of office, he could not help saying what a pleasure it had been to him to be secretary of the ball. His thanks were due to the committee and stewards for their kind and loyal support; as for the ladies, in spite of all the banter, they had not refused to accept him as their spokesman. It was because he knew them so well that he was proud to respond for them. If in the new century ladies responded for themselves, they could not find amongst their own numbers one who had more affection for them than he had.

THE MANX PHARMACY BILL, having emerged from the Committee stage, has been further considered by the House of Keys and passed after the inclusion of a clause recognising the right of companies of unqualified persons to carry on the business of a chemist and druggist. The clause is reminiscent of the Lord Chancellor's attempt to legalise a similar illogicality, as it provides that

No company may carry on the business and use the description of chemist and druggist unless such business and each branch thereof is *bona-fide* conducted by a manager or assistant being a duly registered pharmaceutical chemist, or chemist and druggist, as the case may require, and unless the name of the person so qualified is conspicuously posted in the shop or other place in which the business is carried on, but, subject to this provision: Anything which would be an offence under Section 6 of this Act, if committed by an individual, shall be an offence if committed by a company.

The House of Keys has also agreed to place on the poison schedule carbolic acid and its poisonous preparations; phosphorus and vermin-killers containing phosphorus; hydrochloric acid, sulphuric acid, sulphate of copper, chlorine and its poisonous preparations, and preparations of red and white precipitate. The member of the House who explained the intention of the added clause said it would have the effect of putting companies on the same footing as individuals, besides causing all chemists' shops to be under the charge of properly-qualified persons. But to put companies really on the same footing as individuals is neither more nor less than to prevent them from carrying on the business of a chemist and druggist, for they cannot be registered under the British or Irish Acts as required in the case of individuals. That, however, will not be the effect of the amended Bill.

THE INSTITUTE OF CHEMISTRY now conducts an examination—written, practical, and oral—in therapeutics, pharmacology, and microscopy. The printed paper set at the latest examination included four tests. First, the candidate was asked to prepare slides of arrowroot and wheat flour, to examine the specimens under the microscope, and report as to their purity. Second, a prepared slide was submitted for examination and description. Third, the candidate was asked what are the chief effects of silver nitrate, phosphorus, crude oil of bitter almonds, and nicotine when taken in dangerous quantities. Fourth, he was asked to state the maximum safe doses, and the fatal doses when known, of corrosive sublimate, arsenious oxide, phenol, morphine hydrochloride, and atropine sulphate. Subsequently, he was "examined practically as to the recognition of drugs and interrogated orally."

TARDY TIDINGS reach us from the Japanese capital of the death of Dr. Rgokishi Yatabe, of Tokyo University, which took place on July 7 last. The Doctor was enjoying a morning swim in the sea at Kamakusa, when he was overpowered by the current and carried out of the reach of immediate assistance. He was still alive when eventually brought to shore, but never recovered consciousness and died the same day. Dr. Yatabe had been for the past seven years a corresponding member of the Pharmaceutical Society, and followed with much interest the progress of pharmaceutical events in Great Britain.

THE EVIDENCE GIVEN before the Departmental Committee inquiring into the use of preservatives and colouring matters in food affords many indications of the prevalence of opinions based upon crochets and fads, as might have been expected; but it is more remarkable to find one of the learned members of the Committee reported as betraying such want of acquaintance with the subject matter of his questions in regard to the preservation of the green colours of peas, as to state, as a leading question, that "the object of the copper is, of course, to restore the colour of a faded pea?" That was too much even for the witness—by the way, the President of the Society of Public Analysts—who discreetly replied, "No doubt it is to make it a good colour." But this answer was not sufficient for the examiner, who again asked "But is it not a fact that the use of copper in peas allows the substitution of a pea which has gone "off colour" and which competes with a pea that has been preserved by a somewhat better process and which has retained its colour?" To which the witness, perhaps, with less discretion than before, replied, "I think it very probable; but I really do not know!"

"AROMATIC SPIRIT OF AMMONIA" is the title of the paper to be read at the next evening meeting in London, and Mr. Edmund White, now pharmacist to St. Thomas's Hospital, and sometime member of the Board of Examiners for England and Wales, is the pharmacist who has been good enough to promise that paper. The meeting will take place at 8 p.m. on Tuesday, February 13, and this ample notice is given in order that members and student-associates may make arrangements to be present on that occasion. There should be no difficulty in securing a good gathering of the craft to listen to a pharmacist on an official preparation. The President will occupy the chair precisely at the hour named.

IN MR. FLEMMING'S LETTER, which appears at page 77, he takes objection to the inference drawn by "An Ordinary Pharmacist," after perusal of his first communication, that he was attacking the Pharmaceutical Society's examiners. As the same idea has occurred to other readers of the Journal, it is satisfactory to learn from Mr. Flemming that nothing of the kind was intended. It may be suggested, however, that he was a little careless in his method of expression; even now he declines to accept the statement that the Minor is a fair examination. With regard to that point, it may be observed that, before it can be settled satisfactorily, a definition of the word "fair" must be agreed upon. Presumably, the worst that Mr. Flemming means is that the conditions under which the examination is conducted are not absolutely the best. But that is more the fault of the system of training undergone by the candidates than of the conditions which prevail in the examination room. So long as registration under the Pharmacy Acts is based upon the results of examination only, conditions must prevail which may at times appear to press with undue severity upon candidates, and particularly upon those who are ill-prepared.

THE PRESS COMMENTS on the Queen's Bench decision in the Worcester Weed-killer case vary in their tendency, as might be expected. That in the London *Evening Standard* may be selected as the most violently opposed to the action taken by the Pharmaceutical Society, and that in the *Northern Whig* as a fair and reasonable statement of what is requisite in the public interest. The first-named newspaper advises the Society to beware of meddling, a sin which is thought to be "specially attractive for that body"—and describes it as "monstrous" that a "poor man should be brought up to London to defend himself at great expense, when the charge was obviously ill-grounded." But the assertion contained in the concluding words of the quotation remains to be proved. The defendant claimed to have acted simply as an agent; the Pharmaceutical Society

held a contrary opinion, and—the more especially as a very important principle is involved—the decision must rest with her Majesty's judges rather than with the editor of the *Evening Standard*, wise and learned in the law though he may be. In the Belfast organ no attempt is made to prejudice the decision which may ultimately be arrived at, but it is pointed out that "on the bare ground of common sense" there is a good deal to be said for the view that the practice which the Pharmaceutical Society seeks to stop affords a new means of selling poisons without incurring liability. The general principle of "irresponsible agency" involved is stated to appear to suggest an easy way for any unregistered person to distribute any kind of poison without incurring a legal risk, and that, it is suggested, "would surely be to defeat the purpose of the law in regard to the sale of such dangerous commodities."

THE PUBLIC AND POOR LAW DISPENSERS' ASSOCIATION is an amalgamation of two bodies which were originally constituted with similar aims. Its objects, as defined in the printed rules are (a) to protect and further the interests of Public and Poor Law Dispensers, and generally improve their position; (b) to provide basis for consultation and united action in all cases of difficulty arising out of the nature and in the discharge of their duties; (c) to secure adequate remuneration for dispensers, and generally raise their status; (d) to hold meetings, institute lectures and demonstrations, promote discussions, and increase practical and theoretical knowledge of subjects pertaining to the calling; (e) to promote occasional social and pleasant evenings for members and their friends. Those objects are all commendable ones and—if the Association should attain the position of being thoroughly representative of the two classes of dispensers—will probably be accomplished much more satisfactorily than if the individuals constituting the body were to content themselves with doing nothing except look to the Council of the Pharmaceutical Society to help them. Much more than "A Hospital Dispenser" suggests (see p. 78) should be done has been done by the Council in the interests of dispensers in the public services, though the facts have not always been announced with a flourish of trumpets. For the rest, the individuals most directly concerned are advised to keep pegging away, whilst not neglecting to support the organisations which can most effectually assist them—if they continue to help themselves.

PROFESSOR D. E. HUGHES, F.R.S., the distinguished electrician, died on Monday last, aged sixty-nine years. Though his early life was spent in America, he was born in London, and he returned to England in 1857 to advocate the claims of the type-printing telegraph instrument known by his name, now in use throughout the world. He also invented the microphone, the instrument which made the use of the telephone practicable. His induction balance, though less known, has found several interesting applications—in testing the sensitiveness of hearing, discovering the position of bullets in wounded men, and locating ores in the ground. It has been suggested that if Professor Hughes had published at the time the results of investigations conducted by him more than twenty years ago, he would probably now be regarded as the actual inventor of "wireless telegraphy." He noticed the phenomenon of "cohesion," whereby a substance which is normally a poor electrical conductor becomes a good one under the influence of electricity, and he used that property for the detection of electric waves, to which he correctly attributed the effects produced when he succeeded in transmitting signals, without connecting wires, to a distance of more than five hundred yards. He was a Chevalier of the Legion of Honour, was elected a member of the Royal Society in 1880, and awarded a Royal gold medal by that body in 1885. The following year he occupied the position of President of the Institution of Electrical Engineers, and in 1897 he was awarded the Albert Medal of the Society of Arts. Prior to that he was the recipient of numerous foreign decorations.

THE LAW ABOUT GIVING NOTICE has been interpreted by Judge French, at the Bow County Court, in a somewhat unusual way. A Covent Garden salesman sued a former employé for a week's wages in lieu of notice, but Judge French said the meaning of the law about giving notice was that, supposing a man was summarily dismissed by his employer, he was entitled to wages in lieu of notice. If, however, the man found other employment during the period he should have been engaged, he could not expect to be paid by both employers. Again, in the labour market, if a man left his employment without a word, and the employer could easily get another man, there was not the slightest reason why he should sue his workman. The present claim would therefore be dismissed.

CARBOLIC ACID is estimated to have been the cause of death in at least sixty per cent. of the suicides recorded in the State of New York during the past year. With the object of preventing the poison being obtained so readily as at present, the New York State Medical Society has prepared a Bill which proposes that carbolic acid shall not be sold to anyone except when ordered in a physician's prescription. In spite of the drastic nature of the proposal, it is commented upon in a Washington newspaper as though it were not regarded as being at all unreasonable. Curiosity is expressed, however, as to what will be the effect on the statistics respecting suicide if the Bill becomes law and—as though he were dealing with the solution of a conundrum or a picture puzzle—the editor of the paper in question wonders what will be done to stop the next “gap between life and death,” when a new means—which he appears to regard as inevitable—comes to be generally employed by would-be suicides in place of carbolic acid.

ARMY DISPENSERS, the editor of *Truth* remarks this week, have been recruited for service in South Africa at the magnificent pay of four shillings a day, with uniform, and free board and lodging, though the latter are not likely to be such that they can be regarded as inducements to intending recruits. A young chemist has written to *Truth* to complain of the meagreness of the terms offered for skilled labour, but so far as the chemist is concerned, he can, it is pointed out, please himself as to whether he will go or not. What impresses our contemporary far more in the matter is that the labour which is likely to be obtained on such terms may possibly be far from skilled. He concludes: “Our soldiers have surely enough perils to encounter in the field without exposing them to the tender mercies of youths like the chemist's boy in ‘Pickwick,’ who thought that Epsom salts was oxalic acid.”

CARL FRIEDRICH RAMMELSBURG, the eminent mineralogist, who died quite recently at the age of eighty-nine, commenced his career as a student of pharmacy but, before qualifying, took up, by preference, the study of chemistry and mineralogy. In 1840 he was appointed private tutor at the University of Berlin, and eventually Professor in 1874, and in 1883 director of the Chemical Laboratory. He was one of the founders of the German Chemical Society, and was its President from 1870 to 1874. He resigned his professorial position in 1891, and until his death last December lived in retirement at Gross Lichterfelde. Rammelsberg's scientific works related entirely to inorganic chemistry, the analysis and composition of minerals, on which subjects he was a leading authority, having published a large number of important researches, and many systematic works on chemistry, mineralogy, crystallography, and analysis.

THE DEATH IS REPORTED of Jan Willem Gunning, Professor of Chemistry at the University of Amsterdam; also that of the mineralogist, Peter Waage, Professor of Chemistry at the University of Christiania.

ENGLISH NEWS.

INSTITUTE OF CHEMISTRY EXAMINATIONS.—The following are the Pass Lists for January, 1900:—Intermediate Examination: F. W. Aston, Mason Univ. Coll., Birmingham; J. H. Austin, Mason Univ. College, Birmingham; H. J. Bailey, Univ. Coll., Sheffield; H. G. Bayly, King's Coll., London; G. Clarke, jun., Univ. Coll., Nottingham; M. W. Danks, Mason Univ. Coll., Birmingham; R. E. Blake Smith, B.Sc. (Lond.), Univ. Coll., London; Thomas Taylor, Glasgow and West of Scotland Tech. Coll.; John Webster, Mason Univ. Coll., Birmingham; W. E. Woodman, King's Coll., London. A.I.C. Examination (Old Regulations): J. R. Brooke, Pharmaceutical Society's Laboratories and King's Coll., London; M. Priest, Finsbury Tech. Coll.; T. Tickle, Pharmaceutical Society's Laboratories, King's Coll. and Univ. Coll., London. Final A.I.C. Examination:—Branch “A” (Mineral Chemistry: W. A. Fyffe, Univ. Coll., Dundee; L. V. Wright, B.A., Sidney Coll., Cambridge. Branch “B” (Metallurgical Chemistry): H. J. Winch, A.C.G.I., City and Guilds of London Central Institution and Finsbury Tech. Coll. Branch “C” (Physical Chemistry): T. S. Price, B.Sc. (Lond.), Ph.D. (Leipzig), Mason Univ. Coll., Birmingham; and the Universities of Leipzig and Stockholm. Branch “D” (Organic Chemistry): F. G. Edmed, Assoc.R.C.Sc. (Lond.), B.Sc. (Lond.), Royal College of Science, London; L. Eynon, Finsbury Tech. Coll.; H. Hall, Univ. Coll., Nottingham; F. Shedden, B.Sc. (Lond.), Mason Univ. Coll., Birmingham. Branch “E” (the Analysis of Food and Drugs, including an Examination in Therapeutics, Pharmacology, and Microscopy): L. W. Stansell, Maidstone, and W. Thorp, B.Sc. (Lond.), Limerick, both for the Fellowship. The Examiners in Chemistry were Dr. Bernard Dyer, D.Sc. (Lond.), F.I.C., and Professor Percy F. Frankland, F.R.S., F.I.C., and the Examiner in Therapeutics, Pharmacology, and Microscopy was Dr. Thomas Stevenson, M.D., F.R.C.P.

LONDON COLLEGE OF PHARMACY.—The first dinner and distribution of prizes took place in the Venetian Chamber, Holborn Restaurant, on Monday evening, January 22, Mr. T. Skewes-Cox, M.P., J.P., presiding. The guests included about 150 present and former pupils of the Principal. The Chairman, in proposing “The London College,” said it gave him much pleasure to be present and assist in giving his old friend, their host, a good send-off in his new undertaking. He had been over the College, and could testify to the care and completeness with which everything had been thought out and provided that was essential and necessary, not only for the convenience of study, but also for the comfort of the students. He congratulated the students in being connected with such an institution, as he considered that Mr. Wootton was not only a teacher, but also had the capacity of being able to teach. Touching upon the legal position of the chemist, Mr. Skewes-Cox remarked that it did not seem right to him that unqualified men under the guise of limited liability companies should have the handling of poisons, the distribution of such should be in the hands of duly qualified and responsible men. Replying to the toast of “The College,” Mr. H. Wootton stated that both during the present and previous terms, all the benches in the chemical laboratories were occupied, and that the number of students attending the various lectures and classes far exceeded his expectations, and considering that the College was only opened on August 2 last, the fact that thirty-two London College students had passed the pharmaceutical examinations must be considered highly satisfactory. He also remarked that the botanic garden had been much appreciated by the students during the season, and that it had provided flowers and specimens for daily demonstrations in botany. The other toasts were “The Staff” and “The Students.” All the toasts were very heartily received, and much enthusiasm prevailed throughout the evening. The presentation of medals and certificates was made by

the Chairman. Four silver and five bronze medals were awarded, the recipients being Messrs. B. Abelson, A. R. Bateman, A. S. Kent, O. E. Bennett, J. Farquhar, and E. A. Barton. The excellent musical entertainment provided by the host was much appreciated, and a very enjoyable evening was brought to a close by a hearty vote of thanks to the Chairman.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).—A successful social and musical evening was held by this Association, at the Westbourne Restaurant, Craven Terrace, W., on Wednesday, January 24. The chair was taken by the President, Mr. J. F. Harrington, and there was an interesting musical programme, arranged by Mr. Andrews.

UNIVERSITY OF LONDON.—At a meeting of Convocation held at Burlington House on January 15, Mr. E. H. Busk presiding, the report of the Standing Committee, embodying the scheme of election of members of the Senate under the new draft statutes, was presented by Mr. Blake Odgers, Q.C., who, in moving its adoption, referred to the arrangements made for the establishment of the University in its new home at the Imperial Institute. The report was adopted, and a resolution was afterwards carried requesting the Senate's favourable consideration of the recommendations of the Standing Committee with respect to the accommodation at the Imperial Institute. A vote of thanks was unanimously accorded to Mr. Busk for his services during the past eight years as Chairman of Convocation.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY.—There was a good attendance on Thursday evening, January 18, at the Star and Garter, on the occasion of a supper and smoking concert to celebrate the beginning of the latter half of this Society's session. The President, Mr. Prosper H. Marsden, took the chair, and with the assistance of Mr. Percy Jenner and the other officers of the Society kept the proceedings going merrily until midnight. After the supper had been duly disposed of, and the toast of "The Queen" loyally drunk, a long and well-executed series of songs, instrumental pieces, and recitations was rendered by the following gentlemen: Messrs. Sydney Lee, Harrison, Bob Smith, Stevenson, Nicholson, Irving, Sutton, Kempson, Bottomley, and Dr. Gill. In the course of the evening several toasts were proposed, that of "The L.P. Students' Society," by Mr. Edward Davies, F.C.S., "The President," by Mr. Frank Walker, and "The Principal of the Liverpool School of Pharmacy, Mr. Cowley," by Mr. Marsden, all of which toasts were drunk with zeal and acclamation. The proceedings, which had been very jovial and enjoyable throughout, came to a conclusion shortly before midnight with the singing of "God Save the Queen."

PROPOSED PHARMACEUTICAL DRILL CLASS.—A general meeting of the staff and students of the School of Pharmacy was held on Monday, January 15, to discuss Mr. Upsher Smith's proposal to form a drill class. The Dean of the School (Dr. Collie) was in the chair, and there was a large attendance. The Chairman said he considered the proposal a most excellent one, and then called on Mr. Upsher Smith to bring forward his resolution as follows:—"That a committee be formed to make inquiries about forming a drill class, which shall report at an adjourned meeting." Mr. Smith gave a *résumé* of the history of the suggestion, and said that inquiries had shown that nothing had been done with regard to Lord Mount Edgecombe's scheme, and that it would be impossible to become attached to a Volunteer battalion. Mr. Allen then gave an account of his inquiries at the headquarters of the 1st Middlesex V.R.C. Professor Greenish heartily supported the proposal. Mr. Finmore, in a vigorous speech, opposed it and said the proposed class would be useless, and that anyone wishing for exercise could do it better at football than in playing at drilling. Mr. Spurge traversed the last speaker's ideas, and strongly dissented from his views.

Mr. Lawson and others continued the debate, and the resolution was then carried with only one dissentient. A committee consisting of Messrs. Upsher Smith, Gompertz, Chapman, Bignell, Metcalfe, Newton, Heslop, S. Ambrook, Allen and Deane was then formed. A meeting of the committee was afterwards held, with Mr. Upsher Smith in the chair. Messrs. Allen and Deane were appointed joint honorary secretaries. Mr. Chapman suggested that an ambulance class should be held at the same time as the drill class. He also moved the following resolution:—"That the movement to form a drill and ambulance class be for the present restricted to past and present students of the School of Pharmacy of the Pharmaceutical Society of Great Britain," which was carried, the committee considering that it would be too great a task for them to organise such a class for outsiders, but that if anyone would get one up among London pharmacists they would consider joining it. It was then decided that 5.30 p.m. would be the most suitable time for the class, and Wednesday the most suitable day. The secretaries were instructed to make inquiries about ambulance lectures and the cost of obtaining a drill instructor, and whether it would be possible to obtain the use of the Pharmaceutical Society's Examination Room for drilling.

A SCHOOL OF MALTING AND BREWING.—As the project of establishing a School of Pharmacy in connection with Mason University College, Birmingham, has been discussed, it is interesting to note what has been done by the brewers, who have already instituted a School of Malting and Brewing. The brewers of the country contributed £28,000 towards the University funds, on the understanding that some such provision should be made, and the Birmingham and Midland Counties Wholesale Brewers' Association have guaranteed the cost of the erection and equipment of the brewing laboratories as well as the expenses of maintenance for five years. Mr. A. J. Brown, formerly consulting expert to Messrs. W. Salt and Sons, of Burton-on-Trent, has been appointed professor of brewing, and director of the school. It is intended to provide a complete course of scientific and technical training in all subjects connected with brewing and malting. Research works in subjects connected with the fermentation industries will also be encouraged.

THE ANALYSIS OF DRUGS.—At a meeting of the Exeter City Council on Wednesday last, January 24, Mr. C. J. Moor, F.I.C., public analyst of the City of Exeter, presented his annual report on the work done by him during the year under the Food and Drugs Act, in which he stated that 100 samples of food and drugs have been examined in all, of which ninety-two were foods and eight drugs, the latter being *asafetida* one, *tinct. asafetida* two, *cloves* two, and *saffron* three. Three samples were adulterated among the drugs—namely, the gum *asafetida*, which contained a large quantity of mineral matter, and the two tinctures which, being made from adulterated gum *asafetida*, were deficient in extractive matter. He was of opinion that the system of giving public notice of the standards to which foods and drugs should conform might be extended with advantage, and if it was the desire of the Council, he was prepared to draw up a list of such articles of common use in the case of which standards for composition were known. The publication of a circular on this matter would assist traders who desired to be certain that the goods they offered for sale were strictly genuine within the meaning of the Acts. Such a circular might also include extracts from the new Sale of Food and Drugs Act. The British Pharmacopœia, 1898, has greatly extended the tests for the purity of drugs, and he was strongly of opinion that while no diminution should be made in the number of foods examined, it was important that drugs should receive attention. As there were some 400 different foods and drugs which were all more or less liable to adulterations or deficiencies, it would be plain

that while several samples must be taken of the more important articles of everyday use, such as milk, butter, flour, bread, etc., many articles were very rarely or never examined under the Acts, and indeed never would be, unless an increase were made in the total number of samples purchased during the year.

WHOLESALE THEFT OF DRUGS.—At the County of London Sessions on Friday, January 19, John Jones (30), labourer, Henry Parker (27), dealer, Jethro Lardent (36), herbalist, and William Edward Royou (39), foreman, were indicted for conspiring and agreeing together to steal three casks of cod-liver oil and a quantity of iodoform, camphor, and quicksilver, value £27 12s., the property of Messrs. Davy, Hill, and Co., wholesale druggists, Park Street, Southwark (see last volume, pp. 562b, 610a). Jones and Parker were further indicted for stealing the goods, and Lardent and Royou for receiving them. Jones pleaded guilty to the felony, and Royou to receiving. The others pleaded not guilty. —Mr. Muir and Mr. Leycester were for the prosecution, and Mr. Purcell defended Lardent.—The jury found Lardent guilty, and Parker not guilty.—The Chairman said it was evident that Lardent tempted Jones, and used Royou as a tool.—Lardent was sentenced to eleven months' hard labour, Royou to five months' and Jones to six weeks' imprisonment in the second division. Parker was discharged.

MR. CHAMBERLAIN, presiding on January 18 at the annual meeting of the governors of the Mason University College, Birmingham, referred to the development of the teaching equipment, and expressed the hope that before long they would be able to give specialised instruction to qualify students for every large trade in the town. He stated that the charter for the new University was prepared, and about to be laid on the table of both Houses of Parliament, so that about six weeks after the meeting of Parliament the University might become a reality. The subscriptions to the endowment fund amounted altogether to about £225,000, but he was convinced that a much larger sum would be required to meet the necessarily large expenditure on buildings and equipment.

MR. WILLIAM HENRY POWER, F.R.S.—the assistant medical officer and medical inspector for general sanitary purposes of the Local Government Board—has been appointed to the office of medical officer of the Board, in the room of the late Sir Richard Thorne Thorne, K.C.B. Dr. H. Franklin Parsons has been appointed assistant medical officer and medical inspector for general sanitary purposes, and Dr. R. Bruce Low has been appointed an assistant medical officer of the Board.

ROYAL PHOTOGRAPHIC SOCIETY.—On Wednesday, January 31, Mr. J. Craig Annan will provide the first of a series of "One Man" shows, to be held at the Society's house, 66, Russell Square, W.C., by the exhibition of a selection of his work. The exhibition will be opened at 8 p.m., when Mr. Craig Annan will make a few introductory remarks, and it will remain open during the month of February, from 10 to 4. Admission on presentation of card.

SCOTTISH NEWS.

GLASGOW CHEMISTS AND DRUGGISTS' ASSISTANTS AND APPRENTICES' ASSOCIATION.—At the weekly meeting held on Friday, January 19, Dr. DEVON, Surgeon to H.M. Prison, Glasgow, gave an address on "The Habitual Offender," of which the following is an abstract:—In the legal sense an offender is a person who breaks police law, while a felon is one who violates the criminal law of the land. According to "The Habitual Offenders Act," which came into force in 1898, an habitual offender is defined to be a person who is brought before

a magistrate on a similar offence three times in the course of twelve months. That Act was designed to create machinery for dealing with the inveterate offender, on sound punitive and reformatory lines. It provides that any person who has been convicted three times during the same twelve months is to be taken before the Sheriff or County Court Judge, and warned that if he is convicted again, he will be sent, on the expiry of his sentence, to an adult reformatory for three years. This is an excellent provision, but, unfortunately, it cannot be made effective, because the erection and maintenance of the reformatory institutions is merely permissive to municipalities or private charitable enterprises, and as such an undertaking is really too formidable for any public body lower than the State, the Act is practically a dead letter. There may not seem to be much hope of reclaiming habitual offenders, but there are always a few who are amenable to moral influence, and, in any event, prolonged detention, even of incorrigible cases, would be a public sanitary benefit.—In answer to a question from the Chairman, Mr. J. G. Gilmour, Dr. DEVON expressed a qualified approval of the American system of sentences of indefinite duration, but he deprecated the coddling of prisoners, as practised at Elmira. On the motion of Mr. G. C. ADAMS, the meeting awarded Dr. Devon a hearty vote of thanks for his lecture.

SCHOOL OF PHARMACY, GORDON'S COLLEGE, ABERDEEN.—The second annual supper in connection with the above took place on Friday evening, the 19th inst., at the Royal Hotel, Mr. Hugh E. Ellis, the Head Teacher, being in the chair. There was a good attendance of students and their friends. The Aberdeen Pharmaceutical Association was represented by Mr. Simpson (President), Mr. Clark (ex-President), and Mr. Cruickshank (Secretary), who were present as guests. After the usual loyal toasts, Mr. Morris (Demonstrator) very ably proposed that of "The Pharmaceutical Society." Mr. Cruickshank, in reply, spoke of the work done by the Society, and said that if the students present did not think that the Society was doing what was best for their interests, they had the remedy in their own hands, for by passing the "Minor," they could become members, and so have a voice in the administration of its affairs. The toast of "The Aberdeen Pharmaceutical Association" was proposed by the Chairman, who pointed out that it was the oldest body of its kind in the kingdom, and had always done its best for furthering the cause of pharmaceutical education. Mr. Simpson, with whose name the toast was coupled, said that it was not the custom of the Association to publish its doings from the housetops, but he contended that the Association was taking an intelligent interest in all matters concerning pharmacy. Mr. Clark, in proposing what he considered to be the toast of the evening, viz., "The School of Pharmacy," said that the School had already proved to be a great success. In point of equipment and the excellence of its teachers, it was second to none in the kingdom. Mr. Ellis suitably responded. "The Present and Past Students" was proposed by Mr. Cruickshank in fitting terms. Mr. Murray replied on behalf of the past students, and Mr. Anderson, in an extremely humorous speech, replied on behalf of the present students. "The Guests and Visitors" was given by the Chairman, who remarked that he felt sure he echoed the sentiments of all present, when he said that he was very pleased to see them there, and that he hoped they would be there again on many similar occasions. Mr. Simpson, in a few well-chosen words, replied for the guests, Mr. Watt responding for the visitors. Mr. Adam, B.Sc., in proposing "The Teachers," said that he was associated with them on the staff of Gordon's College, and was glad to be able to congratulate them on the results which had attended their efforts. Messrs. Ellis and Morris briefly responded. Songs were rendered during the evening by Messrs. Jones, Anderson, Douglass, Sharp, Ellis, and Morris. A most enjoyable evening was brought to a close by the singing of "Auld Lang Syne."

IRISH NEWS.

STRYCHNINE POISONING AT WATERFORD.—An inquest was held by Coroner Power at Waterford on January 18 in connection with the death of a young lad named John Dunphy, who died recently, shortly after admission into Waterford Infirmary. The report by Dr. Edwin Lapper, F.R.C.P., F.I.C., R.C.S.I., Chemical Laboratory, Royal College of Surgeons, Dublin, on the results of his analysis of the viscera of the deceased, showed that Dr. Lapper had found two-fifths of a grain of strychnine in the stomach. The total amount of strychnine obtained from the viscera was between half and three-quarters of a grain. Dr. Kelleher deposed that when deceased was admitted to the Infirmary the boy was in great agony and distress. He died half an hour after admission. His opinion was that the boy died from strychnine poisoning. After the Coroner summed up, the jury returned a verdict that the deceased died from strychnine poisoning.

CHEMISTS' ASSISTANTS' UNION.

A general meeting was held at the Horse Shoe Hotel on January 23, when Mr. E. WHINERAY took the chair, and in a few words reviewed

THE WORK OF THE UNION

since its commencement, remarking that many young men from the country had found situations in London by means of the Union; also that there was a small balance to the credit of the Union. He impressed on those present the necessity of direct representation on the Pharmaceutical Council, and trusted they would do all in their power to get one of their number elected.

Mr. C. E. PICKERING spoke at some length on the desirability of charging a small registration fee for assistants requiring situations. He asked the members of the C.A.U. to assist as much as possible in the work, and not leave it all in the hands of the Council. He also referred to the long hours assistants have to work, and suggested that steps should be taken to shorten them.

Mr. GREATREX (Liverpool) drew attention to the apathy of some of the local secretaries of the C.A.U., who had never held a meeting or even a smoking concert to call assistants together. He felt sure numbers of young men would join the Union if the right man were found in each large centre to act as local secretary.

Mr. ANDERSON (Dublin) said this was the first meeting of the C.A.U. he had attended, but assured them that in future, as an active member, he would do his share.

Mr. R. E. WRIGHT, in the course of a few remarks, said that it was the duty of everyone to protect the interests of his craft, and flagrant infringements of the Pharmacy Act should therefore be reported to the Registrar of the Pharmaceutical Society at once. Whilst defending the members of the C.A.U. against the charge of apathy, he was well aware that it was the apathy complained of that had, in the past, allowed seven unqualified individuals to usurp the title and conduct the business of a chemist.

Mr. GLYN-JONES, who was received with applause, said that he considered the fee suggested by Mr. Pickering too small to cover initial expenses, and if the chemist's assistant of to-day could not rise to 5s. a year, it was as well to leave him out. He suggested that

A REGISTER OF ASSISTANTS

be kept at the office of the C.A.U. with copies of testimonials attached to each name, so that employers could see at a glance whether a man was suitable or not, and if in a hurry could engage by wire. He refused to be drawn on the subject of company pharmacy at such a late hour, but assured those present that the Pharmacy Act of 1868, with a very slight amendment, was all that was required to put an end to company pharmacy, and it rested

with the members of the Society to elect on their Council men calculated to carry the work through. He wished the Union every success, and hoped to see the scheme of registration at work soon.

CHEMICAL SOCIETY.

At a meeting held on Thursday, January 18, the PRESIDENT, Professor Thorpe, LL.D., F.R.S., in the chair, a paper by Messrs. Julius Stieglitz and E. E. Slosson, on

NITROGEN HALOGEN COMPOUNDS,

was read by the Secretary. The authors point out that in a recent paper on the same subject Messrs. Chattaway and Orton overlooked work done by them in Chicago on somewhat similar lines.

Dr. CHATTAWAY then rose and remarked that the two investigations had not much in common. Whilst he and his colleague had tried to explain the mechanism of certain reactions, the American workers seem to have approached the subject with a different object in view. He regretted, however, that reference had not been made to the paper.

There was a small attendance of Fellows, and for a few minutes the proceedings were at a standstill, pending the arrival of others who were to bring forward communications.

Dr. SCOTT read a paper by E. C. Szaroasy, Ph.D., on the ELECTROLYSIS OF NITROGEN HYDRIDES AND OF HYDROXYLAMINE.

The investigation was taken up in order to determine the conditions under which ammonia, hydrazine, and certain other bodies may be electrolysed, giving nitrogen and hydrogen at the two electrodes in the same proportion as they are present in the molecule.

Experiments were tried on the free bases and on the salts. Twenty per cent. ammonia was used, also 10 per cent. with the addition of 20 per cent. of common salt. In the case of hydrazine the three strengths employed were 50, 25, and 12 per cent. In each case the nitrogen and hydrogen given off were in the proportion of 1:2. The salts of hydrazine showed the same agreement with the currents that were tried. Full particulars of the experiments were given in the paper. An attempt has been made to get a condensed form of nitrogen, but so far without success.

In the discussion that followed the paper Professor RAMSAY said that he too had attempted to get a condensed form of nitrogen of the formula N_6 . To a solution of silver hydrazoid in ether or chloroform he added iodine in solution in sufficient quantity to combine with most of the silver. The precipitate of silver iodide was separated by filtration, and the solution was expected to contain N_6 . He was, however, unable to experimentally demonstrate its presence, though there are good reasons for believing that the substance may exist. He tried distillation, concentration, and finally titration with silver nitrate, but at length gave up the quest. It is probable that N_6 does exist, but at present the means of ascertaining its existence by experiment are wanting.

Then followed a long paper by J. T. HEWITT, M.A., D.Sc., dealing with

THE RELATIONSHIP BETWEEN THE CONSTITUTION OF SOME SUBSTANCES AND THE FLUORESCENCE WHICH THEY EXHIBIT.

Attempts have been made in the past to connect the colour of compounds with their constitution, but little has been done to ascertain how far fluorescence and constitution are interdependent. There is a marked difference between coloured and fluorescent bodies. In the case of fluorescent bodies the molecules absorb radiant energy of one wave length and emit that of a different wave length. As a consequence, fluorescence might be expected in the case of a substance having molecules of different forms. Again, unstable compounds that are constantly breaking up into simple compounds might be expected to exhibit this property.

Where a substance exists in tautomeric forms—*i.e.*, the molecules constituted in two different ways—a molecule at the moment of

passing from one form to another may absorb energy of one wave-length, while the body into which it passes may absorb energy of a different wave-length. Thus energy would be absorbed of one wave-length and energy of a different wave-length given out. As a matter of fact, such tautomeric bodies often give fluorescent solutions. At the same time, some tautomeric bodies are not fluorescent, while many fluorescent bodies are not tautomeric.

The CHAIRMAN congratulated the author on his speculations, but thought that his hypothesis scarcely covered the field. He admitted that there might be a relation between fluorescence and change in molecular condition.

Professor RAMSAY mentioned that some years ago a medical student of his in Glasgow was colour-blind, but was able to detect a fluorescence in acid solution of quinine sulphate by artificial light. He humorously proposed to the author to submit to his former student—who is now in practice—some of the bodies in which the author himself was unable to detect fluorescence.

Professor CLOWES recalled the fact that, as shown by Professor Dewar, cellulose, paper, and wood are strongly fluorescent in liquid air.

In reply, Dr. HEWITT declined to be drawn on the subject of a substance like cellulose, whose constitution is so ill-defined. He had confined his investigations to substances of well-known constitution.

The papers that were taken as read included:—"The Action of Fuming Nitric Acid on α -dibromocamphor," by A. Lapworth and E. M. Chapman; "A Note on Volhard's Method for the Assay of Silver Bullion," by T. K. Rose, D.Sc.; and "*c*-Substituted Hydroxytriazoles," by Geo. Young, Ph.D.

ROYAL INSTITUTION.

A lecture was given on Friday, January 19, by Lord RAYLEIGH, M.A., F.R.S., on

FLIGHT.

The problem of aerial flight has long furnished material for speculation to the layman and the philosopher. The natural flight of birds has been imitated with more or less success by the inventive genius of Langley of Washington, Hiram Maxim, and others. The flying of kites is a natural introduction to the subject of aerial navigation, and here it may be mentioned that the best kites have no tail. In flying a kite its surface should be convex to the wind in order to gain a maximum of stability. Kites have frequently been put to scientific use. Thus, Archibald used them for meteorological purposes by fastening thermometers to them, Faraday made electrical researches by this means, Marvin and Roche also sent up self-recording meteorological instruments, while Baden Powell—of Mafeking fame—has utilised them for the purpose of lifting a man above the ground in scouting. In the case of kites, as with aerial machines, we have to deal with the problem of the aeroplane, *i.e.*, the incidence of wind on an inclined surface. But the kite differs in being anchored to the ground.

Observations have been made and recorded on the soaring of sailing flight of birds, by which is meant the flight of a bird which to all appearances makes no effort, and does not flap its wings. This phenomenon is explained by the fact that a bird in such a position has taken advantage of air currents. In the first place, the wind is not moving uniformly and horizontally; a bird could no more maintain itself in such a wind without flapping its wings than in air at rest. Again, the question of relative velocity comes in. The bird gains relative velocity by passing from a lower to an upper stratum. The albatross is believed to make its way by so taking advantage of air currents. According to Langley the gustiness of the wind materially assists birds to so turn the internal work of the wind to their own account. It can be shown that there is suction at work as well as pressure underneath the bird's wings.

The question has been raised, can a man raise his own weight

by turning a screw by his own muscular effort? When a body is freely suspended in air, it is necessary for something to fall; either the body must drop, or air must fall in place of it. Now, it is found that by means of a screw a man cannot send down enough air to maintain himself in air. His weight is against him. Supposing that a man could do ten times as much as an ordinary man can perform, the size of the wings that he would require to effect the downward pressure of air would be altogether out of proportion to his own size. A bird does not use a screw, or a revolving mechanism, but Langley and Hiram Maxim have succeeded in attaining a certain measure of success by means of a revolving apparatus. It is difficult to see how alighting from a flying machine is to be rendered a perfectly safe process, because gusts of wind are so often found near the ground, and frequently cause birds to lose their balance. As Mr. Maxim once remarked, the first use for flying machines will be in war, and war itself has not yet been made safe.

CHEMISTS' ASSISTANTS' ASSOCIATION.

On Thursday, January 18, a meeting of this Association was held at 73, Newman Street, W., the President, Mr. F. W. GAMBLE, in the chair. There was a fair attendance. Two new members were proposed, and the President then called upon Mr. W. S. GLYN-JONES, to read a paper, entitled:—

THE CHEMIST AND SOME OF THE LAWS THAT PARTICULARLY AFFECT HIM,

which is printed at page 70 *et seq.*

The PRESIDENT, at the conclusion of the paper, expressed the pleasure with which those present had listened to what was practically an exhaustive *résumé* of the laws affecting pharmacists. As Mr. Glyn-Jones had said, it would be impossible in the course of a single paper to deal with them in detail, but he thought the author had touched upon all the most important points. Pharmacists seemed to be beset by so many Acts that it was a wonder they kept out of the clutches of the law as they did. It was not that no offences were committed, but because in many cases the laws were not enforced. With regard to Mr. Glyn-Jones' remarks concerning the qualifying examination, he must join issue with him when he said that no candidate should be examined by anyone holding a higher qualification than a pharmaceutical chemist. He thought that in such subjects as scientific botany and chemistry, it was better to have as examiners men who were specialists in those subjects. He had expected Mr. Glyn-Jones to speak on the new phase of the law which involved the defeat of the Pharmaceutical Society that week in the High Court of Justice. There seemed to be a loop-hole in that a person could employ an agent to sell scheduled poisons provided he sent on the order to a wholesale house for delivery. He thought their best thanks were due to Mr. Glyn-Jones for the arduous labour involved in compiling a paper such as he had read that night.

Mr. C. J. STROTHER, speaking with regard to the decision in the High Court of Justice, said that whatever it might be legally, logically he thought the decision was as it should be. The case was somewhat similar to the representative of a wholesale house, and it would be hard if the representative was to be summoned instead of the house he represented.

Mr. PETER MACÉWAN, who rose after a prolonged pause, said he thought the silence was an indication that a paper such as had been read that night was very much wanted. It was a subject with which they ought to be well acquainted. He could quite understand Mr. Glyn-Jones' silence about the case decided in the High Court. With regard to Mr. Strother's objection that the defendants were simply acting as agents, it was for the Society to contend that selling poisons, although not kept on the premises, was an infringement of the Pharmacy Act. But if the Higher Courts upheld the decision, it would afford very good

grounds upon which qualified persons could claim further protection (*sic*). He thought that the subject of the laws affecting the chemist should be more carefully studied, and that it should be one of the subjects taken at the schools of pharmacy. He, however, had no doubt that a few shillings would purchase all the Acts referred to by Mr. Glyn-Jones for chemists' own perusal. He knew from personal observation that chemists break the law almost every day through ignorance of the Acts affecting them. He admired Mr. Glyn-Jones' courage in speaking of the two Acts dealing with sexual matters. Mr. Justice Darling's remarks in the Madame Frain case were a splendid commentary on that subject, and should be studied by chemists. (See last volume, p. 534*c*.) He believed they very frequently committed offences unwittingly against those Acts. He was inclined to agree with Mr. Glyn-Jones' suggestion as to the founding of a chair of Pharmaceutical Jurisprudence, but wondered who would be the first professor. Mr. MACEWAN then expressed his pleasure at the formation of the Chemists' Defence Association, and hoped that it would be for chemists what the Grocers' Federation has been for the grocers.

Mr. T. MORLEY TAYLOR said amongst the many interesting points brought out by Mr. Glyn-Jones in his paper, the most interesting matter from his point of view was the reference to the old Apothecaries Act. It was interesting to note the power invested in the Apothecaries' Society with respect to drugs, and to compare it with the power delegated to the Pharmaceutical Society in the 15th section of the Pharmacy Act, 1868. That part of the section, however, he believed to be practically a dead letter. With regard to the term "apothecary," he thought an apothecary must be a L.S.A., and no one else. It seemed to him that the medical profession was dependent upon the Apothecaries' Society for its protection, and in that connection it was curious to know that the British public is only safeguarded as regards medical dispensing by going to the man that holds the lowest qualification.

Mr. GLYN-JONES having replied to the various points raised, a hearty vote of thanks was accorded to him on the motion of the PRESIDENT.

The meeting then adjourned.

SOCIETY OF PUBLIC ANALYSTS.

The annual dinner was held on January 24 at the Criterion Restaurant, London. Mr. W. W. Fisher, President of the Society, occupied the chair, and among those present were Mr. R. T. Prowse, Secretary of Her Majesty's Customs; Dr. T. E. Thorpe, President of the Chemical Society; Dr. Thomas Stevenson, President of the Institute of Chemistry; Mr. F. M. Mercer, Master of the Wheelwrights' Company; Mr. William Martindale, President of the Pharmaceutical Society; Dr. Stocker, Master of the Society of Apothecaries; Professor F. Clowes, Dr. H. E. Armstrong, Dr. F. D. Chattaway, and Dr. B. Dyer. Mr. Otto Hehner proposed the toast of "The Institute of Chemistry," which was acknowledged by Dr. Thomas Stevenson, President of the Institute, who said that the Institute had been in existence for a quarter of a century, and had fulfilled a very useful function. The Institute, by its examinations, maintained a very high standard of professional knowledge.—Professor H. E. Armstrong proposed "Kindred Societies," and Professor T. E. Thorpe, in reply, referred to the aid given to chemistry by the Royal Society, and pointed out that the Chemical Society had done an enormous amount of good in raising the general status of chemical manufacturers in this country.—Professor Clowes proposed "The Society of Public Analysts," and the President, in the course of his reply, said that the Society was now in a healthy and flourishing condition. During the past ten years it had largely increased its membership and had doubled the responsibility of the work which its members had to undertake. During 1898 fifty thousand samples of food and drugs had been submitted to the public analysts for their verdict, and of that number less than 10 per cent. had been reported as adulterated.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

'PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION FOR 1899.' (American Pharmaceutical Association, Baltimore, and co. Pp. 148. Price 3s. 6d. 1899.)—Originally published to the pharmacist's library includes the papers read at the forty-seventh annual meeting of the Association, held at Put-in-Bay, O., during September last, and a full account of the proceedings on that occasion. But the most important feature of the volume is the annual report on the progress of pharmacy; that, with the exhaustive index, covers nearly four hundred and forty pages, and constitutes the best summary in the English language of the year's work in pharmacy and the allied sciences.

'LESSONS ON PRESCRIPTIONS AND THE ART OF PRESCRIBING.' By W. Handsel Griffiths, Ph.D., L.R.C.P.E. (London: Macmillan and Co. Pp. 148. Price 3s. 6d. 1899.)—Originally published, twenty-five years ago, with the object of teaching the art of writing prescriptions, this little book has passed through numerous editions, the latest of which has been adapted to the British Pharmacopœia of 1898. The first eight lessons deal with (1) the grammatical construction of a prescription, (2) parts of a prescription, (3) signs and symbols, (4) the words and phrases most frequently employed, with their abbreviations and contractions, (5) the principles of medicinal combination, (6) incompatibility, (7) posology, and (8) varieties of magistral formulæ. It is instructive to note that, at the beginning of the eighth lesson, readers are told there are no better models in the construction of extemporaneous formulæ than the official preparations; they are further assured that a careful study of the principles which have guided the compilers of the British Pharmacopœia cannot fail to render them the greatest assistance. The remaining lessons, which occupy the greater part of the book, are devoted to examples and exercises, the different remedies being classified and the classes arranged in alphabetical order. There is no index, unfortunately, but in all other respects the book continues to be well adapted to its purpose.

'AIDS TO MATERIA MEDICA, PART III.' By William Murrell, M.D., F.R.C.P. (London: Baillière, Tindall and Cox. Pp. 94. Price 2s. 6d. 1900.)—In this, the concluding part of Dr. Murrell's work, attention is directed to synthetic products used in medicine, drugs of animal origin, and glandular and serum therapeutics. With so wide a field to cover, the monographs are necessarily very brief, but they are sufficiently comprehensive for all practical purposes. Though more suited for medical than pharmaceutical students, the latter will find the book useful for reference, particularly when its handy size is taken into consideration.

'AN INTRODUCTION TO ANALYTICAL CHEMISTRY.' By G. G. Henderson, D.Sc., M.A., F.I.C., and M. A. Parker, B.Sc. (London: Blackie and Son. Pp. 228. Price 5s. 1899.)—The authors of this latest addition to the seemingly endless list of introductions to analytical chemistry do not claim that it fills a long-felt want, neither do they apologise in the most remote degree for its appearance. But the fact that it is almost devoid of tables impresses one favourably, and the statement in the preface—that the book has been written for the use of students working under the direction of a demonstrator—effectually abolishes any notion that it is intended to show private students, working with the proverbial test-tubes on a tea-tray, how to become public analysts in twelve months or less. In the laboratory, which is under the control of Professor Henderson—that of the Glasgow and West of Scotland Technical College—the students, before beginning qualitative analysis, work through a course of exercises in practical chemistry illustrative of chemical theory, including "the preparation of the common gases, the determination of the density and of the qualitative composition of gases, the determination of the equivalents, specific heats, and

valencies of a number of the elements, and other experiments." They are then, presumably, set to work on the lines laid down in the text-book under consideration. At the beginning of the volume there are exercises on dry reactions, on common mineral acids and caustic bases, on carbonates, and on the properties and applications of sulphuretted hydrogen. Then, follow analytical classifications of the metals and acid radicals, explanatory remarks on the separations, a general scheme for the analysis of inorganic substances, notes on the ultimate analysis of organic compounds, determination of melting points, etc., etc. Some errors in equations have been overlooked in reading the proofs, but generally the information is clearly conveyed and well arranged for school purposes.

'REVUE DES MEDICAMENTS NOUVEAUX ET DE QUELQUES MEDICATIONS NOUVELLES.' Par C. Crinon. (Paris: Rueff et Cie., 106, Boulevard Saint-Germain. Pp. 424. Price 4 francs. 1900.)—The seventh edition of this book includes particulars concerning aspirine, dionine, dormiol, nirvanine, tannocol, urosine, and other new remedies. The monographs on formol, tuberculin and other substances have been revised and brought up to date. The brief descriptions of the origin of the medicaments are followed, in each case, by notes on their properties, therapeutics, posology, etc.

'PHILADELPHIA HOSPITAL FORMULARY.' (Philadelphia, U.S.A.: Department of Charities and Corrections, Bureau of Charities. Pp. 42.)—The authorities of the Philadelphia Hospital have been well-advised to adopt the term "Formulary" in place of the more ambitious "Pharmacopœia" in the title of the fourth edition of this work. The preparations for which formulæ are given number one hundred and eight, and the quantities are given in terms of the metric system, side by side with those of the apothecaries' weights and measures. The text of the formulæ, again, is expressed in a new system of English abbreviations, and not in the older mixture of neither Latin nor English. The Latin symbols used in prescription-writing to express weights and volumes have also been replaced by abbreviations of English terms. Both changes represent progress in the right direction—that of simplicity.

'EFFECTS OF BORAX AND BORACIC ACID ON THE HUMAN SYSTEM,' by Dr. Oscar Liebreich. (London: J. and A. Churchill. Pp. 44. Price 2s. 1899.)—This is a translation from the German of a most important contribution to the subject of which it treats. The author shows how borax and boric acid were at one time considered drastic remedies, and how the prejudice against their use has since been confuted, no idiosyncrasy having ever been specially noticeable in cases treated with them. Boric acid causes no change in the blood, acts as a preservative on fresh material only, and is non-poisonous, proving innocuous even after prolonged use. Borax has a more powerful action, though much milder than that of soda or saltpetre; moreover, it is easily excreted from the system, no accumulation taking place. Taking all the facts into consideration, it would appear that neither borax nor boric acid is injurious to the human system (see *P.J.*, ante, p. 32). In appendixes to Professor Liebreich's monograph, the results are given of feeding experiments with boric acid, borax, sodium bicarbonate, saltpetre, etc., on dogs, rabbits, and guinea-pigs. The influence of the same substances on the salival ferment, pepsin, pancreatin, and emulsin, is also shown in a series of tables, whilst the letterpress is illustrated by coloured plates.

Obituary.

BUNKER.—On January 19, James Bunker, Chemist and Druggist, Da'ston. Aged 65.

GIBBS.—On January 14, Joseph Gibbs, Chemist and Druggist, Eastbourne. Aged 75.

HOBSON.—On January 12, Charles Hobson, Chemist and Druggist, Beverley. Aged 77.

THE STUDENTS' COLUMNS.

Percentage Solutions in Prescriptions.

The following prescriptions, concerning which a question has been submitted by a correspondent, who asks how they should have been dispensed, afford a suitable opportunity for explaining the source of a difficulty which is not unfrequently experienced:—

- (1) Make ℥i. of a 3·5 per cent. solution of menthol in paraffinum liquidum.
- (2) Make ℥i. of a 5·0 per cent. solution of menthol in almond oil.

One view taken in reference to the first prescription assumed that 3·5 per cent. equals 3·5 grains in 110 minims, and that the solution should be made accordingly; the other view assumed that 5·0 per cent. equals 5 grains in 110 minims, but the dispenser who took that view was informed that he was decidedly wrong.

The prescriptions illustrate the unsatisfactory nature of the weights and measures used in British pharmacy. The pharmacist is often called upon to decide between what is actually written in a prescription and what he knows from experience is really intended by the writer. Thus to interpret exactly the two prescriptions sent it is necessary to remember that the sign ℥ really stands for the apothecary ounce weight of 480 grains. Then a percentage solution should be a solution containing the number of parts indicated, in one hundred similar parts; *i.e.*, the parts being of the same denomination for the dissolved substance, and the solvent. On this basis prescription (1) should have contained 16·8 grains of menthol and 463·2 grains of liquid paraffin, and prescription (2) 24 grains of menthol and 456 grains of almond oil. The preparations would be most accurately made by placing the menthol in a tared bottle, and then adding the oil until the contents weighed 480 grains in each case. The solutions would then contain respectively 3·5 and 5 grains of menthol in each 100 grains, *i.e.*, they would be truly 3·5 and 5 per cent. solutions.

There are, however, two or three considerations which render it improbable that this strictly accurate interpretation would represent the intentions of the prescriber. First, in applying the terms ounce and drachm to various substances the conventional rule is adopted of taking solids by weights, and liquids by measures, unless, in the case of liquids, the reverse is expressly indicated. For this reason ℥i. of a solution of menthol in oil is probably intended to represent, not 480 grains, but one fluid ounce; *i.e.*, the volume of one ounce avoirdupois (437·5 grains) of water. Secondly, liquid medicines are compounded and administered almost universally in this country by measure, so that the percentage solution is often intended to be one containing parts by weight in corresponding parts by measure; *i.e.*, ounces of solid in fluid ounces of the solution, or grains in fluid grains. Finally, the use of the minim, in measuring and compounding small quantities of fluids, has led to a supposition that a percentage solution is one containing so many grains in 100 minims, and while the minim exists as the unit of volume for prescribers, a solution of this character, *i.e.*, grains in 100 minims, offers certain obvious advantages from a practical point of view, although doubly wrong from a mathematical and physical standpoint.

To give a specific example, consider the three following cases:—

- (a) Solution of strychnine containing 1 grain in 100 minims.
- (b) " " " " 1 grain in 100 fl. grains.
- (c) " " " " 1 grain in 100 grains (by weight).

If a prescriber wishes to order, say $\frac{1}{50}$, $\frac{1}{25}$, $\frac{1}{10}$, or $\frac{1}{5}$ grain of strychnine he would have merely to write 2, 4, 5, 10, or 12½ minims of solution, and the exact fractional parts of a grain of strychnine are administered if solution (a) be dispensed. With solution (b) the prescriber would have to order to 2, 4, 5, 10 or 12½ fluid grains in order to attain the same accuracy of dosage. But since the fluid grain is practically unused and no measure glasses would be found in the pharmacy graduated in that denomination, the

prescriber would be compelled to write 2·2, 4·4, 5·5, 11, or 14·1 minims, or, in order to avoid fractions, accept the approximately equivalent quantity of strychnine represented by 2, 4, 5, 11 and 14 minims of solution. With solution (c) accuracy could only be obtained by ordering grains by weight of solution, for in this case the density of the solution would differ from that of water owing to the influence exerted by the dissolved substance on the specific gravity of the solvent. In this country, however, prescribing and dispensing of fluids are always carried out by measure and not by weight, and hence this form of solution is seldom employed. While this confusion exists concerning weights and measures, or in other words, while the existing weights and measures (with various conventional ideas attached) are employed in medicine, it will sometimes happen that prescriptions are of an ambiguous character so far as their exact dispensing is concerned.

Since the variation involved by the alternative interpretations indicated above is usually not more than 10 per cent. from the actual quantity which may be intended, and since the ordinary doses of drugs permit this variation to occur without any obvious difference to the patient, the question of pharmaceutical weights and measures does not receive the attention which it deserves from an academic point of view. With regard to the opinions expressed it may be said that both were correct; the first because it probably interpreted the intentions of the prescriber (3·5 parts of menthol in 100 fluid parts of solution), and the second because it indicated the desire for an exact rendering of the prescription as written (*i.e.*, a true percentage solution). All one can do, as a practical pharmacist, is to be quite familiar with the various views that are held, and to use the judgment which a competent dispenser is supposed to possess, to decide specific difficulties that may occur.

ANSWERS TO QUERIES.

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

Botanical (G. W. B.—38/7).—It is *Petasites fragrans*.

Preliminary Examination (E. B.—17/49).—You will find the particulars in the Students' Number of the *P.J.*, published September 9, 1899.

Writing on Parchment (A. H. H.—38/6).—The parchment must be prepared by sprinkling it with pounce—precipitated chalk, or very finely powdered sandarac, pumice stone, or cuttle-fish bone.

Botanical (F. G.—38/13).—(1) *Tremella mesenterica*; (2) *Stereum purpureum*; (3) *Mniium ligulatum*; (4) *Lecidia canescens*, in the sorediate state; (5) *Physcia parietina*; (6) *Lecidea canescens*.

German Book (E. A. G.—38/10).—Messrs. Dulau and Co., Soho Square, W., or Messrs. Williams and Norgate, Henrietta Street, Covent Garden, W.C., can probably supply you with the particulars you require.

Mineral (W. H. M.—38/12).—It looks like lapis lazuli, but we are unable to say with certainty, nor can we suggest the probable source of the mineral. Apply to some dealer in geological and mineralogical specimens, or to some local geologist.

Dionine (G. M. C.—38/4).—It is the hydrochloride of morphine mono-ethyl-ester, a white, bitter, crystalline powder, said to be of especial service in quieting cough. One-sixth to one-fourth of a grain is administered every four or five hours, or a single dose of half a grain at bedtime.

Analytical (H. E. E.—37/32).—Please read the special notice at the head of this column. (1) It is only necessary to cut the filter paper so that it can be inserted in the tube readily. (2) Bell's 'Analysis and Adulteration of Foods,' in two volumes, published by Chapman and Hall, London, at 2s. 6d. each.

Limited Companies (W. B. W.—18/15).—The fact is as stated by "An Ordinary Pharmacist." There is no obligation on the part of limited companies to employ registered chemists as managers or assistants; the risk is incurred by unqualified persons who actually sell the poisons, not by the companies.

Paper on Atomic Theory (A. J. F.—38/9).—Williamson's Paper on the Atomic Theory appeared in the *Journal of the Chemical Society* for September, 1869. We do not think you can purchase a copy; but perhaps you can see it in a public library. If not, we would suggest that you should address the Librarian of the Chemical Society, Burlington House, London, W.

Book on Pharmacy (B. L. B.—38/5).—The best work on pharmacy for general use is Squire's 'Companion to the British Pharmacopœia.' A much larger and more comprehensive work of reference, of which every British pharmacist would do well to secure a copy, is 'The Dispensatory of the United States of America,' published by the J. P. Lippincott Company, 36, Southampton Street, Covent Garden, W.C., at thirty-six shillings.

Cacodylic Acid and Cacodylates (D. O. D.—38/8).—The acid can be prepared by distilling potassium acetate with an equal weight of arsenious acid and treating the resulting cacodyl oxide and cacodyl with mercuric oxide, in the presence of water. You should be able to convert the acid into sodium cacodylate by dissolving it in water, neutralising with sodium carbonate, and evaporating the solution to dryness. We do not know of any book giving the information you ask for, but Crinon's 'Revue des Médicaments Nouveaux' for 1900 (Paris: Reuff et Cie. Price 4 francs) gives particulars regarding the pharmacy and therapeutics of the compounds.

Addresses of Examinees (W. B.—18/8).—The lists are printed as supplied to us by the Registrar. You will see that, even in the case of the First Examination, addresses are not given, but merely the names of towns. We understand that the addresses given by candidates when they come up for examination are for the purposes of the Registrar only, and not for publication; moreover they are usually of a temporary nature only, and communications sent to those addresses after the examinations are over would, probably, not reach the persons for whom they were intended.

CORRECTION.

Pharmaceutical Society.—In connection with the donations to the Library and Museum reported last week, at page 51, the specimens presented by Messrs. Evans, Lescher, and Webb, and Mr. M. F. Moir, credited to the museum in Edinburgh, should have been credited to the museum in London.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

ALKALIMETRY OF AMINES. A. Astruc points out that the amines of the fatty series, such as methylamine, ethylamine, and propylamine react monobasically both with phenolphthalein and with helianthin; while the primary aromatic amines such as aniline, the toluidines, and the naphthyl-amines, are neutral towards phenolphthalein, but are monobasic to methyl-orange. These facts agree with the thermo-chemical results, the fatty amines acting as powerful bases, while in those of the aromatic series the basicity is diminished. This diminution is produced by the substitution of an atom of H in the NH₂ molecule by a hydroxyl group. On the other hand, the substitution of two fatty radicles for two of ammoniacal hydrogen, as in dimethyl-aniline, does not affect the basicity. When the ammoniacal nitrogen forms part of the aromatic nucleus, as in pyridine and quinoline, the basicity is lessened. Helianthin therefore serves to indicate a marked acid action with a corresponding weak basicity, while phenolphthalein on the contrary will indicate a weak acidity with a strong basic reaction.—*Comp. rend.*, **129**, 1021.

MANNOCELLULOSE IN GYMNASPERMS. Gymnosperms differ from Angiosperms in the chemical constitution of their tissues, as well as in their morphological features. G. Bertrand finds that mannocellulose is present in the wood of all the Cycadaceous and Coniferous plants examined by him; but it is noteworthy that of three Gnetaceous plants examined, *Ephedra distachya* gave only a relatively small amount, while *Gnetum thoa* and *Wetwitschia mirabilis* contained none. It would appear, therefore, that the Gnetaceæ are not true Gymnosperms, but constitute a connecting link between that group and the Angiosperms. The amount of mannocellulose present in the other conifers is so considerable as to suggest the wood of these plants as a favourable source of mannose. Thus, on hydrolysis of the mannocellulose with 5 per cent. HCl solution, the outer wood of the yew gave 10 per cent. of mannose, the branches of *Abies pectinata* 8.4 per cent., and the stems of *Cupressus torulosa* 3.4 per cent. The wood of all the gymnosperms examined gave but little xylane when treated with caustic soda, after removing the portions soluble in alcohol and in water. This body would appear to be peculiar in the wood of Angiosperms.—*Comp. rend.*, **129**, 1025.

OIL EXTRACTION FLASK. F. A. Anderson describes a special extraction flask, devised by him with the object of overcoming the difficulty experienced in endeavouring to weigh accurately the comparatively large flasks generally used in oil extractions. An ordinary flask of about 150 C.c. capacity is provided with a short side tube, fused on slightly above the middle of the globular part. A weighing flask of about 15 C.c. capacity is ground on to the side tube like the cap of a glass spirit lamp, so that the side tube projects a little way into the weighing flask when the latter is in position. In use, the small flask is cleaned, heated in a water-oven, cooled, and weighed; it is then placed in position and the large flask connected to an extractor, as usual. At the close of the extraction the solvent is evaporated off until only enough remains to hold the oil in solution; the large flask is then disconnected from the extractor and slowly tilted until the residue runs into the little flask. If the latter be then warmed, the large flask may be rinsed out by the condensed vapour of the solvent. When the oil has been completely transferred the weighing flask is disconnected, heated in the water-oven, and weighed.—*Chem. News*, **81**, 45.

VOL. 64. (FOURTH SERIES, VOL. 10.) No. 1544.

ORIGIN OF THE BASIDIOMYCETES.

G. Masee has read a paper, before the Linnean Society, on the origin of the Basidiomycetes. He remarked that Juel, a Danish mycologist, had recently demonstrated that *Stilbum vulgare*, hitherto regarded as a typical Hyphomycete, is a true Protobasidiomycete. Following up that hint, the majority of the species of *Stilbum*, some of which are the known conidial phase of species of *Sphaerostilbe*, and others existing without any known higher form, were examined, with the result that the conidial condition of *Sphaerostilbe microspora* and *S. gracilipes* proved to be identical in structure with *Stilbum vulgare*, in other words, true Protobasidiomycetes. This discovery reveals the fact that the conidial condition of an ascigerous fungus may be a true Protobasidiomycete. Similar discoveries have been made with forms of *Tubercularia* and *Isaria* known to be the conidial stages of ascigerous fungi.

MEXICAN DRUGS.

Among the Mexican drugs recently described by Duyk, are "Simonillo," a Composite (*Conga flaginoides*, D.C., and *C. parvifolia*, D.C.), which was known to ancient Mexicans by the name "Zaca-chichic" and "Zacate-chichic" and was used as a cholagogue and antidyspeptic. It gives a very bitter decoction, which froths when shaken. The bitter taste is due to a glucoside, lennesin, isolated by Altamirano. The drug is said to be useful in the treatment of catarrh, and is prescribed as an infusion 1:40. "Tolocopetale" is a poisonous plant belonging to the genus *Coriaria*; it contains coriarin and coriamyrtin, and may be used to replace digitalis or caffeine. "Yerba del Tabardillo," from *Piqueria trinervia*, Cav., which is used as a sudorific and febrifuge by the Indians, contains an alkaloid, piquerine, which crystallises in white prismatic needles, has no odour, and faint bitter taste. "Yerba del Pollo," *Commelina pallida*, Weld. The action of this drug is analogous to that of hamamelis. It is used as a hæmostatic and for leucorrhœa. The most active preparations are the fresh juice of the leaves for external application, and the decoction and extract for internal use. Exposure to high temperature during the preparation of the extract reduces the activity of the drug. The dose for internal use is 5 to 20 Gms. of the dried plant, or 10 to 20 centigrammes of the extract, in pills.—*Bull. Soc. Pharm. Brux.*, **43**, 306.

FERMENTS OF SEEDS.

Extending their researches in the light of the interesting results already obtained by them in their investigations on the ferments of the seeds of the locust bean, E. Bourquelot and H. Hérissey find that these seeds may be considered typical of all those which possess a horny albumin. Among these, the seeds of fenugreek and of lucerne, selected from the rapidity with which they germinate, are also found to secrete soluble ferments during germination, which are capable of hydrolysing and rendering assimilable the carbohydrate reserve material of the horny albumin. The action of these ferments is comparable to that of warm dilute sulphuric acid, finally producing mannose and galactose; while the insoluble residue which they leave is but feebly attacked by the same dilute acid.—*Compt. rend.*, **130**, 42.

TEA SUBSTITUTES.

In Russia the leaves of *Epilobium angustifolium* are largely used as a substitute for Chinese tea under the name of "Kaporie tea," the manufacture of which gives rise to a considerable industry in certain localities. The leaves of *Epilobium hirsutum* are also employed for the same purpose. The leaves of *Vaccinium arctostaphylos*, and sometimes of *A. myrtillus*, are similarly employed in the production of "Caucasus tea" or "Thé du Kutais." Both these fictitious teas and the genuine article are the subject of an exhaustive histological note by E. Collin in the *Journ. de Pharm.* [6], **11**, 15-52.

COMPANY TRADING AND THE PRACTICE OF PHARMACY.

A LETTER TO THE PRESIDENT OF THE PHARMACEUTICAL SOCIETY FROM A LAYMAN.*

DEAR MARTINDALE,—One or two points struck me since the conversation I had with you the other day *re* the pharmaceutical clause in the coming Companies Bill.

You will understand that I come to the matter as a layman, knowing, for the nonce, little or nothing of the professional interests in the matter—or rather, that having no stake in the practice of pharmacy, I am solely interested from the point of view of the public.

The pharmaceutical chemist, then, for me is simply a person that I must be able to trust implicitly in regard to the preparation of medicine in all branches of that art—as implicitly as I trust my doctor, my solicitor, my banker, or my spiritual director if I have one. That point I wish to emphasize—I must be able to regard him as a person endowed first with knowledge and skill; secondly (and quite as essentially) with that kind of *esprit de corps* that makes for conscientiousness in all professions. I gather from you and, to some extent, from personal deductions, that although, in regard to some individuals, there is little danger of the skill of the pharmaceutical chemist suffering from the prevailing conditions of the drug trade, there is a considerable danger that the average qualification of those engaged in that trade may deteriorate at no distant period. This, if it were to be the case (a point to which I will return later on) would lay me, as a member of the public, open to two very considerable dangers. You, on the contrary, in speaking of the matter, lay most stress on the matter of the sale and dispensing of *poisons* by persons legally unqualified. That, however, appears to me as the less important branch of the pharmaceutical chemist's business, and, were I seeking to convince a member of the public—or the public at large—that limited companies ought to be absolutely prohibited by law from carrying on the general business of a chemist and druggist, I should take another and a bolder course, for the following reasons.

The pharmaceutical chemist, for me, is primarily a man who dispenses prescriptions that my doctor gives me—that is his justification for existence. The medicines ordered by those prescriptions may or may not contain poisons—but that I know nothing about. I only know that I get from my doctor a direction that tells the chemist to supply me with certain drugs mixed in a certain way, to have a certain effect, and I want to get that prescription carried out to the minutest point.

If, then, I wished to convince the public at large that limited companies carrying on the business of chemists are a danger to the community at large, I should try to prove to them that their legal ability to *dispense at all* should be abolished. The sale of poisons—as far as I, being a layman, can tell, doesn't much concern me. It is very unlikely that I shall either commit a murder or be murdered; nearly as unlikely that I shall be poisoned by accident. I may, of course, become subject to some "habit" or other, and in that case it might be desirable that it should be difficult for me or for those in whom I am interested, to obtain a supply of whatever drug I or they may become a slave to. That is very desirable, but it is not the main point for me—a normal person. As a normal person I am *very* likely to be ill in the course of my life—to be ill many times and seriously—and what I want is to be certain that when I get a prescription made up that I get everything that is ordered in that prescription.

I labour this point because I have noticed that in the course of two or three conversations, you have never once mentioned it, but have always gone on what I will call the "poison

line," which is, or appears to be, entirely a trade matter, and to suggest the idea of seeking for trade monopoly. Of course the "dispensing idea" is not new to you, but it seems to me very probable that it is one of those ideas that from long familiarity have become platitudes and dropped out of sight. That, however, is not the case with the public; if you wish to convince the public, and the body of the public that makes its laws, I feel convinced as to which is your best line to take. It seems to me that you (to use a cant phrase) should "rub this idea in" as hard as you possibly can—that you should try to thoroughly impress the public with the idea that its liver and lungs and its brain may be in considerable danger. That I am right on this point I feel certain, because as soon as you proved it to me I became interested in your case. It doesn't much matter to me whether you are ruined by competition or not—but it does matter to me very much that your place should not be taken by incompetent or dishonest practitioners. For that reason I put my pen (a pen which has had some practice in convincing the public about other things) temporarily at your service. I want to obviate danger to my health and the health of my wife, or children, and connections. For the same reason I continue to indicate to you the lines on which my conversion ran, so that you may convince others by laying stress on these points.

You must understand that I, as a member of the public, was at first entirely against you. I want to get my drugs, like everything else, as cheaply as possible. I want competition in the drug trade just as I want the home farmer, perhaps, to be ruined that I may have a cheap loaf. But when I come to think about the matter, I want my medicines pure and truly dispensed even more than I want them cheap.

I am impressed by the consideration that my butter may be margarine and my bread made of potatoes without doing me much harm; but if my medicine is not just right it won't act properly, and my cure, at best, may be delayed until it is too late. I may even have been taking chemicals so badly mixed or so noxious that I am seriously harmed.

And inasmuch as I am quite in the dark as to what I am taking, and have no particular means of testing it, I want particularly to be able to rely on the chemists—on all chemists, and every chemist. I may be taken ill anywhere, and may have to go to the nearest shop without knowing anything about its proprietor. For that reason I want the type of man who is a pharmaceutical chemist to be of the highest possible order. This is the essential point of the matter *to me*. Then, although I dislike paying high prices, I am a sufficiently sensible person to know that if I want to be well served by anyone above the position of a mere chap-man, I must pay high prices. I pay my judges well, all my public officials well, my lawyer, my doctor, and so on. I do that in order that I may be served not only skilfully but honestly. I know that in countries where the judges are not well paid the type of man attracted by the judicial career is so low that justice is frequently endangered, and you have convinced me that there is danger that the pharmaceutical profession may get into the same state—that a type of man may dominate it who, for the sake of trade competition, would be capable of substituting for a costly drug, or one difficult to obtain, in a prescription, a drug that would not have the like curative power, and might be positively dangerous.

I don't know much about the technical side of your profession, but I know personally (and I suppose most people know) that doctors give prescriptions consisting, let us say, of one drug that has certain good effects, but which, at the same time, has certain dangerous effects, and of another whose object is to mitigate the dangerous effects of the first drug without interfering with the good. Now, if for one reason or another, the dispenser omits the second drug, the first may do me serious injury. You instanced, I think, a case in which paregoric, which ought to contain opium, had been supplied without opium, chiefly in order that the seller might not infringe the law against the sale of poisons, and perhaps also to allow of

* The above letter is printed at the request of the President of the Pharmaceutical Society, as being of especial interest at the present time.

greater cheapness. This is a pretty strong instance, but it would be still stronger if you could instance a case in which a chemist had made up a prescription without the palliative because he had not got it in stock and did not wish to lose a customer: because a chemist's position ought to be so assured that he would prefer losing a customer to injuring him. This brings us again directly to the matter of *esprit de corps*. I understand that it is the custom of your craft to instruct your assistants that, when a seemingly incompetent (or, possibly, suspicious) person applies for a dangerous article, they should refuse to supply it without making inquiries or applying for directions to their employer or superior. That is obviously highly proper and desirable, but here, again, the matter of losing a customer steps in. A chemist may lose a customer without much feeling it, but suppose the chemist to be in the employ of a man who sells everything, from butter to knitting-needles. He applies to his employer for direction, and the employer, fearing to offend a person who may buy not only drugs but every other kind of requisite, directs his assistant, against that assistant's better judgment, to supply the customer in question. This same case becomes even stronger if in the argument one substitutes for the dangerous drug a costly one, for which the employer (being a person of no particular knowledge and without any incentive of the *esprit de corps*) directs his assistant to supply something cheaper but less effectual. To do this the employer need not be a particularly dishonest man—he might simply do so in order to avoid frightening his customer by a high price, which would be necessary if he supplied the costly drug.

This is distinctly, in my opinion, the line you ought to take in applying to the public for further powers. You must give comparatively homely and quite untechnical instances. It is not very much good giving even M.P.'s historical details that prove the justice of your claim. The M.P. doesn't care about you; he cares about his constituents getting their things cheaply, and, in consequence, giving him their suffrages.

But if you tell him that his liver, heart, lungs, or brain will suffer, and if you prove that to him, you will secure more certain attention, and he will have a good set of facts to oppose to any objections of his constituents.

For this reason, if you elect to oppose companies altogether you should take the line of opposing their ability to dispense altogether. This would include the sale, dispensing, etc., of poisons, because they could not employ a qualified person at all.

I don't think that if you merely go on the "poisons line" you will have much chance of stamping out the limited companies, because, however important that matter may actually be, the public does not think it is so, and it naturally suggests the idea of trade monopoly. I am aware that the percentage of prescriptions that do not contain poisons is small, but most people do not know this, and, in consequence, will not give you much moral support out of consideration for that circumstance alone; whilst the limited liability chemist and druggist, being aware of it, will oppose your attempt to restrict his sale of poison just as much as if you attempt to suppress him pharmaceutically altogether. The fact is, that you must keep the public interest altogether in the foreground of your agitation, making your own position subordinate as far as you can, except in so far as you can prove convincingly, and by definite, homely examples, that the public will suffer if your professional position does.

If on that ground you can get a good body of public opinion on your side, you will have won more than half the battle; without it your chances are rather small now that competition in trade is recognised as the ruling principle under which the advantages of unlimited free trade are most fully secured. As traders you are nowhere—only in so far as you can convince the public that their interest requires professional qualification on your part, is there any chance of your maintaining a position different from that of traders.

BALSAM OF TOLU.*

BY J. SPILSBURY AND T. G. JOYCE.

It has occurred to the authors that whilst the quantitative process quoted in the last edition of the B.P. distinguished between a spurious and a genuine sample, still it was inadequate for determining an exhausted or a mixture of an exhausted and a genuine one. Hence, the present investigation was initiated, with a view also, if possible, of eventually fixing a standard of quality. A brief review of some of the previous work was given, including that of Busse, Oberleander, Bentley and Redwood, Thoms, Davis and Braithwaite, and the conclusions accepted as to the composition of balsam as quoted by the various authorities were:—Cinnamic and benzoic acids, the esters benzyl cinnamate and benzoate, toluene and resins. References were also made to the numerous tests for detecting adulterants, as also the quantitative processes employed; comparisons being made with the results obtained from the valuable work undertaken by Mr. J. O. Braithwaite. In his paper published in the 'Transactions of the Pharmaceutical Conference for the Year 1895,' Mr. Braithwaite prefers to express the amount of potassium hydrate consumed by the residue soluble in carbon bisulphide as parts per thousand of the residue. The authors of the present paper suggested that it would be better to calculate the amount of potassium hydrate consumed into its equivalent of cinnamic acid and record it in parts per hundred of the balsam. Five samples of balsam were submitted to analysis, employing the Pharmacopœia process, with the precautions to evaporate the carbon bisulphide as far as possible by exposure to the air, and finally in an oven not exceeding 100° F. till the weight of the residue was constant. In the present investigation the drying was carried out for the purpose of comparison with the figures of Mr. Braithwaite's residues; otherwise, if the author's suggestion be adopted absolute drying would be unnecessary, which would prove a further precaution against loss by volatilisation. No. 1 sample was balsam from which syrup had been manufactured, and for convenience called "exhausted," the remaining four were represented to them as genuine balsams. The following were the results obtained:—

	Percentage of Cinnamic Acid in the Balsam.	Percentage of Balsam Soluble in CS ₂ .	Character of Residue Soluble in CS ₂ .	Saponification Number of CS ₂ Residue.	Percentage Ash from Balsam.
1	11.5	12.28	Crystalline	357.2	0.27
2	20.2	26.95	"	282.5	0.33
3	20.8	27.32	"	286.9	0.32
4	20.2	23.88	"	318.8	0.30
5	..	47.12	{ Transparent and Resinous	266.2	0.57

The saponification number here represents the parts of potassium hydrate consumed by 1,000 parts of the residue soluble in carbon bisulphide. In the case of No. 5 the character of the residue soluble in carbon bisulphide indicated a spurious balsam, the amount of resin present rendering the saponification number useless for calculating the equivalent of total acid calculated as cinnamic acid.

Nos. 2, 3 and 4, were considered to be genuine specimens, each possessing good aroma and characteristic taste, and Nos. 2 and 3 having proved of excellent quality, judging by the preparations manufactured from them.

Mr. Braithwaite considers that the saponification number in the case of a balsam of good quality should not fall below 300.

The equivalent percentage amount of cinnamic acid calculated from the saponification numbers of his genuine samples range from

* Report of a paper read before the Midland Pharmaceutical Association (see page 110).

16.5, 18.0, 18.3, 26.0, 26.0, to 29.0 per cent., whilst the authors show that although the saponification numbers of two of their genuine samples are below 300, yet the three samples yield respectively 20.2, 20.2, and 20.8 per cent. of cinnamic acid.

Again, the saponification number of their No. 1 sample of exhausted balsam (357.2) compares very closely with No. 10 of Mr. Braithwaite's genuine samples, the saponification number of which is 352.7. No. 1 sample, therefore, according to the requirement of the Pharmacopœia, would pass muster, thus showing the saponification number alone to be inadequate for the purpose of determining its true value. It is essential, however, that the residue soluble in carbon bisulphide should be only slightly coloured and distinctly crystalline; otherwise, if more than mere traces of resin be present, it would render the saponification number unreliable for calculating the equivalent of cinnamic acid. The percentages of ash were deemed of comparatively little importance. As expected, that from No. 1 sample was the lowest, whilst those from the three genuine specimens were uniform in amount. The microscopic examination of the samples gave the following classification:—No. 4 exhibited the largest number of crystals, then followed No. 2, 3, 5, and No. 1 the lowest number. The authors referred to another process they had under consideration, which, however, was not sufficiently perfected to enable them to compare results with those obtained by the official one; they were, however, of opinion that up to the present carbon bisulphide had proved the most efficient solvent with which to extract the balsam, but that the interpretation of the results should be expressed in percentages of total acid (calculated as cinnamic) rather than the proportion of potassium hydrate to the residue soluble in carbon bisulphide. At the conclusion of the paper Mr. Spilsbury expressed an opinion that the data so far at their disposal were hardly sufficient to enable them to definitely suggest a standard yield of cinnamic acid, but so far the results pointed to 18 per cent. as being the lowest requirement for a balsam of satisfactory quality.

DISPENSING NOTES.*

BY D. B. KIDD.

AN INCOMPATIBLE MIXTURE CONTAINING STRONTIUM BROMIDE.

The following prescription was recently presented to be dispensed:—

R Strontii bromidi	ʒii.
Sodii bicarb.....	ʒii.
Aquam	ad ʒvi.

When the two salts are placed together in water reaction takes place with evolution of carbon dioxide and precipitation of a white powder, and if placed in a bottle and the bottle corked there is every chance that it will be smashed. The following equation explains what happens:—



The best plan is to agitate the mixture well till nearly all the carbon dioxide has passed off, and dispense with a "Shake the bottle" label.

HYDROCHLORIC SOLUTION OF ARSENIC AND TINCTURE OF NUX VOMICA.

When the following mixture is dispensed there is an immediate precipitate, which on examination proved to be apparently inert resinous matter from the nux vomica seeds. The 1885 tincture gives a perfectly clear mixture:—

R Liq. Arsenici Hydrochlor,	ʒii.
Tinct. Nucis Vom.	ʒiii.
Aquam	ad ʒiii.

A clear elegant mixture may be made by mixing the solution and tincture with two ounces of water, filtering, and washing the filter

with the remaining ounce of water, but three filtrations were found necessary before the mixture passed clear. A simpler and perhaps more satisfactory plan would be to suggest to the prescriber the use of an equivalent quantity of liquor strychninæ hydrochloridi. The relative strength of the liquor and the tincture in strychnine is very nearly as 1 to 3, and the prescription would read—

R Liquor. Arsenici hydrochlor.....	ʒii.
Liquor Strych. Hydrochl.	ʒi.
Aquam	ad ʒiii.

This prescription illustrates incidentally the many side issues that arise when any change is made in the strength or character of any pharmacopœial preparation without any change in its name. It is very apt to differ in its behaviour towards preparations with which doctors have been accustomed to prescribe it. It would be well for dispensers to bring such points to the notice of the prescriber.

PHENAZONE AND SODIUM NITRITE.

The incompatibility of phenazone with spiritus ætheris nitrosi is well known. The following prescription is an instance of incompatibility due to a similar cause:—

R. Phenazoni,	
Caffeinæ citras	aa gr. v.
Sodii nitris	gr. iss.
Ft. pulv. Mitte tales vi.	

Caffeine citrate is an unstable salt, and, in presence of water, readily dissociates into caffeine and free citric acid. In the above powders the moisture present is sufficient to set citric acid free, which reacts with the sodium nitrite, forming sodium citrate and free nitrous acid. The latter oxidises the phenazone, and the powder becomes green, gradually passing on to red from formation of isonitrosophenazone. This substance is said to be non-poisonous, but its formation leads to loss of nitrous acid, an important constituent, and is otherwise to be avoided as possible. In a solution it has been found that an excess of sodium carbonate prevents decomposition in mixtures of phenazone and spiritus ætheris nitrosi. It also does so for a considerable time, but not completely when the above powders are made into a solution. But it does not prevent the reaction taking place when the substances are in powder. The powders keep perfectly if an equivalent quantity of caffeine alkaloid (2½ grains) be used in place of the citrate of caffeine. It was incidentally discovered that the powders must not be dispensed in parchment paper, as is not infrequently done in the case of substances like sodium nitrite, which are apt to attract moisture. It was found that powders made with free alkaloid in place of citrate, nevertheless, speedily become coloured green and then red, or rather the paper became stained green and then red when parchment paper was used, whereas if dispensed in ordinary powder paper they remained white and the paper was not stained. On examination this was found to be due to a small percentage of free sulphuric acid in the parchment paper, resulting doubtless from the process of manufacture. This is a point worth noting by dispensers.

QUININE SOLUTIONS AND AMMONIUM ACETATE.

The following is an example of mixtures which frequently cause trouble to dispensers:—

R Quin. Sulph.	40 grs.
Acid. Hydrobrom. Dil	ʒii.
Liq. Ammon. Acetat.	ad ʒiv. M.

When the dilute acid is added to the sulphate of quinine the soluble acid sulphate and hydrobromine are produced thus—



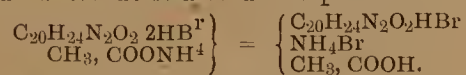
There is still excess (about 8 grains) of HBr, and the quinine salts do not entirely dissolve in this acid medium. A few drops of water make a clear solution,

* Paper read before the Edinburgh Chemists', Assistants', and Apprentices Association (see p. 112).

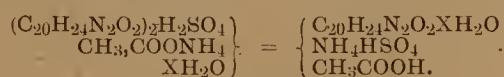
When the ammonium acetate solution is added the solution is at first clear; but double decomposition almost immediately takes place thus:—



The acid hydrobromide is also decomposed thus:—



That is to say the acid quinine salts are reduced to the neutral salts with liberation of free acetic acid. That is why the precipitate which first begins to form is in acicular crystals and insoluble in ether. But in a few minutes a very bulky, white, amorphous precipitate begins to form, and the mixture becomes solid in a very short time. This precipitate is very like quinine hydrate in appearance, and it dissolves in ether when shaken up with it. It seems to be due to the further reaction—



and also



The free acetic acid is too feeble to prevent precipitation of quinine hydrate when there is a large excess of ammonium acetate or any alkaline acetate in the solution. The ammonium ions, as it were, dilute the acetic ions, so as to render their acidic properties ineffective. When there is a sufficient excess of acetic acid, a perfectly clear mixture may be easily made. In this instance a clear mixture was obtained by adding ʒii. of glacial acetic acid. The dose of the mixture is one teaspoonful, and that would be equivalent to 98 minims of official dilute acetic acid. That is within the official dose (ʒiii.), but might be considered too much by the prescriber. The only other alternative is to prescribe the quinine and ammonium acetate in separate mixtures, and order a teaspoonful of each to be taken. Though the mixture is chemically incompatible there is no reason to suppose that it is therapeutically so. I know it may be said that it is acetate and not hydrate of quinine that is separated in this case. If so I do not see why the precipitate is so bulky, nor why it is soluble in ether, and I shall adhere to my explanation till the contrary has been proved.

NEW REMEDIES.

SODIUM SULPHOCARBOLATE IN CHOREA.—T. Stacey Wilson in the *Birmingham Med. Review* records a case of very severe chorea in a female patient, aged twenty-two, which was successfully treated with sodium sulphocarbolate; 20-grain doses of the salt and 1 grain of quinine were given alternately every two hours. As the sulphocarbolate is somewhat depressant in action, nutrition must be kept up by full and stimulating feeding with such food as raw or partially pancreatised meat juice, in addition to milk.—*Quart. Med. Journ.*, 8, 81.

MERCUROL IN GONORRHEA.—F. Fraley reports on a series of cases of gonorrhœa treated with an injection of mercuriol, a compound of mercury with nuclein, containing about 10 per cent. of the metal. As a rule, a half per cent. solution in normal salt solution was employed, but in a few obstinate cases a 2 per cent. solution was injected. Patients were instructed to inject every two hours, retaining the injection for two minutes. Of fourteen cases so treated, six were cured in less than three weeks, three were practically cured in three weeks, only two were not permanently benefitted, although in these the original conditions were relieved, but relapses occurred. The best results were obtained in cases of simple anterior urethritis. The author considers mercuriol to be of great value for injection; but for irrigation he finds permanganate to be superior.—*Therap. Gaz.*, 22, 732.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

Pharmacy Law for Manxland.

So duly-trained pharmacists in the Isle of Man appear to be in a fair way to secure legal recognition, whilst having their status as professional men definitely fixed. The Bill which has just passed the House of Keys does not go so far as we in Great Britain could wish, but it provides for much more than our own Pharmacy Acts. Thus, it restricts the compounding of medical prescriptions, as well as the retailing of scheduled poisons, to duly registered persons, and the schedule of poisons is much more extensive in its scope than that which has force in Great Britain—carbolic acid, phosphorus, hydrochloric and sulphuric acids, and copper sulphate being amongst the articles not recognised by the law as poisons in this enlightened land of ours. Nevertheless, there appear to me to be three weak points in the Manx Bill, two of which might certainly have been guarded against, though the third has been permitted to remain after prolonged and careful consideration. In the first place, I think experience teaches us that there should be a penalty for "selling" as well as "compounding" medicines of the British Pharmacopœia otherwise than in accordance with the official formularies. Then, the "widow's clause" should not have been adopted without modification from the British Act, as appears to have been the case. As regards the company trading question, that, as I have already stated, seems to have been fully considered, but the House of Keys has not seen its way clear to prohibit company trading in pharmacy entirely. The clause regulating company trading (see *ante*, p. 81) may be regarded as representing a compromise, and, short of actually prohibiting the practice of pharmacy by companies, it will probably prove as effective and satisfactory in regulating that practice as any such clause could do. But it is extremely disheartening to find that the use of pharmaceutical titles is to be permitted to companies and, if no other modification of the clause can be effected by the local pharmacists, I think they should at least attempt to secure the omission of the words granting such permission.

The Position Elsewhere.

So far as the rest of the United Kingdom is concerned, the signal for battle is given by a few words in the Queen's Speech, "My Lords and Gentlemen" having been informed that "the time is not propitious for any domestic reforms which involve a large expenditure," but that "amendments are required in the laws which govern limited liability companies." The two sentences I have quoted have a peculiar significance when taken together, as the non-appearance of contentious measures involving the outlay of large sums of public money may enable the Government, in the event of the war difficulty becoming less acute, to press forward a Companies Bill with a greater appearance of vigour and earnestness than was manifested last Session. Undoubtedly, the omens are bad and, in my opinion, the sooner the real or apparent deadlock in pharmaceutical politics is replaced by a serious effort to secure unanimity and to press upon the Government the just claims of registered chemists, the less will be the risk of our projects of reform miscarriage. We may—probably shall—have to concede something on the trading side, *i.e.*, in regard to the sale of poisons; but that after all is a public and not a pharmaceutical question. The legitimate distribution of poisons should not be restricted more than is absolutely necessary in the interests of the public safety, and pharmacists can advance no satisfactory arguments against that view. But with regard to the pharmaceutical qualification, a totally different state of affairs exists. It appears to me that the pharmacist's only claim for special treatment is in respect of his primary function—that of a dispenser of medicines. In the public interest it is every whit as necessary that none but duly qualified individuals should be permitted to dispense medicines ordered by medical prac-

tioners for their patients, or to use titles indicating qualification to do so, as that none but legally qualified medical practitioners should be allowed to hold themselves out as such. The attempt must be made, therefore, in connection with the promised Companies Bill, to prevent companies using our titles and, for the rest, the best possible bargain must be made with the Government, as little stress as possible being placed upon the exclusive right to sell certain poisons.

The Standardisation of Drugs.

The question of fixing standards of purity for drugs, brought prominently forward at the Plymouth Conference by Mr. U. G. Moor, is persistently kept to the front by that energetic individual, as witness a report in last week's *P.J.* (see p. 84). In presenting his annual report as public analyst for the City of Exeter, Mr. Moor has expressed the opinion that wider publicity should be given to known standards for the composition of certain articles in common use, including certain drugs. It is not clear whether Mr. Moor would include in the list he proposes to publish other standards for drugs and galenicals than those given in the British Pharmacopœia, but judging from published articles on the subject, of which he is joint author, I think it is not unreasonable to assume that he does. As Mr. Moor's case presents itself to me, he is anxious to have a general agreement arrived at, by the parties chiefly interested, regarding the average composition of genuine articles. In some cases that would result in the adoption of a lower standard than that of the B.P., and in others it would probably be higher, the object being the not unreasonable one of fixing standards of purity which could readily be conformed to by traders prepared to pay a fair price for a satisfactory article. To put the matter somewhat differently, it is distinctly unfair to penalise retailers of drugs and galenicals for selling articles which are below standards that are unattainable in the ordinary course; at the same time, standards should not be fixed so low that the buyer of second-rate articles can offer them under the same designations as the higher-priced goods purchased by more conscientious and high-spirited dealers. If Mr. Moor can secure general acceptance for such views he will have done good service to the public and to pharmacists. But, I fear, he or others must first clear the way by getting a legal decision of sufficient weight to make standards of purity essential in the case of drugs and galenicals sold in the ordinary course of retail business. Pharmacists, as a class, are loyal to the British Pharmacopœia and require no threats of legal penalties to compel them to maintain standards of purity as high as are reasonably attainable. But they would prefer to have the position better defined and, if standards of purity are to be enforced by legal means, they may be expected to demand that other dealers in medicinal articles should be compelled to toe the same line as themselves. As things are, however, they are fairly content to be recognised as being "the" acknowledged dealers in drugs of the highest character.

We Want Live Men.

The faculty of communicating enthusiasm is a most precious one, and the man who possesses the gift is of distinct value to his fellows, even though he may not always exercise his talent in the direction considered by Orthodoxy to lead to salvation. Those who have been privileged to listen to the public utterances of Mr. Glyn-Jones will recognise the force of this, for they cannot but have been impressed by the convincing manner in which that gentleman presents his arguments. One may not concur in his deductions and may even be opposed to the course of action they indicate, but all are forced to yield homage to the evident sincerity of the speaker. This was impressed upon me anew in connection with the Chemists' Assistants' meeting on January 18, when a dry subject was invested with unwonted interest by the personality of the lecturer. It must have been the inherent vigour and earnestness of the

speaker, for I have heard much better matter fall flat and insipid and appeal to no person's intelligence. Now, I hold no brief for any particular pharmaceutical champion, but I must frankly say that Mr. Glyn-Jones has done good service to pharmacy in persuading pharmacists to think about the legal and moral obligations devolving upon them in the ordinary course of their calling. Whether, after thinking upon the dangers that environ them in this respect, they will rush for shares in the Chemists' Defence Association, Limited, or, having obtained them, will grow in wisdom, as well as in wealth, and finally die in the odour of official sanctity, is a point upon which the engineer of the new pancea and I may have somewhat divergent views. To remove apathy and to galvanise lethargy is, to my mind, a noble mission, and a hard one to boot, for it involves persistent labour and a vast amount of personal confidence and sincerity. The latter quality is an essential, for, as Lytton has said, "enthusiasm is the genius of sincerity, and truth accomplishes no victories without it"; when, therefore, one voluntarily faces those arduous conditions and consigns himself to restless days and laborious nights, who wants to question motives or launch conjectures as to the probable shallowness of disinterestedness? We want live men in pharmacy, and, whether they think with me or against me, I am always prepared to take off my hat when I meet one of them.

Where is the Professor?

The suggestion that a legal course might with advantage be added to the pharmaceutical curriculum possesses some curious features. One is the extreme poverty of the craft in regard to competent teachers of the subject. Let any chemist run over the names of the prominent registered men he knows and say which of them could efficiently and judiciously give instruction in the laws affecting chemists and druggists; he would soon admit the difficulty of finding proper instructors. I only know of one man on the Register who could properly fill a Chair of Pharmaceutical Jurisprudence, but he is a past President of the Society, and, I suppose, on that account barred by etiquette. Nearly all the jurisprudence requisite for the ordinary pharmacist has been uttered at one time or another during the past fifteen years by Mr. Michael Carteighe, and published in the *P.J.*, and I should not be surprised if he gave a further course of gratuitous lessons on the same subject in the near future, perhaps during the ensuing Parliamentary Session! Another point is that the endowment of a legal faculty in the School of Pharmacy would be a two-edged sort of weapon—it would certainly be instrumental in showing retail chemists the pitfalls in their path, but it would help the unscrupulous quite as much as the conscientious. I have small doubt, for example, that some of the proprietors of limited liability drug stores would be prepared to pay tolerably liberal fees for a course of instruction that, incidentally, must show the weaknesses and limitations of the Pharmacy Acts! And, however sad it may be to reflect upon, human nature is such that a competent knowledge of statutory obligations is apt to glide insensibly into the recognition of how they may safely be avoided—in fact, a school of legal ethics would always be in danger of drifting into a mere string of lectures on close-sailing tactics, and would thus bestow more blessings upon the enemy than upon anyone else. It would not seem wise, therefore, to push the idea about pharmaceutical jurisprudence too far—the better the idea the more it suffers by being forced beyond its natural level. At present the Society's Council encourages the study of the laws relating to what may be called official pharmacy—*i.e.*, the sale of poisons—by requiring candidates for the qualifying examination to know the salient features of the Pharmacy Acts and the Arsenic Act; and very little development on those lines might prove sufficient—the object in view being, as I take it, not to convert chemists into bad lawyers but to make them better chemists and better guardians of the public safety.

POLITICAL GOSSIP.

THE SEVENTH SESSION of the thirty-sixth Parliament was inaugurated on Tuesday last with all the time-honoured formalities of manner and speech. The Speech from the Throne, a little more leaden than usual, has been delivered, and one-half the Kingdom is wondering how much of the official programme will be realised, whilst the other half is deploring the absence of items untabulated and unrecognised in the Government tale of work. The amendment of company law is placed in the forefront of the programme, and the departure from the official form of words in which reference to Bills is usually made in the Speech is significant of an honest intention to make progress with this very difficult problem. Proof additional was forthcoming later on in the sitting on Tuesday, for Mr. Ritchie gave notice that on Monday next he will introduce, as President of the Board of Trade, a Bill to amend the Companies Acts.

IN A FEW DAYS, therefore, we ought to know how far the Government is prepared to go in the direction of regulating companies trading as chemists and druggists. Rumour is exceedingly busy with every one of her hundred tongues on the subject of Mr. Ritchie's intentions and his inclinations in relation to the pharmaceutical aspect of the case. There seems to be a general feeling amongst those best able to judge the course of Ministerial action, that the Bill to be introduced will be last year's Bill minus the pharmacy clause. If this prove accurate, pharmaceutical leaders will have to make up their minds to act with vigour and judgment or for ever lose the confidence of the rank and file. It is understood that up to the present Mr. Ritchie has not found it necessary to avail himself of the offer of assistance which the President of the Society conveyed in his letter of December 14. It would thus seem that he has decided in his own mind how to deal with the case for the pharmacists. Next week will show whether history will repeat itself, and whether the Martindale statement is to meet the same sad fate as the famous "Suggestions" of a bygone Session.

MR. SWIFT MACNEILL proposes to move an amendment to the Address in order to call attention to the frightful condition of public life as exemplified by the fact that twenty-five of the forty-four Ministers of the Crown hold among them no fewer than forty-one directorships in public companies. This wholesale reformer will invite the House to declare that the position of a company director is incompatible with the position of a Minister of the Crown, and that the combination is not consistent with the dignity of Parliamentary—or, at any rate, official life. The invitation will, in all probability, not be responded to, but it will give Mr. MacNeill an opportunity of driving a few stout nails into the coffin of Corruption with limited liability.

SEVERAL CHANGES in the *personnel* of the House have to be noted. On Tuesday, four new members took the oath and their seats, viz., W. M. Guthrie (C.), for Bow and Bromley, in the room of the Hon. Lionel Holland, resigned; Sir Edgar Vincent (C.), for Exeter, in place of Sir Stafford Northcote, promoted to an Indian Governorship; R. E. Dickinson (C.), for the Wells division of Somerset, in succession to Mr. Hylton Joliffe, who has been created a peer; and E. Wason (L.), who follows Lord Balfour in the representation of the combined counties of Clackmanan and Kinross. Vacancies exist in London University, York, and Mid. Armagh through promotions, and Mr. J. H. Maden (L.), who has represented the Rossendale Division of Lancashire since 1892, has, like Mr. Gwilym Evans, found himself unable to bear the continual strain and worry of the persistent local and Imperial attacks upon his pockets. He has, therefore, had recourse to the refuge afforded by the Chiltern Stewardship.

PROCEEDINGS UNDER THE PHARMACY ACTS.

THE SALE OF BELLADONNA PLASTER.
Pharmaceutical Society of Great Britain v. Walker.

At the Sheriff Court House, Linlithgow, on Tuesday, January 30, 1900, the case of *The Pharmaceutical Society v. James Walker*, wholesale provision merchant, 35, Hopetoun Street, Bathgate, came before Sheriff Macleod. The accused was charged with keeping open shop for the sale of poisons on December 16 last, when his assistant, Matthew Gilmour, sold a quantity of belladonna in a plaster to an agent of the Society. Mr. P. Morison, junr., of P. Morison and Son, S.S.C., Edinburgh, appeared for the prosecutor.

The defender pleaded guilty, and asked to explain that he had only recently added patent medicines to his stock. When he did so he consulted the nearest chemist to him, Mr. Freeland, Bathgate, and asked him to look over his price list, as he did not want to sell any that came under the restriction of the law. Mr. Freeland struck out a number of things, and he was quite ignorant of the fact that belladonna plaster came within the Act. That was how, quite unwittingly, one of his men had sold this plaster. But the price of it was only fourpence, and he thought it was a very trifling matter. He was extremely sorry for what had happened. It was not like a medicine that was to be swallowed, and there was nothing to show that it was a poison. He thought the Act only dealt with things that were sold as medicines to be taken, and not things that were only to be applied externally.

The Sheriff: You do not claim that belladonna plaster is a patent medicine. What is belladonna plaster?

Defender: No, I do not claim that. It is used as a strengthening plaster.

Mr. Morison: I am told it is applied externally as an anodyne, to relieve pain, much in the same way as opium is used.

The Sheriff: Can you say anything, Mr. Morison, as to the *bonâ fides* of the explanation that defender consulted Mr. Freeland. Do you know if he did so? I suppose if it is not marked poison that points to another offence?

Mr. Morison: I have never heard of it till now, and can say nothing about it. I don't know, however, that it matters much. I am surprised to hear a trader doing so large a business as the defender saying he did not know that belladonna was a poison. We have had several similar cases in Scotland. The last was in March, 1897, in this same sheriffdom, when the defender was fined £2 and expenses. As your Lordship says, the omission of the poison label is an offence under Section 17 of the Act, but we have not charged that here. It is not a patent medicine, but even if it was in the ordinary sense of that term it would be no more exempt than, say, Powell's Balsam of Aniseed. As to its being for external use, that is no answer, for the Statute makes no distinction between poisons for internal and external use. As to the price, it is sufficient to say that the plaster contains sufficient belladonna to poison a considerable number of people, and even the external application of such plasters has frequently been followed by marked symptoms of belladonna poisoning. I have here the price list issued by defender, and I find in it no less than eight articles which come within the Poison Schedule. There are, for instance, Bow's Liniment, a powerful preparation of opium, labelled poison, and known to everybody as a poison; and Fellow's Syrup of Hypophosphites, which bears on the label that it contains strychnine. I cannot understand how any qualified chemist could have said these did not come within the Act.

The Sheriff (to Defender): Of course, your statement about consulting Mr. Freeland does not affect your plea of guilty; it will only affect the sentence.

Defender: I can only say that I submitted the whole list to Mr. Freeland. With regard to Williams' Pink Pills, it does not say they are poison. I did learn that Bow's Liniment was poison, and it has been withdrawn from sale. I have examined the list of other

general merchants like myself who sell patent medicines, and I find these articles that are objected to on most of these traders' lists. I give my word of honour that I overlooked this on my list, and throw myself on the mercy of the Court. The young man who sold it is sick and could not come to-day, but he says he so seldom sold these plasters that he could hardly find them when asked for, and it took him some time to get it. This plaster was not to be used, but was evidently a bait laid to get me into a trap.

The Sheriff: I must tell you, Mr. Walker, that the Legislature has said you must not sell belladonna plasters. It is not for me to say why, and I do not see much danger in your doing so, for no one would be poisoned by eating a plaster; they would not eat it. At the same time, the law has been made so, and your plain duty is to obey it, and my duty is to impose a suitable penalty when it is infringed. The penalty will be £2 and £1 2s. 6d. for expenses, or eighteen days' imprisonment if the fine is not paid.

Mr. Morison: I think, my Lord, the Statute does not allow of imprisonment. The remedy in case of non-payment is by pointing.

The Sheriff: How is that? We are under the 1864 Procedure Act, which gives the Sheriff discretion. That is a curiously-worded section as to pointing in the 1852 Act. It is not so worded in any other Statute I know of, but it only says it shall be lawful. It does not say it must be imposed, as it says sentence must be imposed. The Sheriff might think pointing inexpedient, and in some cases it might be unjust. In a case where the Sheriff thought it inexpedient to insert pointing in his interlocutor, and if he cannot insert imprisonment, how could the decree be made effective if the fine is not paid?

Mr. Morison: When the particular Statute specifies any mode of recovery that is the only one that can be adopted, and it must be adopted if the fine is not paid. Of course, if the fine is paid at the bar there would be no need to insert any pointing order in the judgment. There are no decisions on the point, but it is our experience that the constant practice is in accordance with the view that the insertion of pointing in the 1852 Act precludes the discretion given by the 1864 Procedure Act in cases where the particular Act contains no such provision.

The Sheriff: I am quite willing to put in "imprisonment," but if you prefer not to run that risk I will leave it out. You might look into that point if you should have any cases before me again.

Mr. Morison: I shall do so, my Lord.

ILLEGAL SALE OF CHLORODYNE.

Pharmaceutical Society of Great Britain v. Lewis's.

At the Liverpool City Police Court on Wednesday, January 31, an information at the instance of the Pharmaceutical Society against "Lewis's," of Liverpool and Manchester, for selling a bottle of poison, to wit, a bottle of chlorodyne, which did not bear their name, came on for hearing before Mr. W. J. Stewart, the stipendiary. Mr. Nield appeared for the prosecution, and Mr. Cornett (North, Kirk, and Cornett) for the defendants.

Mr. Cornett intimated that defendants admitted the offence.

Mr. Nield called Arthur Foulds, who proved the purchase of a bottle of Dr. Collis Browne's chlorodyne at the defendant's establishment in Liverpool, and stated that the name of Lewis's did not appear on any part of the wrapper.

Mr. Cornett said his clients knew nothing about it. Everything was carefully done in their establishment, and there was no intention to defraud.

The Stipendiary said an offence had been committed, but there was no deliberate attempt to do wrong, and there would be a fine of 3s. 6d. and 2s. 6d. costs.

Mr. Nield argued that the case had cost the Society a considerable amount, and that the costs should be higher. Defendants were quite prepared to pay the costs before.

The Stipendiary: Then you should have settled with them. I cannot allow more costs on so small a fine.

ROYAL INSTITUTION.

The discourse on Friday evening, January 26, was given by the Hon. C. A. PARSONS on the subject of:—

MOTIVE POWER, HIGH SPEED, AND STEAM TURBINES.

The first traces of steam engines have been found in Alexandria, where Hero devised a novel steam turbine. For many centuries little progress was made in the matter of steam turbines until, in 1884, the dynamo-electric machine gave promise of greater speed in rotary engines. At that time the laws which govern the flow of steam, unknown to Hero, were pretty well understood by the experimenters who sought to construct an ideal rotary engine.

The first experiments were unsatisfactory. A 10-horse power turbine, making 18,000 revolutions a minute, showed a loss of efficiency by reason of a tendency to whip in the spindle. It was thought that this defect would be minimised by increasing the size of the engine, so bigger engines were constructed. In 1888 several turbo-alternators were made, making from nine to ten revolutions a minute, and in 1892 turbines of the radial flow type, fitted with condensers, effected a further economy in steam power.

The new forms of turbine have many uses, being employed for electrical purposes generally, centrifugal machines, ventilation, pumping and lighting stations, and notably for the propulsion of ships. The turbine, on account of its lightness and economy of steam, is especially suitable for the last-named purpose. In 1894 a syndicate was formed for conducting the necessary experiments. The "Turbinia" was built, of 44 tons displacement and 2,000 horse power. The result of the trials was disappointing, inasmuch as the propeller gave trouble through an insufficiency of blade-area. The revolution of the screw caused the formation of cavities or vortices in the water behind the blades, the cavities being filled with water-vapour. This effect has been named "cavitation," and is noticed when the speed of revolution is 1,200 per minute, reaching a maximum at 1,500 revolutions. As a result the propeller is pulled backwards, and much power is absorbed, with a corresponding decrease in efficiency.

The "Turbinia" was refitted with improved turbines, alterations were made in the screw and blade, and in trials made at the measured mile at a Naval Review a speed of 34½ knots per hour was registered. This excessive speed was accomplished with but little vibration, and with an economy of steam.

Larger works were then erected at Wallsend-on-Tyne, and a contract was made with the Admiralty for building a torpedo-boat destroyer, which should have a displacement of 350 tons and a speed of 31 knots per hour. The engines resembled those of the "Turbinia"; they were in two duplicate sets, working four screw-shafts, each of which was provided with two propellers. The engines were so constructed that they could be reversed almost immediately. This destroyer, which was named the "Viper," was soon recognised as the fastest vessel afloat when, on her second trials, she attained a mean speed of 34·8 knots, while her fastest speed was 35 knots, equivalent to 41 statute miles (nearly) per hour, the indicated horse-power being 11,000.

These steam turbines possess advantages, besides that of speed, which should render them specially suited for other types of vessels, including ocean liners, battleships, and cruisers. The reduction in weight and economy in the consumption of coal and the absence of vibration not only conduce to the comfort of passengers, but they also render possible a far greater accuracy in sighting when firing off naval guns. Thus, a cross-Channel boat, 270 ft. long, 53 ft. beam, could carry 600 passengers with a speed of 30 knots, against the present speed of 19-22 knots.

It is possible to construct an unarmoured cruiser, twice as long as the "Viper," with a displacement of 2,800 tons, capable of maintaining a speed of 44 knots per hour during eight hours. Similarly, vessels of other types might be built, ocean liners, large

cruisers, etc., in all of which reduction in weight, a minimum of vibration, economy of coal, and increased speed are of primary importance. It has been said that in engineering simplicity and economy are the main objects to aim at. In these respects the steam turbine is without an equal, and promises to achieve a wide popularity.

LETTERS TO THE EDITOR.

The Pharmaceutical Position.

Parliament is about to meet. It has now met, and the Pharmaceutical Council is said to be at a deadlock. Admittedly it is, Micawber-like, walking round, talking wisely, and waiting for something to turn up. Something will turn up, and it is merely a truism to say that the chances, practically amounting to a certainty, are that the unexpected will happen. So far the statement cannot be questioned; then what do the elementary principles which govern everyday occurrences dictate? Do not reason and prudence say this is the time for action, for forethought, for being prepared for any eventuality? Let me briefly state the case, and see if we can ascertain what and where the issue is. If I am wrong in my statement it is best I should be put right. Thirty-two years ago compulsory examinations were instituted, and it was expected that a period of progression, of enhanced status, and greater public utility, was inaugurated; but some dozen years later we have a decision nullifying the Act of Parliament, inasmuch as it confiscated the privileges acquired according to law. Indeed, it did more, this illogical and unjust decision placed penalties upon the qualification; for the acquirement of a qualification involved neglect of business training and, to that extent, incapacity for the free competition. This, then, came to be the state of affairs, and we neglected to insist upon our rights and principle—in all probability we thought our principle was “such a little thing” that it was not worth fussing about; anyway, it is a fact that we heeded not the prophet, Dr. Atfield, who warned us what was coming, and to-day the whole position of the qualification and the practice of pharmacy has become so absurd and preposterous as to force even the Government to step in and say that so far as the practice of pharmacy by companies goes it must be made regular. That is the position at the present moment—viz., it is intended by the Lord Chancellor to define the nature of our qualification. He says, in illustration of his meaning, “Personal qualification and responsibility do not cohere with company practice of pharmacy,” so that, clearly, if we allow company pharmacy at all we also allow that the personal responsibility and qualification essential to a profession is not necessary in pharmacy, and therefore a profession of pharmacy is unnecessary. This is the position which it is said we must not face; but it is there nevertheless. The beginning and ending of all idea of limited liability law is limited responsibility, and, further, no servant is responsible in the same way as a proprietor. Take a qualified assistant to a qualified proprietor, you have the proprietor's responsibility; but take a qualified servant of a company—any sort of company, either qualified or unqualified—and what is the result? Destruction of the principle of personal responsibility. And that would be a fact to be reckoned with for ever! For there is no questioning it, pharmacists would have to become “hewers of wood and drawers of water.”

We have another section of chemists, almost as small, numerically, as upholders of the qualified managership idea, who possess themselves with the idea they have found a remedy in qualified directorates; and this “ignus fatuus” seems to cast such a glamour over otherwise clear-thinking minds and attracts them to coquette and trifle with it. In this connection it must before all things be remembered what is possible to us on this companies question, and it will be found that the nature and character of the qualification is the only matter to be considered. I say that the Lord Chancellor

focuses the issue in such a way as to give us one grand, possibly final, opportunity of settling the chemist's status.

It is clear as noonday we need to compel the withdrawal of the companies clause which relates to pharmacy. It cannot be amended, and we need to prosecute our claim by every resource in our power for exemption from the operations of the Companies Act along with the other professions. As a mere matter of expediency this is the soundest course to adopt. Well, but these authors of qualified directorates say we shall gain more by skirmishing than by attacking movements. I do not appreciate their reasoning. There is a position which is ours by right, which is always allowed to be ours. And we have to go out skirmishing! What for, pray? Is it to harass the enemy, whom we affect to despise, in order to induce him to permit us to use our own position in some way not inimical to him? I call that selling your soul and, though it may not be in good taste, I beg to say that I am not prepared to do that *at any price*. Now, why cannot Mr. Glyn-Jones, *e.g.*, face this argument? It is fair!—His “wonderful panacea,” I take from Mr. Carteighe's description at the Council, is something which, whilst recognising companies on the one hand, would make it very awkward for them to practise—in other words, while proposing to formally recognise them in the matter—only so far, mind you, as the Pharmacy Act extends, viz., some twenty poisons—he would make their recognition ineffective. To go to the Lord Chancellor or the Government with such proposals is as if you wished to defeat your own ends. Allow company pharmacy—the Government will take care it is not ineffective. This is an argument I have used many times in different ways, and I once more dare supporters of this phantasy to face what they would do. No! In the delightful phraseology of Mr. Rymer Young, the “thing is unclean.”

The country is not satisfied with this policy of shelving our problem because it is perhaps difficult, which seems to be going on. Good heavens! to read the everlasting apologies for existing, one would imagine we were a body of grocers—rather hard on the grocers, though—instead of a body having, at a cost of the educative period of their lives, complied with requirements which the State by deliberate enactment demanded.

By implication I am posing as a practical man; and it is fair to ask for at least a general indication of a plan of campaign I would favour. I assert that I am familiar with the inner feelings of that great body in the trade which is necessarily inarticulate—that I am familiar with it, and the feelings are the same all through the country; and I further say that it would be comparatively easy to organise the drug trade into a united and compact body in defence of their professional position.

Blackburn, January 27, 1900.

R. LORD GIFFORD, Ph. C.

[*] At the moment of going to press the Editor learns with regret that a sudden domestic bereavement has prevented Mr. Gifford from completing his communication as he had intended.—Ed. P. J.]

The Pharmaceutical Examinations.

I have read with much interest the many views expressed through the medium of your pages on the Minor examination, the advisability of enforcing a definite period of study, the sectionising of the examination, the crediting to the student of subjects once passed and the fairness of the examiners. Now—all these points have been so thrashed out to leave the subject almost threadbare; but one point has been left without comment—the uncultivated, non-receptive state of the brain of the Minor student when he begins to study for the Minor. On entering the ranks of pharmacy the pupil may have secured an equivalent to the first examination; if not, he immediately proceeds to take this now fast dying examination, generally passing in the first or second year of his apprenticeship. On the demise of this first examination it will be more often than not usual for the pupil to take an accepted examination previous to entering pharmacy. Then comes the retrograde movement; for five, perhaps more, years the tutored state of his brain gradually slips away, and when the day of his manhood and

the Minor comes round we find, no doubt, a practical man, but from the theory point of view a sad condition of mental uncultivation, with the cobwebs of inertia all too strongly holding a decided habitation and a place. Again, the compulsory cultivation of the student to a state of mental receptiveness, a state to be only slowly acquired. I am here referring to the average Minor candidate—the average man who may have for a little while after passing his first examination waded through a series of science lectures and even have his name inscribed in the annals at South Kensington—the average man who sickens and sadly murmurs, “Years yet.”

Now it is this gap of years that requires filling, the interest of the student that wants coaxing to the way that leads to the Minor; to this end an intermediate examination should be enforced. An examination of an elementary nature, the boundaries of which should be clearly defined; an examination the pupil of three years' acquaintance with pharmacy should be able to pass. Let not the syllabus be constructed on the plan of that for the Minor, in whose labyrinth of ambiguity both examiners and candidates lose themselves. When he has taken this step the student will have climatised himself to a pharmacy examination, the idiosyncrasies of which are unique, he will then approach his final with less temerity and doubtless better result. It has always been most patent to me that the candidate at the Minor is at a greater disadvantage than the candidate at the qualifying examination of any other chartered body.

The Minor syllabus reads: “An elementary knowledge is required, etc.,” in botany; this is practically incorrect, and the student, grown wise in his and others' disappointments, lays himself out to read, mark, and learn the latest theory on the alternation of generations, the special functions of chromatophores, centrospheres, and the just discovered eccentric conduct of protoplasm; for this he knows the examiner, not himself, considers elementary, and, fully charged with the fact that the protoxylem being turned towards the periphery is characteristic of the structure of a root, and other “elementary” knowledge, collapses ignominiously when the examiner in the kindness of his heart asks him to describe the humble carrot placed before him; thus he calls again. Six years ago this student could have discoursed on the carrot *ad infinitum*, and the examiner murmurs under his breath, “Dear me, the simplest of questions—every possible chance.” Let us then have this qualifying more gradual, more thorough, and less indigestible. A moderate intermediate, with a moderate fee, and in the accrediting to the student of the first day when passed, a good standard being required ensuring a thorough knowledge of the practical part of the business, for it should not be forgotten that the chemist is qualified for the dispensing of physicians' prescriptions. No doubt there is a chance given to the weak on the first day of the examination to pull through by theoretical merit; on the second this should be done away with, as the lost ground to be made up is so great that the student is generally vainly kicking against the pricks, and so the farther the student has gone, the downfall when it comes—too frequently when all subjects have been passed—is the more bitter and disheartening.

London, January 29, 1900.

H. BROOK CLEGG.

Liquor Bismuthi.

As we have satisfactorily demonstrated where the shortcomings of the B.P. formula for the above lie, and Mr. Dudderidge has failed to do this, it is difficult to understand his reason for occupying your valuable space with, and giving us the trouble to reply to, remarks which he cannot mean to be serious. Fully confident in the stability and utility of our work, we would recommend to Mr. Dudderidge a careful perusal of our paper, and especially that portion which deals with the amount of alkali required. As our paper and previous letter entirely state our case, this correspondence is closed as far as we are concerned.

6, Sandon Terrace, Liverpool,
January 29, 1900.

R. C. COWLEY.
J. P. CATFORD.

What Has the Society Done for Public and Poor-law Dispensers?

In your Annotations last week you refer to the Public and Poor-law Dispensers' Association, and state that much more has been done in the interests of that body by the Society than is generally known. I am not going to deny that, yet I should like to see the result of what it has done take a more practical turn in the interests of dispensing chemists than is at present manifest. In this parish we have two members of the Society on the Board, we have four dispensers, two registered and two not; a few years ago they were all registered—why not now? The President of the Society I believe is a Governor of one of the large London hospitals where they have recently appointed an unregistered assistant dispenser, where previously the post was held by a registered one. Why?

There are many other instances which could be given of a similar state of things. The Pharmacy Act has been in force now thirty-two years. Poor-law dispensaries have been established twenty-eight years, and there are fewer registered dispensers employed in them now than ever. What the Society has done to prevent this I fail to see, and should be glad to be enlightened on the subject. In a short period the British Medical Association has ousted every unregistered assistant from the medical profession. The Public Analysts have made it most difficult for a person of doubtful qualification to hold a post in that capacity. The Sanitary Institute has made it imperative for a sanitary inspector to hold its certificate of qualification. The Medical Officers of Health have made the D.P.H. a *sine qua non* for all aspirants to that office. The Board of Trade has made it impossible for any person to hold the post of inspector of weights and measures unless he passes an examination and obtains a certificate. The Local Government Board has made it possible for an unregistered person to dole out strychnine and other deadly poisons to sick paupers, and the Pharmaceutical Society has been unable to prevent it up to the present. Whether or not the Council is troubled about it I don't know; I only say it ought to be able to prevent it, if it tried with a determination to succeed.

The local secretaries might do a great deal to prevent unregistered persons from obtaining public appointments in their districts by pointing out to the authorities concerned the importance of having a person duly registered under the Pharmacy Act to dispense the poisons supplied to the patients. So also might the Federation of Chemists' Associations if it were on the alert when these appointments are going. There are about 120 dispensers employed in the Poor-law Service, with salaries from £100 to £180 per annum. There is a much larger number employed in general hospitals and dispensaries, and it is my opinion that these appointments should be jealously guarded in the interests of those pharmacists who prefer dispensing and pharmacy to selling hair oil, tooth brushes, and soap.

St. Pancras, January 31, 1900.

W. E. MILLER

B.P. Standards for Drugs.

An “ordinary” pharmacist would hardly make such an unwarrantable attack on the wholesale houses generally as appears on page 75 of your last issue. The writer must be an extraordinary pharmacist, not in regular practice, whose knowledge of the subject on which he dilates so freely is of the armchair order, largely based upon hearsay. There is little or no difficulty in obtaining from any of the recognised wholesale houses the finest qualities of any particular drug or chemical. Speaking for ourselves, our top prices refer to such, and it is our invariable rule to send those out, unless lower qualities are indicated, either by price or name. We have Rad. Patiera Brav. in stock, which has been approved by the Curator of the Society's Museum, and which we list in the ordinary way at a “fair,” and not at any “absurd price.” We hold stock of English aconite root (Bedfordshire grown), and the same appears in our price list. We can also supply from stock good drop gum asafetida when

it is required. The existing houses, most of which have been established nearer two centuries than one, are quite capable and willing to supply all the needs of the trade, either for B.P. articles, or lower grades when required, without the introduction of further competition.

London, January 31, 1900. HEARON, SQUIRE, AND FRANCIS, LTD.

In last week's notes by "An Ordinary Pharmacist," in discussing the question of B.P. standards, your correspondent does me the honour to refer to my notes on an ash standard and spirit solubility for myrrh, and raises the question as to whether, such standard being adopted, it would be possible readily to obtain a commercial article which would respond to the tests imposed. He quotes asa-fetida as on all fours with myrrh. This I do not hold with. The samples I examined were all commercial varieties and listed by wholesale houses. The powders especially show what a wide range exists under the title "Pulv. Myrrhæ." The standards which I suggested are, in my opinion, reasonable, and as it is simply a question of sifting out or otherwise removing extraneous mineral matter—no injurious treatment of the gum resin being necessitated—there is no valid reason why some limit should not be imposed as to the amount of insoluble ash which is permissible. Any good clean "sorts" will come well within the limit stated by me, whilst the higher commercial grades do not yield much more than half the ash content mentioned.

Newcastle-on-Tyne, January 30, 1900.

GEO. F. MERSON.

ANSWERS TO QUERIES.

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

Medical Student (A. G. Y.—38/20).—You should register at once. It is not necessary to begin your professional studies immediately.

Laxative Syrup for Children (W. H. M.—38/12).—Fluid extract of senna pods, 25 fl. oz.; fluid extract of liquorice, 5 fl. oz.; oil of cinnamon bark, 6 minims; oil of coriander, 2 minims; oil of pimento, 2 minims; syrup to make 50 fl. oz.

Zinc White Cement (C. W. R.—38/22).—(1) Rub 60 grains of the finest zinc oxide to a paste with a little turpentine and add gradually, stirring continually, 1 ounce of a thick syrupy solution of dammar resin in turpentine. (2) Pay your subscription to the local secretary if he is prepared to take it.

Prescription for Ointment (C. W. C.—38/14).—Unless anything to the contrary appears, or is known to the dispenser, the prescription you quote— \mathcal{R} Ung. bismuth. oleat., 15 per cent., ζ iss.—should be understood to order 1½ oz. (Troy) of an ointment containing 15 per cent. of bismuth oleate, made up with benzoated lard or soft paraffin.

Morphine Salts (G. B.—38/18).—The coloration is probably due to impurities in the materials employed. You must not expect to obtain products equal in appearance to the commercial salts by the crude method you describe. Moreover, when studying the B.P., there is no occasion to trouble about the details of processes which are not mentioned in that work.

Pharmacy Act Cases (C. E. P.—18/37).—The view you take is quite a mistaken one, as both cases were essential in the public interest and, therefore, undertaken with the worthiest possible object. Even if such results as you suggest were probable, that would not afford a satisfactory reason for refusing to take action when properly authenticated cases of infringement were reported.

Percentage Solutions in Prescriptions (A. Y.—38/19).—In the article dealing with the matter in last week's issue (see p. 89), a slight confusion was introduced by the omission of a few words in the paragraph immediately following the prescriptions. Both dispensers, of course, took the same view of the prescriber's intentions, but the one who dispensed the first prescription was informed that he was right, and the other that he was wrong. The reference in the concluding paragraph of the article was to the opinions expressed by those persons—not by the Editor—who criticised what the dispensers had done.

Limited Companies (38/21).—There was no assistant of the company concerned in the case. The order for the preparation was accepted by an unqualified person, in business as a seedsman on his own account, who has, so far, been held to be simply an agent for the company, and, therefore, not the actual seller. The preparation was sent by the company direct to the purchaser, and it is obviously impossible to secure evidence as to whether or not it was actually despatched by an unqualified person. If you are referring to the possibility of a penalty being recovered under Section 17 of the Pharmacy Act, you will find that the company itself can be, and has been, proceeded against in such a case. See *Pharmaceutical Journal*, July 1, 1899, page 11.

PRACTICAL NOTES AND FORMULÆ.

Starch Gloss.

Boric acid, 5; borax, 3; stearin, 1; white wax, 1. These ingredients are heated with sufficient solution of caustic soda, sp. gr. 1.38, to form a clear fluid, which is then evaporated to dryness. The powder is then mixed with fine starch in the proportion of 1 to 10. —*Pharm. Centralh.*, 40, 539.

Corks Impregnated with Caoutchouc.

According to a recent patent, corks are immersed in a solution of caoutchouc, 1; in benzol, 19; and then dried in a vacuum and freed from odour by exposure to air.—*Pharm. Centralh.*, 40, 406, after *Neueste Erfind und Erfahr.*

Gold Toning Bath.

F. Bühler recommends the following toning bath for matt gelatin paper:—(1) Gold chloride, 5 Gms., is dissolved in water 150 C.c., at 36° C. (2) Strontium chloride, 50 Gms., is dissolved by boiling in water 100 C.c. and added to 1. (3) Potassium sulphocyanide, 25 to 50 Gms., is dissolved in boiling water 250 C.c.; allowed to cool to 97°·5 C. Solutions (1) and (2) are now added to (3), in 4 to 5 portions, with constant stirring; after cooling, the mixture is filtered, any precipitate which forms being redissolved by heating to 100° C.—*Pharm. Centralh.*, 40, 566, after *Chem. Industrie.*

Cleaning Marble Slabs.

(1) The slab is rubbed with a mixture of sodium chloride, 2; powdered lime, 1; pumice stone powder, 1. Afterwards wash with soap and water. (2) The slab is covered with a mixture of sodium bicarbonate, 2; chlorinated lime, 1; and enough water to form a paste, and then washed with water. (3) Grease stains are removed by covering with a paste consisting of kaolin and benzene, and then rubbing off with a towel. Old grease stains can only be removed by rubbing down.—*Pharm Centralh.*, 40, 449, after *Neueste Erfind und Erfahr.*

Betulin as a Colouring Agent,

By heating the bark of *Betula alba* with alkaline solutions and adding hydrochloric acid to the filtrate, a precipitate is obtained, which, after washing and drying, forms a reddish brown powder, having an odour resembling leather and a faint bitter taste. By dissolving it in alcohol or hot glycerin, a concentrated dye solution is obtained, suitable for colouring cosmetics and pharmaceutical preparations. The colour obtained is between a rose tint and a deep red brown, say between that of rhatany and cochineal. A gradual addition of alkali deepens the colour, while organic acids in weak aqueous solutions precipitate the colouring matter. Organic acids are without influence upon it. Solution of lead acetate and quinine sulphate also precipitate the colouring matter. For practical use a solution is made by rubbing down 0.05 Gm. of the colouring matter with 5 Gm. of glycerin containing a little 90 per cent. alcohol until completely dissolved, and then making up to 20 Gm. with distilled water.—*Pharm. Centralh.*, 40, 588.

Imitation of Old Silver.

The metal should be blackened before silvering by immersing in a solution of copper sulphate or lead acetate, 100 Gm., and sodium thiosulphate, 300 Gm., in 10 litres of distilled water. The solution should be heated to 60° C.; after drying, the article should be polished with fine pumice stone. It is now silvered by immersing in a silver bath or by rubbing. For the latter method, silver nitrate, 20 Gm., and potassium cyanide, 50 Gm., are dissolved in distilled water, 150 Gm.; and made into a paste with a mixture of cream of tartar, 1, and chalk, 10. This paste is laid on the metal with a soft brush, and washed off when dry.—*Pharm. Centralh.*, 40, 406.

Unna's Domestic Ointment.

As pointed out at page 637 of last volume, this ointment is composed of yolk of egg, 2; almond oil, 3. The yolk of egg is first rubbed down and the oil is then added drop by drop. The ointment, when rubbed on the skin, produces a smooth soft surface on drying. As a preservative, 1 per cent. of Peruvian balsam is added. The following proportions of medicaments may be incorporated with this basis:—Mercuric chloride 0.5 per cent., lead subacetate, ichthyol, lime water, lianthral, Peru balsam, steatite, starch, styrax and tar, 10 per cent.; vinegar, 33.3 per cent. Goulard water, 50 per cent.; but not vaseline, which prevents drying, nor bodies of the phenol group (carbolic and salicylic acids, etc.), nor most metallic salts, nor oxides, nor chrysarobin, pyraloxin, kieselguhr, nor magnesium carbonate. The addition of sulphur may cause an unpleasant odour, due to the formation of volatile sulphuryl compounds but that may be prevented by the addition of camphor.—*Pharm. Centralh.*, 40, 688.

INTERNATIONAL PHARMACEUTICAL CONGRESS IN PARIS.

Provisional Programme of Subjects to be Discussed at the Meetings.

SECTION I.—GENERAL PHARMACY AND PHARMACEUTICAL CHEMISTRY.—1. Analytical methods suitable for determination of alkaloids glucosides, or other active principles of drugs or their galenic preparations. Problem remitted by the Brussels Congress in 1897, to the Paris Congress of 1900. 2. Posology and antidotes of toxic-substances. 3. International pharmacopœia.

SECTION II.—BIOLOGICAL CHEMISTRY—BACTERIOLOGY—HYGIENE. 1. Unification of methods of analysing urine and pathological products. 2. Unification of methods of bacteriological culture.

SECTION III.—PROFESSIONAL INTERESTS.—1. What preliminary studies are required of pharmaceutical candidates in different countries? 2. System of pharmaceutical study in different

countries. 3. Limitation of pharmacies: Results of the practice. 4. How is inspection of pharmacies carried out in different countries, and how should it be arranged?

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M. Crinon, General Secretary of the Association générale des Pharmaciens de France,

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M. Langrand, General Secretary of the Syndicat générale des Pharmaciens de France.	M. Voiry, Secretary of the Société de Pharmacie de Paris.

TREASURER.

M. Labélonye, Treasurer of the Société de prévoyance des Pharmaciens de la Seine.	M. Leroy, Treasurer of the Société de Pharmacie de Paris.
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LONDON: SATURDAY, FEBRUARY 3, 1900.

THE NINTH INTERNATIONAL PHARMACEUTICAL CONGRESS.

THE prospective attractions of the International Exhibition to be held in Paris this year did not leave much room for consideration of the claims of any other city as being a suitable locality for the holding of the Ninth Pharmaceutical Congress, when the decision of that question was before the members and delegates of the Congress held in Brussels three years ago. The coincidence of the meeting falling in the same year as the Exhibition was a further determining condition, and though the matter was not definitely decided at the time, little doubt remained that the proposition then made by M. PETIT would be adopted. A communication just received from Paris bearing the impress of the Ministry of Commerce and Industry enables us to state that, in connection with the International Congress, an Organising Committee, authorised to make the necessary arrangements for the purpose, has been formed, with Professor PLANCHON as President, M. PETIT, Vice-President, and M. CRINON, General Secretary, supported by many other eminent pharmacists holding official positions in France (see p. 102).

Applications are now in course of being addressed to pharmacists in other countries requesting them to join the Congress at once as members by forwarding their names, together with a postal order for the amount of the member's subscription of twenty francs to be enrolled as *membres effective* or of one hundred francs as *membres donateurs*. This circular also states that in view of the Pharmaceutical Congress being held in Paris this year all the pharmaceutical associations of France have combined to give their assistance in making the preparations requisite for receiving visitors on that occasion. That is the case not only with societies which are purely scientific, like the Société de Pharmacie of Paris, but also with those which are concerned more especially with general pharmaceutical affairs like the Association générale des Pharmaciens de France, the Société de prévoyance des Pharmaciens de la Seine, and the Syndicats pharmaceutiques Français.

The time fixed for the meeting is August 2, so

that ample opportunity will be offered for being present without interference with the arrangements of British and Irish pharmacists who may attend the Pharmaceutical Conference to be held in London at the end of July. The meetings of the International Congress will continue until August 8. They are to be held at the Ecole supérieure de Pharmacie de l'Université de Paris, No. 4 Avenue de l'Observatoire. The members of the Organising Committee express their intention of making the occasion as interesting as possible to all who attend the Congress, and they also request that those who do so may likewise help in that respect by contributing to that great professional assemblage the first publication of some result of their researches. In accordance with the regulations adopted by the Committee the proceedings of the Congress will be arranged in four sections, viz. :—

1. General Pharmacy and Pharmaceutical Chemistry.
2. Materia Medica or Pharmacognosy.
3. Biological Chemistry, Bacteriology, and Hygiene.
4. Professional Interests.

Under these several heads the Organising Committee has already selected several subjects to serve as an indication of the kind of questions to be discussed at the Congress (see page 102), but these are to be regarded only as constituting a provisional programme that is to be completed by the subjects subsequently recommended by the Sectional Committees and also by the papers contributed by members of the Congress.

In order to render the discussions profitable and to make the Congress of 1900 of influence upon the future, the Organising Committee desires most strongly to impress upon members of the Congress the desirability of their bringing forward only subjects which have a general international interest and an importance that cannot be disputed. Such communications as are sent in complete three months before the opening of the Congress will, if suitable, be made the subject of reports, that can be discussed in the sections or in general assembly: those which are not presented until a month before the opening can only be discussed at the sectional meetings; but the Organising Committee in any case reserves to itself power to withhold from the proceedings of the Congress any contribution that may not receive its approval. In addition to the meetings devoted to the discussion of scientific and professional subjects the Committee proposes to arrange various excursions that may be likely to offer attractions to visitors. As among events of this kind that will take place during the Congress mention is made of the inauguration of the monument to be erected in memory of MM. PELLETIER and CAVENTOU, to whom the world is indebted for the discovery of quinine. As for any information desired in reference to the Congress, application should be made to M. CRINON, the General Secretary of the Organising Committee, whose address in Paris is No. 45, Rue Turenne.

The circulars of invitation to join the Congress referred to above are being issued by the President and General Secretary, on behalf of the Organising Committee, to pharmacists whose addresses are known to them, and they request that the terms of the invitation should be published in this Journal in order to secure more general cognisance of their desire that the Congress should be largely attended.

THE STRENGTH OF THE SOCIETY.

At the close of 1899 the Pharmaceutical Society was stronger numerically than it has been at any former period of its existence, as shown by the following table, in which the figures are given for corresponding periods during the past three years:—

Subscribers.	1897.	1898.	1899.
Registered Chemists	4,775	4,840	5,820
Students	873	866	884
Total	5,648	5,706	6,704

The registered chemists connected with the Society at the end of 1899 were nearly a thousand in excess of the total twelve months earlier, and there was also an increase in the number of subscribing students. At the January meeting of the Council further additions were made to both lists and, to follow the precedent of last year, the real strength of the Society at the present time, as compared with similar periods in former years, is shown in the following table:—

Subscribers.	1898.	1899.	1900.
Registered Chemists	4,864	5,166	5,906
Students	974	1,007	941
Total	5,838	6,173	6,847

That is to say, the total strength of the Society has increased by more than a thousand during the past two years, whilst the number of registered chemists subscribing to the representative body—a much more important matter—has been increased during the same period to a still greater extent.

THE SOCIETY AND "THE TRADE."

TWELVE months ago it was pointed out in these columns that the extent to which the registered chemists of Great Britain were directly represented by the Pharmaceutical Society was then of exceptional interest, in view of the necessity for a very decided increase in the membership of the Society if the Council was to attempt seriously to secure further parliamentary powers to regulate the practice of pharmacy. At that time the number of registered chemists connected with the Society barely attained to one-third of the total number of persons whose names were entitled to appear upon the Register of Chemists and Druggists; but the number has since steadily increased, and at the end of the year 1899 the position was as follows:—

Registered Chemists.	1897.	1898.	1899.
Members	4,775	4,840	5,820
Non-Members	10,440	10,633	9,775
Total	15,215	15,473	15,595

The foregoing table shows that the number of members had been largely augmented during 1899, so that the relative proportion of members to non-members had been increased to considerably more than one-third instead of being well under that proportion. But considerable additions have been made both to the Register and to the strength of the Society during January of this year, and the actual position a fortnight ago was as shown in the following table:—

Registered Chemists.	1898.	1899.	1900.
Members	4,864	5,166	5,906
Non-Members	10,481	10,412	9,804
Total	15,345	15,578	15,710

The table includes the figures for the corresponding period—mid-January—in 1898 and 1899 respectively, and it will be seen that whilst the net additions to the Register during the past two years number 365 only, the membership of the Society has increased by 1,042, *i.e.*, nearly three times the number. At the same time this result is far from what it ought to be, and the Council of the Society cannot yet be congratulated upon having behind it such largely increased forces as would alone justify such a vigorous policy as has been advocated in certain quarters.

SUBSCRIPTIONS TO THE SOCIETY.

At this period of the year, it is desirable that members of the Pharmaceutical Society, particularly if they have any intention of giving up their membership, should have a clear idea regarding their liabilities in connection with the body to which they belong. The bye-law which regulates the payment of subscriptions provides that "all annual subscriptions shall become due on the first day of January in every year, and if any person shall not have paid his annual subscription before the first day of May in any year, his name shall be omitted from the Register of Members or of Student-Associates." But it must not be supposed that this automatic omission of his name relieves the individual from all further responsibility in the matter. In reality, if he has omitted the formality of sending in his resignation, he can be sued for arrears of subscriptions. Moreover, it is quite competent for the Council to decline to recognise even a formal notice of resignation as terminating the contract entered into by the individual, unless it has been received before the end of the year for which the latest subscription has been paid. Accordingly, members who may at any time feel disposed to retire from the Society should bear in mind that if they do not give formal notice of their resignation during the term covered by the latest subscription they have paid, they will be—legally as well as morally—liable to contribute further to the Society's funds, unless the Council, as an act of grace, consents to forego its undoubted claim upon them.

ANNOTATIONS.

THE BRITISH PHARMACEUTICAL CONFERENCE is, we are informed by the president of that body, in need of more members, more funds, and greater support generally, and he is anxious that, during his year of office, considerable improvement should be manifested in that direction. But how the improvement is to be effected is not altogether obvious. Of course, if every existing member were to nominate at least one other person as a member, the problem would be solved so far as present needs are concerned, but even then the position would not be an ideal one for such an association. At present there appear to be some eleven hundred subscribing members of the B.P.C.; doubling that we get more than two thousand; but there are nearly sixteen thousand registered chemists in Great Britain, to say nothing of those in Ireland and of the fact that membership is not limited to registered persons. Nevertheless, the accession of a considerable number of new members is imperative if the Conference is to continue its course on present lines, and it must devolve chiefly upon existing members to find the lacking material. At the outset, however, the most enthusiastic canvasser has been confronted with the difficulty that he does not know who, in his particular district, is a member and who is not. The only way in which he could obtain the desired information was the tedious method of going carefully through the alphabetical list in the latest 'Year-Book,' and that would naturally deter many from proceeding further. To get over the difficulty, the president of the Conference, Mr. E. M. Holmes, has had a fresh list compiled, in which the names of all the members are arranged alphabetically under the names of towns, so that it is possible to see at a glance whether any particular individual residing in a given town is connected with the Conference or not. If a copy of this list could be sent to every member, with a notification to the effect that any assistance he could give would be beneficial to himself and the whole body, the result ought to prove distinctly encouraging, and it is to be hoped that means will be found of providing for a wide distribution of the list.

A CURIOUS FACT brought out by Mr. Holmes' list is that a certain amount of lip-loyalty to the Conference sometimes takes the place of the real thing in the centres visited on the occasions of the annual meetings, and that those meetings do not always result in a large and permanent addition to the membership. Thus, to take the last eight centres—Edinburgh is represented by forty-four members, Nottingham by seven only, Oxford by six, Bournemouth by nine, Liverpool by fifty-one, Glasgow by forty-three, Belfast by twenty-two, and the Plymouth district by fourteen. In view of the fact that the town visited in any given year is usually regarded as the chief recruiting ground for that year, the state of affairs disclosed by some of the figures is not satisfactory. At the same time, it must be borne in mind that many residents in a district join the Conference during the year that district is visited, and subsequently cease to subscribe, feeling no further interest in the association afterwards. But if there is any substantial reason for the existence of the Conference as a separate organisation, it would seem as if the body ought to be more largely and continuously supported by registered chemists in some of the towns and districts where the annual meetings have been held during recent years. London, by the way, is credited with three hundred and one members; if all those attend the meeting in July next and bring their sisters, cousins, and aunts, the occasion will probably be a record one, without reckoning the numerous contingents from outside. Each London member, too, may reasonably be expected to induce at least one other person to join the Conference, and in the event of that being done, the funds of the wandering association should be in an exceptionally flourishing condition six months hence.

THE PRELIMINARY EXAMINATION, which has been conducted by the Pharmaceutical Society for so many years past, will be held

for the last time on July 10 next, and its place will subsequently be taken by scholastic examinations conducted by universities and other examining bodies in the United Kingdom. It is important to note the latter fact, for, though the "First" examination of the Society is to be abolished, the necessity of passing an approved preliminary examination prior to entering for the Minor examination will exist as heretofore. June 26 next is the last day upon which candidates can give notice to the Registrar of their intention to present themselves for the final "First" examination; after that date persons desirous of obtaining registration as "apprentices or students," and of thus becoming eligible to enter for the Minor examination, must deliver to the Registrar, on behalf of the Boards of Examiners, a certificate of having passed an examination—in English grammar and composition, Latin, a modern foreign language, arithmetic, algebra, and Euclid—conducted by one of the recognised examining bodies. It may be pointed out that, in accordance with the Society's bye-laws, a candidate who has attended and failed to pass the "First" examination is entitled to attend an examination "on any future occasion" on payment of a reduced fee of one guinea, but after July next there will be no "future occasions" upon which previously unsuccessful candidates can attend the "First" examination. A registration fee of two guineas must, subsequently, "in every case" accompany the certificate submitted by a candidate for acceptance.

THE NINETEENTH JUNIOR PHARMACY BALL will be held at the Portman Rooms, Baker Street, W., on Wednesday next, February 7, the time announced for the first dance being 9 p.m. precisely. Mr. Mortlake Mann's Orchestral Band has been engaged. Among the prominent pharmacists who have promised their support on the occasion are the President of the Pharmaceutical Society, Mr. William Martindale; two past-Presidents, Messrs. Walter Hills and Michael Carteighe; and Mr. Arthur L. Savory, a member of the Pharmaceutical Council. As in the case of the Chemists' Ball, any surplus remaining after payment of expenses is usually handed over for the benefit of the Pharmaceutical Society's Benevolent Fund. Tickets (7s. 6d., each, including supper and light refreshments) should be promptly applied for by those who propose to attend and have not already secured them. They can be obtained from the Hon. Secretary, Mr. Ralph L. Cassie, 49, Newgate Street, E.C.

A CHEMISTS' CLUB has been established in New York, and the *Pharmaceutical Era* publishes an interesting account of the institution, which has no counterpart in London, much as a place of the kind seems to be required. The objects of the Club are the promotion of good fellowship among the members and the advancement of the science and application of chemistry. There are two classes of members—resident and non-resident. Any person who is interested in the science or practice of chemistry is eligible for membership, and, although the club has only been in existence for about a year, there are already more than a hundred and thirty resident members. The club-house contains a general reading-room, a library, smaller reading-rooms, etc., and is comfortably furnished. It is intended to establish a great chemical library in the house and to inaugurate a system by which members living at a distance can receive abstracts, copies, or translations of chemical papers. A directory of all chemists living in the United States and Canada is also being prepared for reference purposes. What the club at present offers to non-resident members is the use of a large and rapidly-growing chemical library, including files of all the leading chemical journals, together with the surroundings and advantages of a private study. The results of the first year's working have proved successful, and the president—Professor C. F. Chandler, of Columbia University—has now issued a circular, in which he appeals to the chemists of the United States and Canada to rally to the support of the club. The annual subscriptions are twenty-five dollars for "resident" members, living within a radius of twenty-

five miles of the New York City Hall, and five dollars for "non-resident" members, living beyond that radius.

THE USE OF SPECIAL BOTTLES FOR POISON is attended by one drawback which no expenditure of ingenuity can be expected to overcome, for it is difficult to see how any practical means can be devised to prevent such bottles being used for liquids which are not poisonous. On the whole there is no doubt that the use of special bottles for poisons affords a certain measure of safety, but it is quite conceivable that the safeguard so afforded may be weakened by their indiscriminate use. Pharmacists, as a rule, decline to put ordinary medicaments in poison bottles brought for the purpose by customers, but many tradesmen are less particular. The result is that the effect of the warning conveyed by bottles of unusual shape and colour tends to become minimised amongst people who are content to use any kind of bottle for liquid preparations they are in need of. A bad case of the kind referred to has been brought under notice by a correspondent who expresses the hope that it is unique. A one-ounce blue, ribbed, octagon bottle, with the words "Not to be taken" on one side, has been sent out from the surgery of a medical man containing medicine for internal use. The label on the bottle shows the printed words "A tablespoonful to be taken every three hours," but those words are scored out, and below appears the written statement, "The draught, as directed." The chemist who sends the bottle states that it was handed to him, in the condition described, to be filled with sal volatile. The facts may be left to speak for themselves, but the lack of discretion betrayed by the medical practitioner whose name appears on the label is certainly worthy of attention.

THE SALE OF INSECTICIDES is the subject of a leading article in the *Garden*, which commences with the statement that the Pharmaceutical Society was "professedly" incorporated for the public benefit, more particularly to secure that the sale of poisons and the dispensing of drugs should only be undertaken by persons properly trained and qualified for the work. Everyone, it is stated, will admit that it is to the advantage of the community that physicians' prescriptions should be compounded by skilled hands, and that it would not be for the good of the community if certain dangerous preparations could be dispersed broadcast by anyone who chose to deal in them for purposes of mere profit. "It conduces to the public weal that supervision should be exercised by a recognised authority over the retail vendors of poisons, and that in the case of certain special preparations a register of retail sales must be kept, in which must be entered the date of the sale and the name and address of the purchaser, together with the purpose for which he stated the material was intended to be used. Such regulations are for the good of the public, and should be properly enforced." But, the writer of the article continues, after accomplishing much good work in taking action against unqualified persons for selling proprietary medicines containing poisons—"a legitimate sphere for its operations"—the Society seems of late to have taken quite a new view of the reason for its existence. It is almost needless to say that the proceedings taken against seedsmen and florists for the illegal sale of scheduled poisons constitute the Society's offence inveighed against in the rest of the article under consideration. In putting down such illegal sales the Society is declared to be simply acting as a trade protection society, though under the pretence that what is done is in the public interest.

AN INEVITABLE RESULT of that action, it is alleged, will be to raise the price of poisonous weed-killers to the consumer, but how that effect is to be produced is not explained. In conclusion, much comfort is derived by the writer from the recent Queen's Bench decision, and it is asserted that there is little cause to fear that the decision will be reversed. But if that be so, why should the gardening papers be so excited about the matter? Why, also, should they quote with such unction certain alleged remarks of

"the distinguished lawyer who now fills the position of Lord Advocate?" The opinion of the individual referred to may be worth something, though it is doubtful how much, and in any case it is not always advisable to put too much trust in statements given utterance to amid the excitement of large public meetings. Being asked if he would support a Bill in Parliament making it legal for "seedsmen and other agents" to sell poisonous preparations, such as sheep-dips, insecticides, weed-killers, etc., the Lord Advocate is reported to have replied that where poisonous substances were dealt with in the way of being dispensed, it was only right that it should be done by qualified persons only. But, in his view, where those substances did not need to be dispensed, but were supplied by the manufacturer in the final form in which they were to be applied, "he saw no reason why any trade or profession should have a monopoly of selling them, provided proper regulations were made and precautions taken that they would not be supplied or used for any other purposes than those for which they were meant." It is evidently intended to work the "monopoly" fiction for all it is worth, both in and out of Parliament; but, in all seriousness, it is high time that public officials and the conductors of important periodicals should learn to use the English language with a proper sense of its meaning.

A REFORM MOST URGENTLY NEEDED, according to the outspoken editor of the *Practitioner*, is that would-be reformers should reform their manners. "Whether they are denouncing the General Medical Council for not excommunicating club doctors, or shrieking against the British Medical Association because it does not transform itself into a trade union, or calling on the State to protect them against midwives, they can only be described as literary Hooligans. With a very few exceptions, they are men of no professional or social standing, who find an easy means of notoriety in medical politics." It would almost appear, Mr. Malcolm Morris remarks, as if some of the individuals referred to must get their living by "reform" work, for they seem to do nothing else, and the serious point in the business is that the profession is, through mere inertia, allowing itself to be represented before the eyes of the public by "a mere handful of fussy nobodies, ill-bred, ill-educated, and ill-conditioned both in intelligence and in temper. To see them and hear them speak is enough to make one ashamed of one's profession." Though exaggeration is manifest in the passages quoted, there is doubtless much truth underlying Mr. Morris's complaint, and with slight modification his remarks might be applied with a fair degree of appropriateness to certain chronic grumblers in pharmaceutical circles.

THE SALE OF FOOD AND DRUGS ACT, 1899, requires, for its efficient working, the drafting and adoption of regulations dealing with various matters, and the Right Hon. W. H. Long, M.P., President of the Board of Agriculture, has now appointed a departmental committee to inquire and report as to what regulations, if any, may with advantage be made by the Board of Agriculture—under Section 4 of the Sale of Food and Drugs Act, 1899—for determining what deficiency in any of the normal constituents of genuine milk or cream, or what addition of extraneous matter or proportion of water in any sample of milk (including condensed milk) or cream shall, for the purposes of the Sale of Food and Drugs Acts, 1875 to 1899, raise a presumption, until the contrary is proved, that the milk or cream is not genuine. The committee will consist of the following gentlemen, viz.:—Lord Wenlock, G.C.S.I., G.C.I.E. (chairman), Mr. George Barham, Mr. George Cowan, Major Patrick George Craigie (an assistant-secretary of the Board of Agriculture), Mr. S. W. Farmer, Mr. Shirley F. Murphy, M.D., Professor Thorpe, F.R.S. (Principal Chemist of the Government Laboratories), and Mr. J. Augustus Voelcker, Ph.D. Mr. Robert Henry Rew, of the Board of Agriculture, will act as secretary to the committee.

ENGLISH NEWS.

ANNUAL DINNER OF THE SCHOOL OF PHARMACY.—All past students, and all those who are interested in the welfare of the School of Pharmacy, are reminded that the above dinner will take place at 7 p.m. on Wednesday, February 21, at the Holborn Restaurant, in the Caledonian Salon. Tickets (to be returned if not required) have been sent to those whose addresses are known to the secretaries, and any who have not received one by this time, and are desirous of being present, should communicate with the Hon. Secretaries, Messrs. Edgar M. Chapman and John Lawson, 17, Bloomsbury Square, W.C. Tickets, price five shillings each. The dinner this year bids fair to be a great success. The Dean of the School, Prof. J. Norman Collie, will be in the chair, supported by the President of the Society, Wm. Martindale; two past-Presidents, Messrs. Walter Hills and Michael Carraighe; Prof. J. R. Green, Dr. Atfield, and many other prominent pharmacists, who have intimated their intention of being present. The musical arrangements for the evening have been undertaken by Mr. A. Newton, who will act as pianist, and who has got together a strong programme, given entirely by present students and their friends.

PHARMACEUTICAL DRILL CLASS.—A second meeting of the staff and students of the School of Pharmacy was held on Monday, January 29, to receive the report of the Committee which had been appointed at the last meeting. Professor Collie took the chair, and called upon Mr. Upsher Smith, Chairman of the Committee, to present the report. He said that permission had been provisionally obtained from the President, until the Council meeting, for the use of the Examination Hall, providing gymnasium shoes were worn. The cost would probably not exceed half-a-crown a head. A drill instructor could easily be obtained. Full particulars had not yet been obtained with regard to the cost of an ambulance class, but the local district secretary was coming to interview the Committee on Wednesday. About twenty students had intimated their intention of joining if it would not take more than an hour a week and the cost was not more than five shillings. The Committee, therefore, recommended "That a School of Pharmacy drill class be formed," and he begged to move it as a resolution. Mr. Garsed seconding, it was carried unanimously. Mr. Chapman then proposed, and Mr. C. T. Allen seconded, "That this general meeting of the students of the School of Pharmacy requests the Council of the Pharmaceutical Society to favour them with the use of the Examination Hall for the purpose of drilling," which was also carried. Mr. Deane having given further information about ambulance classes, the matter was left for report to another general meeting. A vote of thanks to the Chairman, moved by Mr. Chapman, and carried by acclamation terminated the proceedings. The Secretaries afterwards went to the Wellington Barracks and obtained the services of a sergeant from the 2nd Battalion of the Grenadier Guards, and the first drill was held on Wednesday, January 31. If any old Square students wish to join they are requested to communicate with the secretaries.

IMPERIAL COLLEGE OF CHEMISTRY.—On Thursday, January 25, Dr. W. Hampson lectured to the students of this college on "Liquid Air." After a few preliminary remarks upon the effects of cold and pressure, and other physical phenomena, Dr. Hampson, by means of apparatus, obtained a temperature of -192°C ., and prepared about half a pint of liquid air, subsequently performing a series of most interesting experiments. Chloroform, ether, absolute alcohol, whisky, were frozen in the fluid, and passed to the students in the solid state, for handling and inspection. Metallic mercury was immersed in the liquid air, becoming solid and malleable, being bent, forming a hook from which a pound weight was suspended; whilst liquid air placed upon ice boiled away so

vigorously on account of the comparative great heat of the ice that the students perceived that the term cold is an expression not fully appreciated. It was noticed that as a portion of the liquid air boiled away from the inner tube of the vacuum jacket the remainder assumed a blue colour. This, Dr. Hampson explained, was due to the nitrogen passing off more rapidly than the oxygen, so that the fluid remaining consisted of nearly pure liquid oxygen, which was proved by further experiment. The carbon dioxide and moisture were removed from the air employed for the experiments prior to liquefaction. In the course of his remarks Dr. Hampson stated he had supplied the liquid air in which Professor Ramsay discovered neon, crypton, xena, etc.

NEWCASTLE CHEMISTS' ASSOCIATION.—The third annual dinner of this Association was held on January 24 at the Hotel Metropole, Newcastle-on-Tyne. There was a large and representative attendance. Mr. Charles Ridley (Newcastle), the President of the Association, occupied the chair, and others present included Dr. Drummond, Dr. Limont, Dr. Slater, Mr. T. M. Clague, Mr. G. F. Merson, Lieutenant John Gibson (Hexham), Mr. T. D. Ridley, Mr. G. Weddell, Mr. Rose (Jarrow), and Mr. Wm. Kerse (Treasurer). The Secretary (Mr. F. Gilderdale) was unfortunately prevented from attending owing to indisposition. After the toast of "The Queen," proposed by the Chairman, and that of "The Army, Navy, and Auxiliary Forces," proposed by Mr. Kerse, Mr. T. Maltby Clague proposed "The Medical Profession." That was responded to by Dr. Drummond. Mr. G. Weddell proposed "The Pharmaceutical Society," to which Mr. J. D. Rose responded, and "The Newcastle and District Chemists' and Kindred Associations" was proposed by Mr. F. R. Dudderidge, and responded to by Mr. G. F. Merson. The toasts were agreeably enlivened with harmony.

WOLVERHAMPTON AND DISTRICT CHEMISTS' ASSOCIATION.—The chemists of Wolverhampton and district met on Monday, Jan. 29, and elected the following officers:—President, Mr. F. J. Gibson; Vice-President, Mr. S. Philips; Hon. Treasurer, Mr. Cullwick; Hon. Secretary, Mr. J. H. Coleman; Members of Committee, Messrs. Hall, Towler, and Walker.

LIEBIG'S EXTRACT OF MEAT.—On January 27 the action of Liebig's Extract of Meat Company, Limited, *v.* Stacey and Co., was tried before Mr. Justice Buckley in the Chancery Division of the High Court of Justice. The plaintiff company, which has carried on the business since 1865 as a manufacturer of extract of meat made according to the instructions of the inventor, the late Baron Justus von Liebig, sought to restrain the defendants (who carry on business as grocers at Yarmouth) from selling extract of meat not made or manufactured by the plaintiff company as and for the company's extract. Evidence was given to the effect that the plaintiff's extract was known by the names of "Liebig Company's Extract of Meat," "Liebig Company's Extract of Beef," "Liebig Company's Extract," and the "Company's Extract," and that defendant's assistant, in response to an order for "Liebig Company's Extract," supplied an extract made by the South American Meat Company. Defendants denied that there had been any misrepresentation, but after hearing the witnesses his Lordship granted an injunction and ordered defendants to pay the costs of the action.

SALE OF CAMPHORATED OIL.—A decision of some importance was given at the recent Luton Divisional Sessions, when an adjourned case against Ellen S. Cowdery, grocer, of Leagrave, charged with selling camphorated oil deficient in camphor to the extent of 16 per cent., came on for hearing. The facts of the case were that Inspector Mason purchased six twopenny bottles of camphorated

oil from the defendant, with whom he left two bottles. Two other bottles were submitted to analysis, and the oil was said to contain 17.5 per cent. of camphor. It was contended for the defence that the Inspector had not properly divided the samples taken, the suggestion being made that the bulk purchased must be mixed up and then divided.—It was now contended for the prosecution that the suggestion referred to was little short of an absurdity, and that the Inspector had carried out all the requirements of the Food and Drugs Act.—Mr. A. Ekins, M.P.S., of St. Albans, having given evidence as to the component parts of camphorated oil, the Chairman said the magistrates were of opinion that the Act had not been complied with, and they therefore dismissed the case.—Inspector Mason is stated to have entered into recognisances to prosecute an appeal in the High Court.

INLAND REVENUE PROSECUTION.—William H. Hewett, chemist and druggist, West Cowes, was summoned at the Isle of Wight County Bench on Saturday, January 20, for selling methylated spirits on November 27 without a licence.—The Supervisor of Inland Revenue said that the defendant had taken out a licence for twenty years, and the usual notice was sent him on October 27, and on November 20 he was reminded that the tax was still unpaid. On December 6 Mr. Hewett renewed his licence, but in the meantime an assistant Excise officer had purchased some methylated spirits at defendant's shop.—Mr. Hewett, who pleaded guilty, said it was an oversight.—The magistrates inflicted a fine of 6d. and costs 16s.

CHEMISTS' DEFENCE ASSOCIATION CASE.—On Monday, January 29, Mr. W. R. Barnes, pharmaceutical chemist, Upton Manor, was summoned before Mr. Baggallay at the West Ham Police-court, for having, on December 23 last, employed a lad under the age of eighteen for a longer period, during the week ending that date, than is allowed by the Shop Hours Act.—Dr. Sanders, Medical Officer of Health, prosecuted, and Mr. Barnes was represented by Mr. F. W. Beck, solicitor to the Chemists' Defence Association.—The first witness for the prosecution was the lad, who stated that his name was Charles Pack, and that he was employed by Mr. Barnes as an errand boy. His age was eighteen on December 21, 1899.—Dr. Sanders said that if that were so he would, of course, have to withdraw, but his information was that the lad was under eighteen.—Mr. Beck then handed to the magistrate a certificate of birth, showing that the boy was eighteen on December 21 last. He asked that the case should be dismissed, and that the defendant be allowed costs. It was due to Mr. Barnes to point out that if the case had been gone into the most the prosecution had alleged was that Mr. Barnes had employed the lad seventy-six instead of seventy-four hours per week. He also pointed out that Mr. Barnes had allowed the lad two hours each day for dinner and tea, whereas if he had allowed him only half-an-hour for each of these two meals, he would have been able to employ him for four hours a week longer.—The magistrate dismissed the case, but said that he would not allow costs, as the lad was only two days over age.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.—A meeting of this Association was held on Tuesday, January 30, when Mr. Waddington read a paper on "Proprietary Articles: How far is Substitution Justifiable?" He said the subject was so important to every individual in the business that no apology was needed for introducing it. After tracing the origin of the trade in proprietary articles, he summarised his conclusions as follows:—(1) Sell proprietaries at store prices, but not below cost; (2) keep them in the background; (3) let your customer know you have them; (4) then try substitution; (5) maintain your standing as chemists and not store-keepers; (6) discard all gratuitous bills and stationery and P.A. show cards; (7) use your own; (8) influence the medical men as much as you possibly can.—A discussion ensued, and Mr. Waddington was thanked for his paper.

LIVERPOOL CHEMISTS' ASSOCIATION.

The annual meeting took place at the Royal Institution, Liverpool, on Thursday evening, January 25, the President, Mr. ANTHONY S. BUCK, in the chair.

After the minutes of the previous meeting had been read and confirmed, and various donations of periodicals announced, Mr. F. D. Fossett was elected a member.

Mr. R. C. COWLEY then asked if

FERROUS ARSENIATE

was used to any considerable extent in dispensing, and, if so, what were its special recommendations to favour in the eyes of medical men. In the light of recent researches he had undertaken it would be of interest to him to know if its value was based upon its arsenic content or upon that and the ferrous iron it was supposed to represent.

Several members agreed that it was not of general use, and Mr. MARSDEN suggested that Mr. Cowley embody his results in a paper for the edification of the Association—a suggestion which was well received by the meeting and emphasised by the PRESIDENT. Mr. COWLEY said he would consider the matter.

PRESENTATION OF REPORTS.

A very satisfactory annual report was then read by Mr. DUTTON, showing a well-sustained numerical roll and alluding to the various business and scientific topics broached in the course of the year. Following that Mr. WILLINGS read the Treasurer's report, by which it was seen that the financial affairs of the Association were in a very prosperous condition.

The usual votes of thanks were then accorded to the retiring President, Mr. Edward Evans, and the other officers of the Association. Special mention was made of the ability with which Mr. Prosper Marsden had conducted and was conducting the duties of Secretary in the absence abroad of Mr. Theo H. Wardleworth. The donors of books, periodicals, and pamphlets to the library and of materia medica specimens to the museum also came in for appreciative recognition of their generosity.

ELECTION OF COUNCIL.

The election of seven members of the Council then took place, and resulted in the following gentlemen being re-elected:—Messrs. Bain, Buck, Cowley, Marsden, Wardleworth, and Wokes, the new member being Mr. Hudson.

Presidential Address.

The PRESIDENT proceeded then to deliver his inaugural address, in which he first referred to the subject of:—

MEDICAL DISPENSING.

He held that medical practitioners frequently take up dispensing from actual necessity. Patients have not yet been educated to paying for advice only, and do not see the force of paying a fee unless they have something for it. They do not recognise the advice as that something; but when a bottle is handed over the case is quite altered. Then, again, in some districts the stock in chemists' shops is not of a nature to fill the position or requirements of a dispensing pharmacy. A nurse has been known to take a prescription for liquor atropinæ sulphatis to six shops without being able to get it dispensed. Naturally if a doctor cannot obtain locally what he requires for his patients the tendency must be for him to obtain it from one of those wholesale firms who are so ready to supply doctors, especially those just commencing practice, with drugs and sundries for setting up a dispensary.

In a recent issue of a medical paper a firm of wholesale chemists advertised that as it did not employ travellers it was enabled to supply the best drugs, chemicals, and pharmaceutical preparations at the lowest possible prices. The advertisement also said: "Medical practitioners cannot fail to observe that there is nothing in their business relations with wholesale chemists that cannot be done by writing, thus saving time and the frequent intrusions upon

their privacy which the visits of travellers occasion. The profession, moreover, must be aware that the expense of employing travellers is paid by themselves in increased prices." Others offer drugs, and one firm of high standing offers corks, of which few would be used unless for dispensing. That was quite sufficient to show that much encouragement is given to doctors to do their own dispensing, and frequently similar help is given by registered chemists. One medical man who strongly objects to dispensing is obliged to do it because in his district there is no shop in which he can place reliance, or at which he could even get his wants supplied. If that defect were remedied, he would at once give up the work. It was not a question of club dispensing, in which prices were so low that if the dispensing were done by chemists and minimum prices charged nothing would be left for advice.

The medical profession, therefore, are not entirely their own masters in this matter, and instead of chemists saying and writing so much about the evils of medical dispensing, it should be their duty to meet the doctors in every possible way, and do all in their power to induce them to hand over the work to chemists where possible. At the same time, chemists should guard against anything of the nature of direct profit to the physician from their work. The indirect advantage would be saving of time and a better feeling on the part of chemists towards the medical profession in those places where dispensing was discontinued. Such an arrangement, of course, would be open to abuse, but it offered the lesser of two evils. Worked on those lines, the speaker had found no cause to regret it. In some cases dispensing had been discontinued, and in other cases much had been given up which could as easily have been accomplished as that which was still conducted for club work. It was certainly advisable to prevent people who were able to pay a small fee from attending hospitals which are already suffering from overwork, and by aiding the profession in the way suggested chemists would really be helping the charitable institutions to act as they were originally intended to—for the benefit of the very poor only.

On the other hand, as the pharmaceutical training does not include those subjects which enable the medical profession to diagnose and prescribe for ailments, chemists should, wherever possible, refuse to treat cases, and send the applicant to a man who has studied those subjects. That was at times difficult to accomplish, as the patient would frequently suggest what should be given him, and, in case of refusal, simply pass on to the next place, where he would obtain what he thought he required. Perhaps that case would not come under the heading of advice gratis, but certainly in all other matters chemists should use their best persuasive powers with the view to inducing the patient to take proper advice.

With reference to qualified dispensers for doctors' dispensaries, that state of things could not be insisted upon all at once. No doubt it would be very advisable, but at the present time there was not a sufficient supply of qualified men for chemists' own requirements, and they would simply produce a block which would recoil upon themselves, and possibly prevent any legislation in their interest for many years. With open surgeries the case was different, as outside work was frequently attended to for other doctors than the man who owned the place, as in Scotland, and those should be under the same rules and regulations as pharmacies. In the case of a dispenser for a doctor's own work, the Apothecaries' Hall Assistants' Certificate might meet the needs of the case.

Turning next to the subject of

COMPANY PHARMACY,

Mr. Buck said the subject had been discussed and written upon for so many years that there was great difficulty in saying anything really new about it. Chemists were all agreed that the compilers of the Pharmacy Act of 1868 could not have anticipated that what one man could not do alone should be allowed on his taking six members of his own family, or outsiders, into partnership without

any of the seven being qualified. The trouble had always been to find a remedy, and it did not seem possible to put matters straight until there was an entirely new Pharmacy Act. The amount of education which would be required for that work would undoubtedly be a matter of many years' hard work. The Pharmacy Acts of 1852 and 1868 were both based on the fact that they were expedient for the public safety, and it was difficult to see how a union formed for the sole purpose of evading those Acts could make for the safety of people who possibly, in these days of a little knowledge, require more looking after than they did thirty or forty years ago.

A noteworthy point was the number of eminent men who took part in the debates in both Houses of Parliament on the 1868 Act, and it might be taken for granted that in any attempts made in the matter of further legislation, in the interests of pharmacy, the goodwill and help of the medical faculty would be an absolute essential.

From the passing of the Pharmacy Act, 1868, and the short amending Act in 1869, there had been no legislation bearing directly upon pharmacy until the amendment of 1898, but in the meantime there had been many judicial readings which for the time being have shaken the Pharmacy Act of 1868 to the very root. The most noted case was that of the London and Provincial Supply Association, Limited. It had been suggested recently that a test case should be tried again on those lines, and that a fund should be started for that purpose; but it would be well if those who advised that action and others would bear in mind the wording of some of the judicial remarks in the case mentioned. It was well-known that the judges are bound to interpret Acts of Parliament according to their intent and meaning, and the intention of Parliament is only to be found in the words of the Pharmacy Act itself. From all the expressions of judicial opinion it was clear that the Act was thoroughly bad, and that if the advice were taken of those who are anxious for the Pharmaceutical Society to try another case on the same lines as the 1880 test case, there would be very little chance of success. The previous authorities on the Act would naturally be examined, and certainly he would be a brave judge who would give a decision in direct opposition to those learned men who have made history and law on the Pharmacy Act, and whose readings of the measure were so uniform.

One thing which had undoubtedly given an impetus to the selling of medicine by general dealers was the readiness with which registered chemists, on the least encouragement, immediately proceeded to plant branch pharmacies in every new district. If branch shops had not been introduced, companies would not have flourished. Whatever difference chemists might see between a branch managed by a qualified man and owned by a pharmacist, and one under a qualified manager owned by a body of shareholders, the Legislature and the general public would not see it in the same light. Both managers were entitled to open and conduct pharmacies on their own account, and possibly the actual difference between the two bodies of pharmacy managers and store managers is that in one case the individuals have capital, or possibly friends or relations who will advance capital to help them into business for themselves, whereas in the other case the managers have not been born with the proverbial silver spoon, and find that by working for companies they will the sooner be able to gain the funds which should enable them to commence business for themselves. Companies carrying on business as chemists and druggists have been allowed to flourish for twenty-five years, the people of this country have had time to become educated to their presence, and chemists must put their own position straight before they could even ask for what is so dear to the hearts of so many—the suppression of company pharmacy. An endeavour should be made to get rid of that portion of Section 16 of the Pharmacy Act which refers to business being continued by executors. That clause seemed to be the base upon which all company pharmacy had been founded. Get that clause removed, and

there would be an improved position for the present, and certainly a much improved outlook for the benefit of any pharmaceutical enactment in the future.

The Government Companies Bill which passed the House of Lords during the last session of Parliament will no doubt be brought forward at an early date, but Clause 2 of that Bill did not seem to go far enough. It should compel registration of all managers under the Act and the registered name to be the only one used for the purpose of the business. The object to be aimed at should be the protection of pharmaceutical titles and of what is left to chemists under the Pharmacy Acts. A slight alteration in Clause 2 of the Companies Bill would probably be all that was necessary. The wording suggested for adoption was:—

“No company can carry on the business of a pharmaceutical chemist or chemist and druggist unless such business is *bonâ-fide* conducted by a manager being a duly registered pharmaceutical chemist or chemist and druggist, who shall be also registered under this Act, and unless the name of the person so qualified is conspicuously posted in the shop or other place in which the business is carried on and also used for trading purposes, but subject to this provision anything which would be an offence under Section 15 of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.”

A qualified directorate would not suffice, as the directors could easily be obtained from the managers in the larger companies, the fees being a valuable addition to the salaries previously received, and rewards being thus created for long and faithful service, or for exceptional ability. There was no law which prevented the director of one company from being on the board of several other companies, and in that way the smaller companies, by uniting, could override the Act. The simple alteration suggested only required the omission of three words, but the effect would be to allow the chemists of this country to reserve to themselves the titles which have been conferred upon them after examination and years of patience and industry devoted to the cause of pharmacy, and in qualifying themselves to ensure the public safety. It was hopeless to expect the practice of pharmacy by limited companies to be put an end to, and the best way for the chemists of this generation to help those who shall come after will be, as it were, to entrench themselves, reserving all they have a reasonable chance of retaining and, remembering that although tea, tobacco, and alcohol have a place in the *materia medica*, they should have no place in retail pharmacy. They should also remember that “God helps those who help themselves.”

Referring next to the

PROPRIETARY ARTICLES TRADE ASSOCIATION,

Mr. Buck said he looked upon that organisation as a very valuable union of chemists formed with a view of accomplishing work and fulfilling certain duties in connection with their calling which did not fall within the programme of the Pharmaceutical Society, the Conference, or yet of the Federation. The duties were connected with the financial side of their work, and were very necessary in the interests of those who have a large part of their business made up of the sale of so-called “patent medicines,” as well as to others who have much demand for the proprietary liquids, salts, tablets, etc., which now form such an ever increasing feature in the prescriptions of the present-day physicians, as well as in the demands of those members of the general public who dose themselves and their friends. Chemists are all more or less interested in the supply of those articles, as also of the various foods and meat preparations which unfortunately cannot be disconnected from pharmacy. Evidently it was advisable that those goods should at least carry their proportion of working expenses, even if they did not leave anything over for the more necessary needs of a living wage.

With regard to

SECRET COMMISSIONS,

they had formed a topic of much interest during the last twelve months. On that abuse the Lord Chief Justice seemed to have been

the most active worker with a view to stopping the practice. In a speech before the London Chamber of Commerce the Lord Chief Justice was reported to have asked “if it were not intolerable and disgusting that a general practitioner should have an understanding with chemists and an arrangement with them to receive a share of their profits.” But chemists would be agreed that the profits were scarcely worth dividing, and during an experience of twenty-five years the speaker had never known a case in which a commission was asked for or expected.

The next matter touched upon was the

STAMPING OF PRESCRIPTIONS.

Some prescriptions when brought to be dispensed were found to be disfigured by having stamps placed all over the face of the prescription, and in some cases those are apt to interfere with the correct reading of the intentions of the prescriber. Doctors were scarcely likely to value those “decorations.” Some physicians had a note on their prescription paper asking dispensers to stamp on the back, and it would be an act of courtesy towards the medical profession if a few of the chemists of Liverpool were to work together to get that form of marking prescriptions generally adopted.

In conclusion, reference was made to the proceedings of the Association for the coming session, and it was suggested that there should be additional meetings of a less formal character than those now held, to talk over business matters.

At the close of the address, which was listened to with undoubted interest, a vote of thanks was proposed by Mr. BAIN, who facilitated the President on the choice of topics he had made and on the light and facile manner in which he had treated several undoubtedly controversial subjects. The motion was ably seconded by Mr. J. SMITH (local Secretary of the Pharmaceutical Society), who, whilst agreeing with the President on most points, emphatically protested against any other certificates of a man's ability as a dispenser being accepted or recognised, than those bestowed by the Pharmaceutical Society in Great Britain and those by the Irish Pharmaceutical Society in Ireland, even when the dispensing was done in a doctor's employ.

The vote was then put to the meeting, and passed with acclamation.

MIDLAND PHARMACEUTICAL ASSOCIATION.

A well-attended meeting of this Association was held on January 25 at Mason University College, Birmingham, the President, Mr. JEFFREY POOLE, in the chair. A paper was communicated by Messrs. J. Spilbury and T. G. Joyce on:—

BALSAM OF TOLU,

and a report of it appears at page 93.

In the discussion which followed, Mr. BRYANT inquired whether the authors had found benzoic acid in the carbon bisulphide, and whether they had determined the volatility of cinnamic acid, as in experiments conducted in accordance with the official requirements, some of the cinnamic acid would be lost owing to its volatility. Some authorities calculated the amount of acid obtained in terms of cinnamein, and one authority stated that it contained from 50 per cent. to 70 per cent. when thus calculated.

Mr. H. S. SHORTHOUSE put questions as to the origin of the samples shown and their age. He had found that no samples in recent times came up to the standard of a sample which he had had in his possession for twenty years. Samples varied so considerably as to suggest that their origin could not be the same plant. In one case which had come under his notice the bisulphide method yielded a non-crystalline product, but after standing a long time it became a mass of crystals, and possibly some of the resinous residues shown by the authors might have kept long enough, even in the crystalline form.

Mr. F. H. ALCOCK said the ordinary pharmacist would no doubt first apply the physical tests, to which no reference had been made in the paper. A test which was sometimes of great value was examination by taste and smell, warming a little in the test tube with water. He showed a sample recently obtained which, while it had a feeble odour of tolu, when warmed with water in the test tube emitted a decided terebinthinous odour, and when the aqueous solution was allowed to cool it scarcely yielded any crystals of cinnamic acid. The figures given by Squire seemed to show that the physical test might be applied in differentiating certain resins, seeing that they differed in gravity so much. Apparently the authors thought that the carbon bisulphide contained cinnamic acid, but he personally was of opinion that there might be other substances in addition which would affect the saponification equivalent and render that test of doubtful value.

Mr. SPILSBURY, summing up the discussion, gave it as his opinion that the percentage of benzoic acid in balsam of tolu was not more than from 1 to 1½, and it was a matter of great difficulty to separate benzoic and cinnamic acid for quantitative purposes. A question had been put with reference to the sources of the specimens, but being a natural product the plant would be affected to some extent by its environment, and they were largely in the hands of the collectors. His specimens were from two to three years old, and had been purchased from good houses and brokers. He was not able to say what the diluent was in the specimens that he had examined, and no author, so far as he could find, had fixed upon what it was. It would be a matter of great difficulty to differentiate by chemical tests the various resins that might be put in balsam of tolu, but there was no doubt that balsam was exhausted, and subsequently mixed with genuine material and put on the market again, and that in London.

CHEMISTS' ASSISTANTS' ASSOCIATION.

The ordinary members of the C.A.A. were not present in great numbers at 73, Newman Street, W., on Thursday, January 25, when the President, Mr. F. W. GAMBLE, took the chair. Whether they had taken to heart the advice tendered at the previous meeting and had stayed away in order to study the laws which affect chemists, or were elsewhere discussing the latest war news, was not apparent, but they were evidently not very anxious to take part in the

Impromptu Discussion

which was down on the programme for that evening. However, most of the members of the Council were present, and discussed a few interesting points. The first dealt with

THE VEIL OF ANONYMITY

said to be covering the pharmaceutical Press, a question being put to Mr. C. J. STROTHER asking if he thought it advisable that it should be raised, and that "An Ordinary Pharmacist" and "Xrayser" should disclose their patronymics. He was of opinion that circumstances alter cases, and that although as a rule it was best for writers to append their names to articles, if the matter written was worth reading and they preferred to withhold it he saw no reason why they should reveal their identity.

The PRESIDENT said he had noticed in the *Pharmaceutical Journal* of the previous week an expression of opinion made by Mr. R. Lord Gifford that writers should say who they are. Personally, he did not think much of his arguments. There was a great deal to be said in favour of writing under an anonymer, because a good sound argument then stands at its own valuation, and is not influenced by the position or personality of the writer.

Mr. HYMANS was much of the same opinion. Writers were somewhat like artists; if they had already "made a name" the public would accept their work whatever its quality on the strength of that name, whereas the work of an unknown writer or artist had to stand on its merits.

The second query had reference to the war and the dispatch of Volunteers to South Africa. The questioner had evidently been asked by relatives of departing Volunteers to fit up small cases of medicine, and had left the choice of the most suitable remedies to him. Hence the query as to what would be the best six

REMEDIES FOR A SOUTH AFRICAN WARRIOR

to take to the front Mr. C. MORLEY, to whom the question was put, said he really did not know what to say, because pharmacists most religiously refrained from encroaching upon the domains of physicians, and therefore knew nothing about remedies. However, he had heard that the Boers were not very cleanly, so that perhaps a little potassium permanganate would be a good thing; such drugs as quinine, opium, and a good old-fashioned aperient might also be useful. Dover's powder, chlorodyne, antiseptic ointment, whisky, and a preparation of antipyrine or phenacetine for neuralgia were also recommended by other members. It was, of course, necessary that the drugs should be in the most portable form.

SPECIAL DISPENSING CHARGE FOR NIGHT CALLS.

Mr. T. MORLEY TAYLOR was asked to say whether a special dispensing charge should be made for night calls. He said it was a matter of opinion. His opinion was that in the case of regular customers it would be unwise to make an extra charge, but in the case of casual customers the chemist must use his discretion, although he would be quite justified in making a special charge.

Several members supported Mr. Taylor's view of the matter.

MR. GLYN-JONES AND COMPANY PHARMACY.

Mr. DEWHIRST said the question he was asked to answer was: "Is Mr. Glyn-Jones' company pharmacy proposal acceptable to chemists?" He must admit that he had not the slightest idea what that proposal was.

Mr. FOTHERGILL said he was not the writer of the question, but he thought that all present ought to know something about Mr. Glyn-Jones' proposal, and should be able to discuss it.

Mr. C. MORLEY confessed that he was in the same position as Mr. Dewhirst, and had not the most remote idea what the proposal in question was.

The PRESIDENT said it was possible to know a great deal about the company pharmacy problem and yet have difficulty in picking out any particular man's ideas. He believed that Mr. Glyn-Jones' proposal was to allow no limited company to carry on the business of a chemist and druggist unless the directors were qualified persons. It was rather amusing that they, as rising pharmacists, should have to confess to so little knowledge of a subject which was supposed to touch the trade to its very vitals, that they could not formulate the views of so prominent a man as Mr. Glyn-Jones.

Mr. JAMES said he had read so much upon the subject that it had become almost *ad nauseam*. He did not agree with a qualified directorate idea, because he thought it would be quite easy to get qualified persons to act in that position. Such directors could easily be turned off the board. He thought the state of apathy that had been shown that night was due to the fact that they did not think anything would come of the present agitation, and that pharmaceutical legislation is as far off as ever. He had recently had a conversation with a member of Parliament, who said he had received a letter from the president of the Pharmaceutical Society which put the case very clearly. "But," said he, "the House of Commons will never grant what you want. They sympathise with you, but look upon the question in a far broader light."

Mr. T. MORLEY TAYLOR thought the company pharmacy question had resolved itself into a waiting game. It was not a bit of use worrying about the matter; they must patiently wait and see what they can get. The whole subject had been so much overdone that he must confess it was only on rare occasions that he read anything about it.

Mr. DEWHIRST was of opinion that it was *infra dig.* for chemists to be backed up by legislation. The safety of the public was quite protected by the existence of qualified persons for dispensing. If chemists could not live by their trade they must simply go under.

IMPROVEMENT OF THE C.A.A.

Mr. HYMANS was asked to make some suggestions for the improvement of the C.A.A. He thought the question should have been: "Is some suggestion necessary?" then the answer would have been "No!" so far as management was concerned; what the C.A.A. lacked most was the support of its members.

Others present thought likewise, and Mr. DEWHIRST mentioned as an instance of the benefits derived from connection with the Association that he had recently received a letter from a friend in India, and in the letter he stated that, on the sole recommendation of having once been secretary of the C.A.A., he had obtained the secretaryship of a good club out there at a salary of about £50 per year, the work requiring the expenditure of but a few hours per week. He added at the end of the letter, "Good old C.A.A."

UNIVERSITY PROFESSORS AS EXAMINERS.

Mr. A. LATREILLE, in answer to a question as to whether university professors should be allowed to examine candidates for the Minor, said, personally he did not think that because a man has had a university training he should be debarred from examining candidates for either the Minor or Major. Candidates generally knew something about the subjects in which they were to be examined, and he thought that professors, whether they were from a university or not, should be quite justified in examining them.

Messrs. FOTHERGILL, HYMANS, MORLEY TAYLOR, and the PRESIDENT all expressed the opinion that although candidates for the Minor are only expected to have a good sound elementary knowledge of scientific subjects, specialists in those subjects were the persons best qualified to examine them, because they had a greater capacity for judging the capabilities of the candidates and, as Mr. Taylor put it, were far less likely to press particular little views of their own.

The terms offered by the military authorities to

ARMY COMPOUNDERS

was the next subject discussed, the general consensus of opinion being that while the chemists who had enlisted had only themselves to thank for rushing blindly for the berths without first finding out what was expected of them and the position they were to occupy in the ranks, there was not the slightest doubt that the War Office had made a mess of the whole business, and had practically insulted pharmacists by the terms offered.

DIVISION OF THE MINOR EXAMINATION.

The PRESIDENT was asked if he was in favour of a division of the Minor examination. He said he had not sufficient originality to advance arguments as to why he was in favour of a division of the Minor, but he thought no one present would object to it. A curriculum was, however, first necessary.

Mr. DEWHIRST said he objected most strongly, as he considered it would be a fatal mistake to make the examination easier, because it would enable persons of less capacity to join their ranks; what was wanted was to make it more difficult for them to get in. He also did not agree with a curriculum, as it was possible for a person to pass an examination without the knowledge acquired doing much good.

Mr. T. MORLEY TAYLOR thought it would not be possible to divide the Minor until they had a curriculum. Then the theoretical and scientific part could be taken first and the practical work later, thus enabling a candidate to do more credit to himself.

The PRESIDENT supported this view, and the meeting then adjourned.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.

At a meeting held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Wednesday, January 24, Mr. FRASER McDIARMID, President, took the chair. The Pottage Herbarium prize, £2 2s. 0d., was presented by the Chairman to Mr. R. H. Martin, 21, Duke Street, who had sent in an extensive and beautifully mounted collection of plants, which were exhibited at the meeting. On the motion of Mr. HARLEY, Vice-President, seconded by Mr. SCLATER, Treasurer, a very cordial vote of thanks was awarded to Mr. Pottage.

Mr. D. B. KIDD had communicated a series of

Dispensing Notes,

which are printed at page 94. After they had been read,

Mr. HILL said that, assuming that the equations were correct, the last mixture seemed analogous to a case instanced by Professor Crum Brown, in which sulphuretted hydrogen, when passed through a solution of ferrous acetate acidified with acetic acid, gave no precipitate. On adding a solution of potassium acetate, even distinctly acid from free acetic acid, and then passing sulphuretted hydrogen, there was an immediate precipitation of ferrous sulphide. This was explained on a similar theory that the potassium ions diluted the acetic ions in the solution and rendered their acidic properties non-effective.

Mr. COWIE was inclined to think the precipitate was acetate of quinine. He had examined a similar precipitate in a mixture of quinine sulphate and liquor ferri acetatis, and the precipitate contained a considerable quantity of acetic acid. Acetate of quinine was very insoluble, insoluble in water about 1 in 600. It was almost as insoluble as the hydrate, which dissolved 1 in 650. The solubility of the precipitate in ether was not conclusive, because acetic acid was a weak acid, and the salt might be easily split up. The same happened with some strychnine salts.

Mr. HARLEY said the addition of glycerin to the nux vomica mixture might prevent the separation of the fatty or resinous matter. He had frequently observed in making the new tincture from fluid extract that it differed very much in clearness even when made, and sometimes on standing it became cloudy.

Mr. McBAIN said he had just dispensed a powder containing phenazone, caffeine citrate, and sodium bromide, and he observed that they became yellow, probably from a decomposition due to the citric acid, as in Mr. Kidd's case.

Mr. HILL then gave a practical demonstration on

Botany in January.

He said there were three ways in which they could study botany practically in Edinburgh at this season of the year. They might pay a visit to one of the many nursery gardens within the city, where they would see many things, and for a few pence could take home much useful material for practical study; they might visit the florists' shops, which almost always furnished at a moderate cost an ample variety of living plants; or they could do as he did, take a run out to one of the many spots in the near vicinity, like Colinton Dell, and have a look round. His excursion occupied only about two and a-half hours, and he returned with nearly forty plants, and could have easily had more in the time. Though the day was wet, and the Dell a veritable mud-puddle, he found the outing very interesting and enjoyable. The season had been unusually mild, and with a heavy rainfall. The consequence was that winter wheat was unusually advanced, and the fields were green with an abundance of new grass. There was a tendency to develop vegetable tissue highly charged with water, and the danger was that if sharp frosts came there would be much greater damage to vegetation than if the tissues had been drier and more compact.

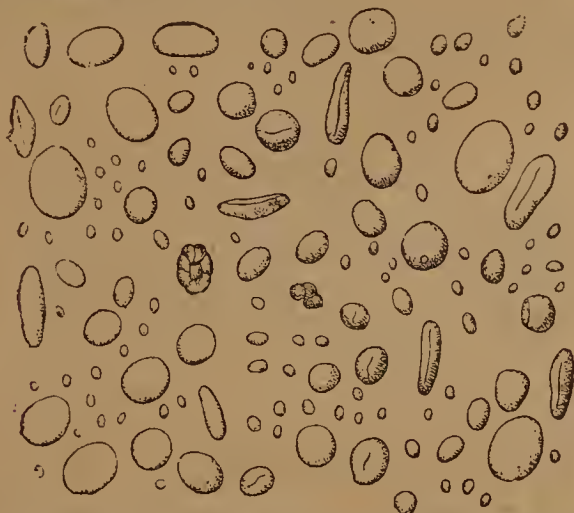
On the motion of the PRESIDENT votes of thanks were awarded to Messrs. Kidd and Hill, and the meeting closed.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Amylum.

STARCH for pharmaceutical purposes must be procured from the grains or fruits of common wheat, *Triticum sativum*¹, Lam.; from maize or cornflour, *Zea mays*², Linn.; or from rice, *Oryza sativa*³, Linn., all three plants belonging to the N.O. Gramineæ. The cells containing the starch must be ruptured by crushing the grains, and the gluten and other soluble and insoluble matters can then be separated from the starch by adding water to form a dough, from which the starch grains can be washed by kneading the mass in a stream of water, the gluten, etc., being left behind. The gluten may also be removed from the crushed grains by dissolving it in dilute sodium hydroxide solution, or by allowing a mixture of crushed grains and water to undergo putrefactive decomposition, the gluten being destroyed in the latter process and acetic, lactic, and other acids formed. In any case the starch must subsequently be purified by washing repeatedly with cold water to remove any traces of cell debris, alkali, or acid. Starch possesses protective and absorbent properties, and is used to prepare glycerinum amyli and pulvis tragacanthæ compositus.



WHEAT STARCH (x 200).—After Tschirch and Oesterle.

CHARACTERS AND TESTS.—Purified starch is white and inodorous, and occurs either as a fine powder or in irregular angular or columnar masses which are readily reduced to powder. It is quite insoluble in cold water and leaves only a trace of ash when incinerated. Freedom from traces of acid or alkali, remaining as the result of imperfect washing during the process of purification, should be indicated by the colour of blue or red litmus paper remaining unaffected when immersed in cold water with which the starch has been lightly rubbed in a mortar. As a rule, however, starch is faintly alkaline. On boiling with water the starch grains are ruptured and a gelatinous mixture results; on cooling that and adding solution of iodine a deep blue addition compound of starch and iodine is formed.

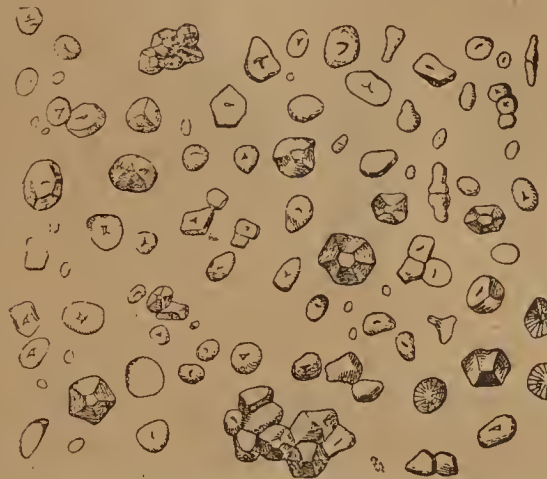
MICROSCOPIC CHARACTERS.—The grains of wheat starch vary considerably in size, the larger usually measuring from 30μ to 38μ in diameter and the smaller from 6μ to 7μ , though both larger and smaller ones may be met with. The large granules show a central hilum surrounded by faint concentric striæ, and are either flattened or lens-shaped, appearing round or somewhat kidney-shaped when lying flat; when standing on edge they appear spindle-shaped. The hilum and striæ are less conspicuous in the smaller granules; those are round or oval, and occasionally two or

¹ *Triticum*, L., wheat, from *tritus*, beaten, and *tero*, to rub, bruise, or thrash; *sativus*, L., sown or cultivated.

² *Zea*, Gr., ζεία, a kind of grain; *mays*, a native American term for Indian corn.

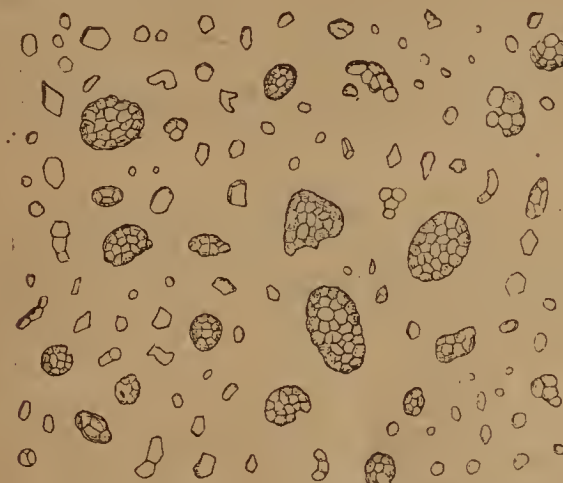
³ *Oryza*, Gr., ὄρυζα, from the Arabic *êruz*, rice; *Sativa*, L., cultivated.

three may be found combined in a compound grain. Maize starch, the kind mostly used, consists of granules which are more uniform in size, measuring from 10μ to 25μ in diameter; they are round, or polygonal with rounded angles, and have a very distinct hilum, usually with one or more small clefts radiating from it,



MAIZE STARCH (x 200).—After Tschirch and Oesterle.

but there are no striæ. Rice starch consists of still smaller granules, also very uniform in size, measuring from 4μ to 6μ in diameter; they are polygonal, with sharp angles, being in reality the fragments of large oval compound grains, and are usually without evident hilum, cleft, or striæ.



RICE STARCH (x 200).—After Tschirch and Oesterle.

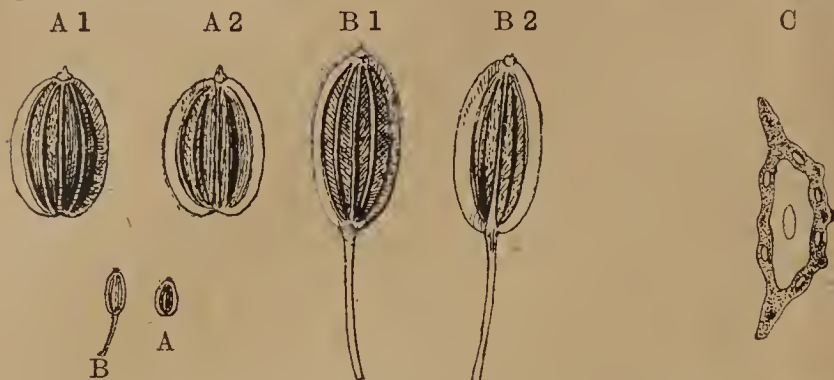
NOTES.—The distinctive characters of starch are its shape and markings when examined under the microscope, and the formation of the blue addition compound with iodine. Starch is a member of the cellulose group, its formula being a multiple of $C_6H_{10}O_5$. When air-dried it contains from 12 to 16 per cent. of moisture. It is present in all assimilating plants, being built up in the chlorophyll granules from the carbon dioxide absorbed. The granules are enveloped in an insoluble coating which probably consists of cellulose, and they contain granulose, the substance which forms a jelly when starch is heated with water. To examine the granules under the microscope they should be mounted in water; the addition of strong chloral hydrate or potassium hydroxide solution (near the edge of the cover glass) makes the hilum and striæ more plainly visible, but in either case the starch grains swell and gradually lose their distinctive shape, so that no time should be lost in examining them.

Anethi Fructus.

DILL FRUIT is the dried ripe fruit (cremocarp) of *Peucedanum graveolens*, Benth. and Hook. f. (N.O. Umbelliferæ), an annual herb indigenous to the Mediterranean districts and Southern Russia, but cultivated in England and certain parts of the Continent of

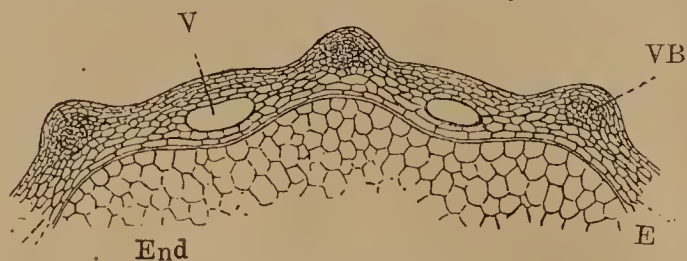
⁴ *Peucedanum*, Gr., πευκέδανος, an unknown umbelliferous plant; *graveolens*, L., heavy-smelling,

Europe. The fruits met with in commerce are usually of British, German, or Indian origin; preference should be given to the first two, which alone meet the official requirements. Dill fruits are stimulant, aromatic and carminative, and are used for preparing aqua anethi and oleum anethi.



ANETHI FRUCTUS.—A, British fruit (nat. size); A1, convex side of mericarp (magnified); A2, flat side of mericarp (magnified); B, Indian fruit (nat. size); B1, convex side of mericarp (magnified); B2, flat side of mericarp (magnified); C, transverse section through mericarp (magnified).

CHARACTERS.—The two smooth, brown, oval mericarps of which dill fruit consists are usually separate and freed from the pedicel (distinctions from Indian dill fruits), each one being about 4 Mm. long and 2 to 3 Mm. broad, having five equidistant filiform ridges, and being so strongly compressed dorsally as to be almost flat. In transverse section each mericarp exhibits six vittæ or elongated oil-glands, four on the dorsal and two on the commissural surface. Three of the ridges are prominent—though described in the B.P. as inconspicuous—at the back, and the other two are merged in the broad thin margin or wings. The agreeably aromatic odour and taste of the fruits are due to the volatile oil they contain.



ANETHI FRUCTUS.—Transverse section of mericarp. V, vitta; VB, vascular bundle; E, endocarp; End, endosperm. (x Abt. 60.) After Berg.

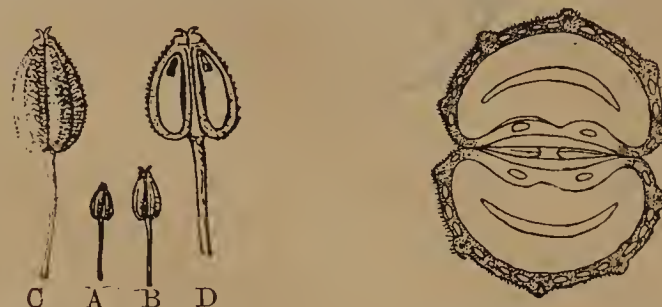
NOTES.—The distinctive characters of dill fruits are the very flat, usually separate, mericarps, with three dorsal ridges and two-winged lateral ones. They contain from 3 to 4 per cent. of volatile oil, nearly half of which consists of carvol. Indian dill, imported from Bombay, is more elliptical in form than British, more convex at the dorsal surface, and paler in colour; the mericarps of the fruits are frequently united and attached to the pedicels, they are also narrower and less prominently winged than those of the British fruits.

Anisi Fructus.

ANISE FRUIT is the dried ripe fruit of *Pimpinella anisum*⁵, Linn. (N.O. Umbelliferae), an annual plant indigenous to Greece, Egypt, and Asia Minor, but cultivated largely in Southern Russia, Germany, Spain, Italy, South America, etc. The different commercial varieties—Russian, German (Thüringian), Greek, Maltese, Spanish (Alicante), Italian, and Chilian—differ from each other in size, colour, flavour, and relative freedom from impurity. When fresh, the Russian and German fruits are greyish-green in colour, and the Levant and Spanish, both of which are larger than other varieties, are brownish-green and yellowish-green respectively, but the greenish tints tend to become grey with age. Chilian fruits are so mixed with foreign matter that their colour is not readily discernible, and their mericarps are usually separated more

⁵ *Pimpinella*, said to be derived from *bipennula*, twice pinnate; *anisum*, L., the classical name for the plant.

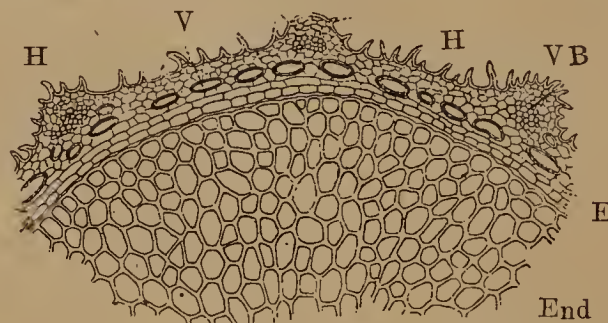
or less. The larger varieties alone are admitted by the official description. Anise fruits are stimulant, aromatic, and carminative; they are used for preparing aqua anisi and oleum anisi.



ANISI FRUCTUS.—A, Russian; B, Maltese (nat. size); C, magnified; D, do. longitudinal section.

ANISI FRUCTUS.—Transverse section (magnified). (x Abt. 50.) After Tschirch and Oesterle.

CHARACTERS.—The cremocarp is usually entire in the case of anise fruit, the mericarps remaining united and attached to the pedicel. The fruit is ovoid in form, greenish-brown or greyish-brown in colour, somewhat compressed laterally, and rough owing to the presence of numerous short cone-shaped bristly hairs; it measures about 5 Mm. in length and 2 Mm. broad. Each mericarp is marked by five pale, slender, and entire ridges, two of which are lateral. In transverse section each mericarp of anise fruit exhibits from thirty to forty vittæ, the largest occurring in the commissure. The agreeably aromatic odour of the fruit and its aromatic sweet taste are due to the volatile oil.



ANISI FRUCTUS.—Transverse section of mericarp. V, vitta; VB, vascular bundle; E, endocarp; End, endosperm. (x Abt. 50.) After Tschirch and Oesterle.

NOTES.—The distinctive characters of anise fruits are the short, stout, bristly hairs, the entire fruits, the characteristic odour and taste, the absence of any deep groove in the endosperm and of prominent crenations on the somewhat inconspicuous primary ridges. In hemlock fruit, which has been found mixed with German and Italian anise, the ridges exhibit prominent crenations; there are no hairs or vittæ, and the endosperm exhibits a deep groove on its commissural surface. Hemlock fruit is also virtually devoid of odour or taste, though on crushing it and adding some potassium hydroxide solution, a strong mouse-like odour is developed. Anise fruits yield about 2 per cent. of volatile oil, consisting almost entirely of anethol.

Obituary.

ELLIS.—On January 21, Ernest Frederick Ellis, Chemist and Druggist, Topsham, Devon. Aged 32. Mr. Ellis was the only son of Mr. Frederick Ellis, M.P.S., and was in business with his father. He was greatly respected in the district, and much sympathy is felt for the parents in their bereavement.

Publication Received.

THE STORY OF LIFE'S MECHANISM. A Review of the Conclusions of Modern Biology in regard to the Mechanism which Controls the Phenomena of Living Activity. By H. W. CONN. Pp. 219, with 50 illustrations. Price 1s. London: George Newnes, Limited, Southampton Street, Strand, W.C. 1900. From the Publishers.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

EXTRACTION OF RICININE.

T. Evans, in a preliminary communication upon ricinine, states that he has found it advantageous to modify Tuson's method of extracting (*Journ. Chem. Soc.*, **17**, 195) that substance from the seeds of *Ricinus communis*, by using boiling toluene instead of alcohol to extract the residue from the evaporation of the aqueous extract. Upon sudden cooling of the toluene solution, ricinine deposits on the sides and bottom of the containing vessel, in small, almost colourless prismatic crystals; those are frequently crossed and sometimes whetstone-shaped, and adhere closely to the vessel. On purification by recrystallisation from alcohol, from which it was deposited in small plates frequently united to form rosettes, the ricinine was found to have a melting point of 193° C., and analysis gave results which agreed very well with Schulze's figures, $C_{12}H_{13}N_3O_{31}$, though that formula does not suit the bromine derivative as well as others suggested. The bromine derivative of ricinine was obtained in long, colourless crystals, the melting point of which was 230°-232° C., and indications were afforded of the probability that ricinine is an acid amide or perhaps a diureide. Ricinine dibromide is soluble in about 200 parts of 93 per cent. alcohol, and in practically the same amount of water. It crystallises in long needles from dilute solutions, and in short, silky, white needles from more concentrated solutions. The aqueous solution appears to be neutral. The compound is also soluble in hot, dilute or concentrated, hydrochloric acid, but separates out unchanged on cooling. Upon treating an alkaline solution of ricinine with potassium permanganate, and subsequently acidifying with hydrochloric acid, white silky crystals were obtained which melted at 279°-280° C., becoming black several degrees below the melting point. An aqueous solution of the oxidation product was acid to litmus paper, and crystalline salts were formed on adding alkalis or silver nitrate. The acid was found to contain nitrogen and, on evaporation with nitric acid and moistening with ammonia, gave the reddish purple colour characteristic of ricinine, but in a lesser degree.—*Journ. Am. Chem. Soc.*, **22**, 39.

PHARMACY OF HEROINE.

The following formulæ are given in *Nouveaux Remèdes*, **16**, 3, for the various preparations of heroine:—*Cough Drops*.—Heroine hydrochloride, 10 centigrammes; bitter almond water, 20 Gms. Dissolve, 15 to 20 drops to be taken in sweetened water. *Cough Pills*.—Heroine hydrochloride, 15 centigrammes; excipient *q.s.* Mass and divide into 30 pills. One pill to be taken three or four times daily. *Sedative Syrup*.—Heroine hydrochloride, 15 centigrammes; simple syrup, 100 Gms. A teaspoonful at bedtime. *Sleeping Powder*.—Trional, 1 Gm.; heroine, 5 milligrammes. To be taken at bedtime in a cup of warm milk. *Sleeping Draught*.—Heroine, 2 centigrammes; alcohol, *q.s.* to dissolve; syrup of tolu, 100 Gms. One half to be taken at bedtime, and the dose repeated, if required, during the night. *Heroine Mixture*.—Heroine, 5 centigrammes; alcohol (90 per cent.), *q.s.* to dissolve; syrup of orange flowers, syrup of tolu, glycerin, of each 50 Gms. Dose one tablespoonful. *Heroine Pills for Constipation*.—Heroine, 5 milligrammes; marsh mallow powder, 3 centigrammes; extract of rhubarb, 3 centigrammes. For one pill. *Heroine Cachets*.—Heroine, 5 milligrammes; powdered sugar, 25 centigrammes; magnesia, 10 centigrammes. For one cachet.

VOL. 64. (FOURTH SERIES, VOL. 10.) No. 1544.

DEPILATION BY RÖNTGEN RAYS.

Dr. Neville Wood records a case in which a considerable overgrowth of hair on a woman's face was removed by applying Röntgen rays. There were six sittings per week, of ten minutes each, the face and neck being protected with a lead-foil mask, except where the rays were intended to act. The distance between the anticathode and the skin was between six and seven inches. The current through the primary coil was maintained at about five amperes, and the number of interruptions varied between two hundred and fifty and three hundred per second. After fourteen exposures it was noticed that the darker hairs had lost some of their lustre, and a week later there was an obvious lessening in their number. The shed hairs were brittle and pale in colour, with atrophic bulbs, while microscopically the normal striation was indistinct, and the medullary substance appeared to be collected into separate nodes with clear intervening spaces. During this period occasional slight reddening of the skin was noticed. After forty-five exposures the whole of a very thick downy and hairy growth had disappeared, except nine hairs which remained at least a week after the total removal of the others. They were found, however, to be really separated at the bulbs, being retained in position by a more superficial part of the root-sheath. Only a few thick hairs had returned within three months of cessation of treatment, and those it is proposed to remove by electrolysis. In conclusion, Dr. Wood states that the treatment neither pains nor disfigures, and expresses the opinion that ten short exposures will be found useless, that about twenty will clear the ground for electrolysis or simple traction, if for any reason the ray treatment has to be suspended, and that between thirty and forty exposures will probably result in permanent alopecia.—*Lancet* No. 3987, 231.

FIXED OIL OF TROPÆOLUM.

In the course of the preparation of the volatile oil of *Tropæolum majus*, J. Gadamer has isolated, by extraction with ether, a fatty oil which solidifies on the evaporation of the solvent, but readily melts again with the warmth of the hand. This property is due to the presence of tri-erucin, which melts at 30°·5 C. By treatment with potassium nitrite and nitric acid, erucin is transformed into tri-brassicidin, which, when crystallised from alcohol, melts at 54°·55 C. On saponification of this body erucic and brassidic acids are obtained, which are isomers. It is noteworthy that although tri-erucin so readily crystallises from tropæolum oil, it does not separate, at ordinary temperatures, from the fixed oils of white or black mustard, or from that of colza, in which it is present in equally large quantities.—*Archiv*, **237**, 471.

VOLUMETRIC DETERMINATION OF MAGNESIA.

J. O. Handy determines magnesia volumetrically by adding strong solution of ammonia equivalent in bulk to one-tenth of the solution, cooling to 20°-25° C., then precipitating with saturated sodium ammonium phosphate solution. When the reaction is complete the precipitate is collected, washed, and dried in an air oven, at a temperature of 50°-60° C.; it is then dissolved in excess of decinormal sulphuric acid and, after the addition of two drops of alcoholic solution of methyl orange (0·1 per cent.), the solution is titrated with decinormal sodium hydroxide. The method is said to be both simple and accurate.—*Journ. Am. Chem. Soc.*, **22**, 31.

PIGMENTS OF AMANTIA MUSCARIA.

A. B. Griffiths reports on the presence of a green amorphous colouring matter in *Amantia muscaria*, which has the composition $C_{29}H_{20}O_{10}$, and affords characteristic spectroscopic absorption bands. It is extracted with chloroform-ether, and purified after the evaporation of the solvent, by several successive solutions in chloroform. The red pigment, in the same fungus, has the composition $C_{19}H_{15}O_6$.—*Compt. rend.*, **130**, 42.

NOTES RELATING TO THE SOLANACEOUS BASES.¹

BY DR. O. HESSE.

In a previous communication to Liebig's *Annalen*² I gave an account of the results of my investigation of these bases, and they now require to be supplemented in regard to several details.

ATROPINE.—The observation recorded in my previous paper that this base has a feeble optical activity was in accord with the experience of Ladenburg³, E. Schmidt⁴, Will, and Bredig⁵ and others. At the same time Ladenburg considered atropine to be really inactive, though he was unable to prepare the base in such a condition that it had no action upon polarised light. Subsequently Ladenburg obtained atropine⁶, in two instances, that was perfectly inactive; but since the influence of the solvent used may have some effect in that respect, the question still remains whether the base examined in those instances was really inactive. The same remark applies also to the statement made by Bender⁷.

I have already observed that atropine sulphate has a rather strong action upon polarised light, and a similar behaviour may be assumed in the case of other neutral salts of atropine, for instance, the hydrobromide.

I was, therefore, surprised, in examining the roots of *Scopolia atropoides*, at obtaining atropine which, in the state of well crystallised hydrobromide, polarised very slightly, and after two recrystallisations of the salt from absolute alcohol it became perfectly inactive.

The base separated from that salt crystallised from ether in long needles of silky lustre, melting in Roth's apparatus at 115°·5—116° C. With $p=5$ and $t=15^\circ$ C. in absolute alcohol a 220 Mm. column did not show the slightest deviation of polarised light, nor did a water solution containing two molecules of oxalic acid. Analysis of this base gave results agreeing with the formula $C_{17}H_{23}NO_3$.

The *hydrobromide* crystallised from alcohol in fine colourless brilliant needles containing no water of crystallisation; it melted at 162° C., and with $p=6$ and $t=15^\circ$ C. in water solution the salt had no action upon polarised light. Analytical results were in accordance with the formula $C_{17}H_{23}NO_3 \cdot HBr$.

The *hydrochloride* was prepared by treating the water solution of the last-named salt with silver chloride; it crystallised from the concentrated solution in long colourless needles, was anhydrous, optically inactive, and melted at 165° C.

The *gold salt*, prepared by precipitation from a warm water solution with gold chloride, was a yellow flocculent precipitate; it crystallised from a hot water solution, after becoming slightly turbid, in small yellow laminae, melting at 136° C. After repeated recrystallisation the melting point remained constant. Analysis gave 31·34 per cent. gold, against 31·31 per cent., calculated according to the formula $C_{17}H_{23}NO_3 \cdot AuCl_4H$.

The *neutral oxalate* $(C_{17}H_{23}NO_3)_2 \cdot C_2O_4H_2$ was prepared by saturating an alcoholic solution of the base with oxalic acid; the salt crystallised from the concentrated solution in white prisms, melting at 190°—191° C.; it was very readily soluble in water, and the solution was optically inactive.

The data above stated were recorded in a paper read at the meeting of the Wurtemberg branch of the German Chemists' Association at Stuttgart in March, 1896, and an abstract of them was published in the *Zeitschrift für angewandte Chemie* the same year. Some time after that Gadamer published a paper on atropine, in which he stated that absolutely pure atropine is inactive, and that the optical activity hitherto observed in commercial atropine was due to the

presence of a certain amount of hyoscyamine. However, Gadamer⁸, did not state that any attempt had been made by him to ascertain the presence of hyoscyamine in the samples of atropine referred to. Moreover, the yield of really inactive atropine obtained was very small; so that the question arose whether it might not have been merely an admixture forming part of the atropine examined. I have therefore made a further examination of several samples of commercial atropine having special reference to these two points.

The atropine hydrobromide of E. Merck, already mentioned by Ladenburg⁹, was taken first. It was a white crystalline powder, but the crystal form could not be recognised. At 100° C. it lost 0·75 per cent. water, and melted at 159° C.: with $p=6$ and $t=15^\circ$ C. in water solution $[\alpha]_D = -7^\circ 88$. After repeated recrystallisation from absolute alcohol the salt was obtained in delicate concentrically grouped needles without any essential alteration of the optical activity, for after three recrystallisations it was $[\alpha]_D = -7^\circ 60$.

The hydrobromide was then converted into hydrochloride by treatment with silver chloride, and that salt was fractionally precipitated with gold chloride. The first fraction of gold salt melted at 142° C., and after three times recrystallising from hot water it gave a pure hyoscyamine gold salt melting at 158° C. From the last fractions of gold salt atropine could be obtained, but it was not quite inactive.

Operating upon a commercial sample of atropine purissimum melting at 114°—115° C., giving with $p=6$ and $t=15^\circ$ C. in absolute alcohol solution $[\alpha]_D = -6^\circ 44$, the results obtained were no better. After this base had been kept for two years the optical activity was sensibly reduced to $[\alpha]_D = -2^\circ 38$.

A portion of this base had been converted into gold salt, which melted at 142° C., but after two years the melting point of the gold salt was 148° C., and by once recrystallising from hot water a gold salt was obtained in yellow laminae, which melted at 156°—158° C., and was for the most part hyoscyamine salt. The quantity thus obtained was almost equal to that operated upon, and consequently it may be inferred that the atropine originally present in this sample had been almost completely converted into hyoscyamine. Such a conversion may be assumed to take place only in consequence of the presence of some hyoscyamine originally, for a gold salt of perfectly inactive atropine, free from hyoscyamine, was not found to present any alteration of the melting point when recrystallised from hot water, even after having been kept for two years.

Two other samples of atropine sulphate A and B, bearing on the label "Ph.G. III.," were also examined. A contained 4·24 per cent. crystal water, and in alcohol solution, with $p=4$ (anhydrous) $t=15^\circ$ C. $[\alpha]_D = -1^\circ 25$ C.; in water solution $[\alpha]_D = -1^\circ 07$. The base separated from this salt crystallised in white silky needles, melting at 115°—115°·5 C., and in alcohol solution with $p=5\cdot956$ gave $[\alpha]_D = -1^\circ 25$. After evaporating off the alcohol and dissolving the residue with water and two molecules oxalic acid, it gave $[\alpha]_D = -4^\circ 66$. The presence of hyoscyamine in this sample could not be ascertained with certainty by means of fractional precipitation with gold chloride. After being kept for two years this sulphate gave the same rotatory action; but a portion of the base which had been separated two years previously gave, in alcohol solution and in oxalic water solution, not the slightest deviation of polarised light, having within that time become perfectly inactive.

The sample of sulphate B was anhydrous; with $p=4$ and $t=15^\circ$ C. it gave $[\alpha]_D = -10^\circ 8$ and the base separated from it melted at 114°—115° C. The warm water solution was fractionally precipitated with gold chloride, and on cooling the first deposit of small dull laminae melted at about 148° C. After due recrystallisation from hot water, brilliant gold coloured laminae were obtained, melting at 158°—159° C., which agreed in all respects with the gold salt of hyoscyamine. By further fractionating, precipitates were obtained

¹ *Annalen*, 309, 75.

² *Ibid.*, 271, 100, see also *Ph.J.* [3], 23, 201.

³ *Annalen*, 206, 282.

⁴ *Ibid.*, 208, 208.

⁵ *Berichte*, 21, 2792.

⁶ *Ibid.*, 21, 3069, 3070.

⁷ *Chem. Zeitung*, 14, 1890, No. 49.

⁸ *Archiv d. Pharm.*, 234, 543.

⁹ *Berichte*, 21, 3067.

which melted as low as 137° C., and were mixtures of the gold salts of hyoscyamine and atropine in which the relative proportion of atropine was larger, the later, the precipitate was thrown down:

From these results it is evident that even the atropine sulphate of the German Pharmacopœia is not absolutely inactive, but contains more or less hyoscyamine corresponding to its power of rotation. The following conclusions may also be drawn:—

1. That absolutely pure atropine is optically inactive.
2. That commercial atropine in a free state, if originally capable of slight polarisation, may become, when long kept, optically inactive, and in any case suffer diminution of rotatory power.
3. That the optical activity of commercial atropine is due to the presence of some hyoscyamine.
4. That commercial atropine sulphate does not suffer alteration of its rotatory power when kept.
5. That owing to the presence of hyoscyamine in a gold salt of atropine, this base is more or less converted back again into hyoscyamine when the salt is kept.

HYOSCYAMINE.—The base and its sulphate previously used in my examination were obtained from Trommsdorff and described as being absolutely pure, as was found to be the case.

Though hyoscyamine sulphate when kept for several years does not undergo any alteration in rotatory power, the free base does show signs of alteration after two years, amounting to nearly 2°, so that to that extent the value of $[\alpha]_D$ in alcoholic solution will be less than before.

The hyoscyamine sulphate examined by me had a somewhat higher rotatory power than the sample prepared by Gadamer from material in the Pharmaceutical Museum at Marburg, and from that circumstance the inference may be drawn that the free alkaloid had already undergone some alteration. That inference is supported by Gadamer's observation¹⁰ with the corresponding oxalate, which should rather have polarised more strongly than the sulphate if the hyoscyamine had not been a mixture. In view of that probability I do not think it is necessary to refer more in detail to Gadamer's remarks as to the quality of my hyoscyamine.

The rotatory power of pure hyoscyamine sulphate with $p = 4$ and $t = 15^\circ$ was found to be $-28^\circ.2$: with $p = 2$ it was $-28^\circ.6$, and from those data the amount of hyoscyamine sulphate in the above-mentioned atropine sulphate (Ph. G. III.) can be calculated as follows:—

Sample A	=	$\frac{1^\circ.07 \ 100}{28^\circ.2}$	=	3.8 per cent.
Sample B	=	$\frac{10^\circ.8 \ 100}{28^\circ.2}$	=	38.3 per cent.

From these results the difference that is experienced by oculists as to the action of "atropine sulphate" will be sufficiently intelligible.

HYOSCINE.—My former investigation of this base has demonstrated that its composition is not that assigned to it by Ladenburg,¹¹ when it was discovered by him, viz., $C_{17}H_{23}NO_3$, but $C_{12}H_{21}NO_4$. Since then I have shown¹² that the base is amorphous and not the same as the crystalline scopolamine of E. Schmidt,¹³ which he obtained from Bender, and is said to constitute the chief part of commercial hyoscyamine.

I find that hyoscyamine exists, together with hyoscyamine and small quantities of atropine, in henbane as well as in *Datura alba* especially in the flowers of the latter plant; also together with considerable proportions of hyoscyamine, some atropine and atrosine in the roots of *Scopol a atropoides*.

When hyoscyamine is separated from its salts by a water solution of potassium mono- or bicarbonate and shaken out with chloroform it is obtained without alteration. Instead of the potassium salts above named the corresponding sodium salts may be used and the behaviour of hyoscyamine in that respect is mentioned in reference to the following base.

ATROSCINE.—The base to which I have given this name was first obtained by me from commercial scopolamine hydrobromide,¹⁴ then from the roots of *Scopol a atropoides*, the material from which the above-mentioned salt is generally prepared.

In preparing this base the roots are finely divided, moistened with a solution of potassium carbonate, and then exhausted with ether under a reflux condenser. The ether liquor is then shaken out with dilute hydrochloric acid, the acid liquor separated and supersaturated with potassium carbonate and then shaken out with chloroform. This chloroform solution is distilled and the residue recrystallised from ether. Hyoscyamine then separates, for the most part in a crystalline state, while hyoscyamine and atrosine remain in solution in the mother liquor, which is drawn off and neutralised with hydrobromic acid, the solution then treated with animal charcoal, gradually evaporated to a small bulk, and left to crystallise in a cold place. The crystals are washed with strong alcohol and again recrystallised from water at a low temperature repeatedly, until no more hyoscyamine remains in the mother liquor. The hydrobromide, thus partially purified, is to be dissolved in water, the solution mixed with excess of potassium monocarbonate, and the base shaken out into chloroform. The residue left on distilling off the chloroform is run out into a shallow dish, and, after complete removal of the chloroform, mixed with enough warm water to dissolve it. This solution, when exposed to a very low temperature, soon begins to deposit crystals of atrosine, which can be rendered pure by once recrystallising from water. Hyoscyamine then remains in the mother liquid.

Atrosine may be prepared in the same way from the commercial scopolamine hydrobromide.

Thus obtained, atrosine contains water of crystallisation, part of which can be separated in the exsiccator, and the remainder between 50° and 60° C. The base forms two hydrates—a monohydrate and a dihydrate.

Mono-hydrate, obtained from hydrobromide $C_{17}H_{21}NO_4 \cdot HBr + H_2O$, as above described, has the form of large crystals of glassy lustre, melting at 56°—57° C. in Roth's apparatus.

The *dihydrate* is prepared in the same manner, except that the highly concentrated solution is to be exposed to a temperature of one or two degrees below the freezing point until crystallisation takes place, and then kept a little higher until it is completed. In one instance a few crystals of monohydrate were first formed, but they soon changed into the dihydrate. The salt melts at 36°—37° C.

Anhydrous atrosine is readily obtainable in crystals when the monohydrate is exposed in a shallow dish to a temperature of 54°—55° C. While losing water the crystals of monohydrate swell up and sometimes a portion melts, but it soon changes into a mass of colourless glassy prisms. The dihydrate is less suited for the preparation of the anhydrous base, since it melts far below the temperature at which the molecular change takes place; but if the dehydrated base is exposed for some length of time to a temperature of 54°—55° C. it swells up and becomes crystalline.

The crystallised anhydrous atrosine melts at 82°—83° C., so that the difference between the melting point of the monohydrate and the dihydrate corresponds exactly with the difference in the percentage of crystal water.

Atrosine, $C_{17}H_{21}NO_4$, dissolves in 38 parts of water at 18° C., very readily in ether, chloroform, acetone, benzene or alcohol. The alcohol solution as well as the water solution has a strong alkaline reaction, and both of them are quite optically inactive.

¹⁰ *Archiv d. Pharm.*, 236, 547.

¹¹ *Annalen*, 206, 299.

¹² *Ibid.*, 303, 159.

¹³ *Archiv d. Pharm.*, 230, 689.

¹⁴ *Apotheker Zeitung*, 10, 187.

The composition of atrosine hydrochloride is represented by the formula $C_{17}H_{21}NO_4 \cdot HCl$, the gold salt by the formula $C_{17}H_{21}NO_4 \cdot AuCl_4H$: the hydriodide and hydrobromide contain one molecule of water.¹⁵ The gold salt melts at 201° - 202° in Roth's apparatus without first frothing, and only when the temperature rises one or two degrees above that point or the heating is longer continued does frothing occur.

The gold salt is obtainable from a water solution, slightly acidulated with hydrochloric acid, in extended laminae and from a pure water solution in granular crystals which dissolve at 50° C. in 690 parts of water, containing in the litre 10 C.c. of hydrochloric acid (1.19 sp. gr.). The gold salt of atrosine is therefore the most sparingly soluble in slightly acidulated water of any solanaceous bases having a mydriatic action.

The hydrobromide obtained by neutralising an alcoholic or water solution of the base crystallises according to the prevailing conditions in different forms and of a different composition. When the water solution of the salt is evaporated low down, large rhombic tables are sometimes formed, $2C_{17}H_{21}NO_4 \cdot HBr + H_2O$. On recrystallisation, this salt, or the dehydrated salt from alcohol (97 per cent.), warty aggregates, consisting of short prisms, are formed, together with granular shiny crystals, which become dull at 100° C., both of which have the same composition.

When a solution of hydrobromide in two parts of water is exposed to a freezing temperature, the salt crystallises in colourless needles that are often several centimetres long, and when it is dried have the composition represented by the formula $C_{17}H_{21}NO_4 \cdot HBr + 3H_2O$. To prevent this salt from efflorescence it must be dried at a low temperature.

When the salt is dissolved in four parts of water fine large glassy rhombic crystals are often formed at a low temperature after some hours or days, but they lose all their water when broken up and exposed in the exsiccator. The measurement of these crystals by Professor Groth and his assistant, Herr Zirngiebl,¹⁶ showed that they were crystallographically identical with Ladenburg's hyoscyne hydrobromide.

In the anhydrous condition atrosine hydrobromide melts at 181° C. and in alcoholic or water solution it has no optical activity.

For the splitting up of atrosine dilute caustic potash was used, warming for a short time on the sand bath. The final products were found to be oscine and atropic acid, the formation of which is preceded by that of tropic acid, which is resolved under the influence of caustic potash into water and atropic acid—



In connection with the foregoing details some remarks are to be made bearing on the history of atrosine and its occurrence in various commercial articles.

In the first place mention must be made of the circumstance that E. Schmidt was of opinion that he had found hyoscyne together with hyoscyamine in the roots of *Scopolia atropoides*.¹⁷ For the last ten years these roots have been used as a source of atropine into which the hyoscyamine is readily convertible, and in the working of this material a bye-product was obtained which has been brought into commerce partly under the designation of "hyoscyne," partly also as scopolamine. It differs from true hyoscyne however in its low rotatory power. Unaware of that fact E. Schmidt contended that Merck's hyoscyne hydrobromide consisted essentially of scopolamine salt,¹⁸ although the results of my investigation showed that the salt in question was nothing else than true hyoscyne hydrobromide.¹⁹

In a later communication E. Schmidt made a distinction between this scopolamine hyoscyne, the hydrobromide of which he

described as "ordinary scopolamine hydrobromide," and the i-scopolamine, which was slightly levorotatory, and the hydrobromide of which was said to be nearly inactive optically.²⁰

My investigation of that "ordinary scopolamine hydrobromide," and also of the hyoscyne hydrobromide obtained from *scopola*, which are in fact the same thing, showed that this salt is really a mixture of true hyoscyne salt with the hydrobromide of a base to which I gave the name of atrosine, and that to the presence of this salt was attributable the difference in optical behaviour shown by this salt as compared with that of true hyoscyne hydrobromide. Still later the i-scopolamine prepared by E. Schmidt from "ordinary scopolamine hydrobromide" was ascertained to be nothing else than impure atrosine.²¹ This base is optically inactive, as was long since stated by me, and since acknowledged by E. Schmidt,²² both in a free state as well as in combination with hydrobromic acid. So much could not be said in regard to i-scopolamine at first, because E. Schmidt stated that it was slightly levorotatory, and that character appeared to be essential to i-scopolamine, since E. Schmidt expressly stated that on dissolving this slightly levorotatory scopolamine in alcohol, to which a minute quantity of caustic potash had been added, a further reduction of its rotatory power was not effected, even after long standing.²³ Since atrosine had then always been obtained with two molecules of crystal water, while i-scopolamine was described as containing only one molecule, I was of opinion that the difference was merely owing to the impurity of Schmidt's preparation, which was in the first instance evident. But, meanwhile, when E. Schmidt succeeded in obtaining his i-scopolamine in a state of purity the base still had the same melting point and the same amount of crystal water as the previous preparation. Although that circumstance was suggestive of the probability that atrosine and pure i-scopolamine must be one and the same base, with a different proportion of crystal water in the two cases, that still remained to be proved. Now, however, the proof has been furnished, since I have converted the dihydrate into the salt $C_{17}H_{21}NO_4 \cdot HBr + 3H_2O$, and from that have prepared the monohydrate as above described almost in quantitative proportions, while Gadamer has also under other conditions succeeded in converting the dihydrate into the monohydrate.²⁴

Quite recently the publication of Luboldt's investigation of scopolamine²⁵ has shown that he finds crystallised scopolamine has a composition represented by the formula $C_{17}H_{20}NO_4 + H_2O$, and that its melting point is 56° C.: he does not give the optical behaviour of this crystalline base; but he has made a supplementary observation of scopolamine hydrobromide supplied by his firm (Gehe and Co.), and found that it gives for $[\alpha]_D = -14^\circ 58'$, while the base separated from that salt by potash gave for $[\alpha]_D = -4^\circ 30'$ in a water solution and in an alcoholic solution $[\alpha]_D = -1^\circ 37'$. E. Schmidt prepared from that base the hydrobromide, and found, to his astonishment, that it gave for $[\alpha]_D = -50'$. If both chemists had also ascertained what, in both instances, remained in the mother liquor, the circumstance which excited their astonishment would have been cleared up; but instead of that, E. Schmidt makes the assertion that the rotatory power of scopolamine has experienced very considerable reduction under the influence of potassium carbonate.²⁶

As I have already stated, hyoscyne or normal scopolamine, as E. Schmidt now pleases to call the base in question, does not undergo any reduction of its rotatory power when it is separated from the hydrobromide by means of potassium carbonate. That is also the

¹⁵ *Berichte*, 29, 1778.

¹⁶ *Ibid.*, 14, 1871-1872.

¹⁷ *Archiv d. Pharm.*, 228, 436.

¹⁸ *Ibid.*, 230, 693.

¹⁹ *Annalen*, 271, 110.

²⁰ *Archiv d. Pharm.*, 232, 369, 393.

²¹ *Berichte*, 29, 2441.

²² *Archiv d. Pharm.*, 236, 54.

²³ *Ibid.*, 232, 394.

²⁴ *Ibid.*, 236, 382.

²⁵ *Ibid.*, 236, 11.

²⁶ *Ibid.*, 236, 48.

case with the commercial scopolamine hydrobromide. A sample of it gave with $p = 4$ (anhydrous) and $t = 15^\circ \text{C}$. $[\alpha]_D = -7^\circ 5$. The anhydrous salt (4.405 Gm.) treated with potash solution and shaken out into chloroform yielded 2.813 atrosine $\text{C}_{17}\text{H}_{21}\text{NO}_4 + 2\text{HO}$, while the calculated quantity was 2.811 Gm. Since atrosine is not quite insoluble in the mother liquor, containing hyoscyne, the results obtained in other experiments of the same kind would probably be somewhat less than calculation indicated. The same result was observed when freshly precipitated silver oxide was used for separating the base from the hydrobromide, or when, as E. Schmidt directs,²⁷ a minute quantity of caustic soda was added to the solution, though, according to the statements of E. Schmidt, the quantity of atrosine might have been expected to be larger than calculation would indicate. In all these experiments the separation of the atrosine present was effected, but there was no indication of a conversion of hyoscyne into atrosine.

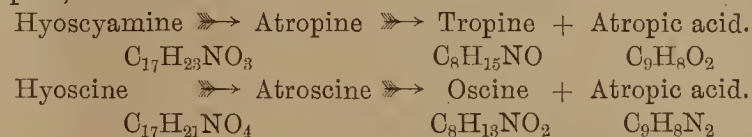
The amount of atrosine hydrobromide in the commercial scopolamine salt was found in one instance to be 15 per cent., in other instances it was from 44.8 to 83.7 per cent. The first sample had probably been obtained chiefly from *hyoscyamus*, the hydrobromide obtainable from that material being, as was formerly the custom, mixed with that obtained from *scopolia*. The other samples were undoubtedly derived from *scopolia*, and one of them was described as "hyoscyne hydrobromide." That came from Schering's factory, and it is on that account of special interest as being identical with the hyoscyne hydrobromide that E. Schmidt obtained from Bender.²⁸ It contained a considerable amount of atrosine salt and readily allowed of the preparation of "crystalline hyoscyne," which when crystallised from water proved to be perfectly pure atrosine. Hence it follows that the crystalline base which E. Schmidt found in Bender's crystallised hyoscyne, and was supposed to be really crystalline hyoscyne, was not what was supposed, but atrosine, though it was not quite pure, since its gold salt frothed in melting.

I was interested to ascertain some further information concerning the crystallised scopolamine obtained by Luboldt from Gehe's material, the identity of which with E. Schmidt's scopolamine is not disputed by him, but is fully admitted. Through a friend I obtained a sample of it described as "pure scopolamine" in an original package. It was in the form of colourless crystals, the size of a pea, melting in Roth's apparatus at 56°C ., and when rapidly heated in a sulphuric acid bath at 58°C . Analysis gave results agreeing with the formula $\text{C}_{17}\text{H}_{21}\text{NO}_4 + \text{H}_2\text{O}$. When heated for some hours to 54° — 55°C . in an air bath, it was converted into anhydrous crystals, which then melted at 82° — 83°C ., and required for solution 37 parts of water at 18°C . A 220 C.c. column of this solution caused no deviation of polarised light. A gold salt prepared with this base had all the characters of the atrosine gold salt, melting at 201° — 202°C . without frothing. This base was therefore nothing else than atrosine.

From all these details it follows that the crystals obtainable from commercial scopolamine hydrobromide, or from the hyoscyne hydrobromide prepared from *scopolia* are really atrosine, and further that the crystallised scopolamine, either with or without the prefix i, normal or not normal, are in the pure state atrosine. The natural occurrence of that base extends apparently only to the different kinds of *scopolia*, and the designation scopolamine chosen for it by E. Schmidt would be an appropriate one. But Schmidt in his first investigation of the subject confused this base with the hyoscyne of Merck and Ladenburg,²⁹ and since then the confusion of two different things has continued, extending even to the German Pharmacopœia Commission, with corresponding disadvantages to

German apothecaries, who are compelled to use labels accordingly. But since the commercial scopolamine hydrobromide—now official—is, according to my previous observations, a mixed substance, an end should be put to the mystification that has prevailed. In the place of this mixture the pure hydrobromides of the two bases should be substituted, since their preparation does not involve any particular difficulty.

While under the name of scopolamine two entirely different bases have been understood, the designation atrosine is applicable to only one, and on that account I recommend the adoption of this name. That name closely resembles the one chosen by Ladenburg for the isomeric base obtainable from hyoscyamine, and both of those names correspond to that of the pair of bases hyoscyamine-atropine, as shown below:—



Just as atropine differs from hyoscyamine in its action upon the eye, so does atrosine differ from hyoscyne, and thus the better action of scopolamine, as compared with hyoscyne, is explicable as being due to the atrosine it contains.

THE MEDICINAL PLANTS OF THE CLYDESDALE FLORA.*

BY W. BOWIE.

John Ruskin, the great art critic who has just passed away, never was wider of the mark than when he said that Glasgow has now no nature left within thirty miles of it. In fact, the very opposite is the case, for no city in the world is surrounded by a country district so rich in the beauty and variety of nature. Turn where we please, we have evidence of the fact. The river Clyde, a few miles up, flows sweeping on through woods of stately trees 'tween banks which on a summer's day are decked with flowers of blue and gold. On the one side of the great basin on which our town is built we have the Cathkin Hills replete with interest for the student of natural science, and furnishing vantage ground from which the lover of beautiful scenery may look and be satisfied. On the other side we have the Campsie Fells, o'er which the botanist and geologist may roam at will, and collect a bountiful supply of specimens; or, gazing from any of the eminences, there stretches northward a noble prospect of lake and forest, mountain and valley, streamlet and meadow. Even within range of an afternoon's walk we have places of striking interest for the student of nature, such as Cadder Wilderness, Kenmuir Woods, Possil Marsh, the upper reaches of the Kelvin, Hogganfield and Bishop's Lochs, and many other stations which the plant-lover may visit, with profit to body and mind. It will be seen, therefore, that it is no wonder there have been so many men, some of whom moving in the humblest walks of life, who have taken a great interest in the field botany of the district, and spent the greater part of their spare time in following the subject.

I remember the late Dr. Keddie telling me that in his younger days he knew men who not only watched over the preservation of rare plants in their favourite haunts, but actually transplanted specimens to a safer locality when they threatened to become obsolete, and Hugh McDonald confirms this statement in one of his "Rambles Round Glasgow." And now, as a result of the continuous and intelligent work of several generations of local botanists, there has just been published a catalogue of the native and established plants of the district as complete as it can possibly be. But there can be no doubt that, to a very large extent, the interest and enthusiasm expended on the subject has been based on utilitarian rather than æsthetic grounds. With the masses of

²⁷ *Ibid.*, 236, 64.

²⁸ *Ibid.*, 236, 691.

²⁹ *Apotheker Zeitung*, 1890, p. 30.

* Read before the Glasgow Chemists' and Druggists' Assistants' and Apprentices' Association (see p. 135).

the people it is a treasured tradition that there are plants growing in the field which provide a certain cure for every disease to which our human flesh is heir, if we only knew where to get and how to use them. And so, in the early days to which I have referred, our predecessors were, on a small scale, amateur herbal physicians, who collected their own medicinal plants, and either in the dry form sold them or gave them away gratuitously to those suffering from disease, or in the form of an infusion or decoction, to which whiskey was added for preservation; they were distributed with directions for use. The word "official," which is attached to so many plants in our Flora as a distinguishing mark, proves this fact. Thus we have *Valeriana officinalis*, *Pulmonaria officinalis*, *Symphytum officinale*, *Cochlearia officinalis*, and many others. The word "official," derived from the Latin *officina*, a shop, and meaning, in the broad sense, as sold in shops for medicinal use. Again, in the tribal names we find tussilago, for coughs; taraxacum, meaning to disturb; scrophularia, for scrofula, and many others. The common nomenclature of a great number of plants also indicates the medicinal use to which they have been and are still applied, as gout weed, scurvy grass, dog-mercury, fever few, eyebright, purging flax, pilewort, birthwort, woundwort, liverwort, kidney wort, balsam, self-heal, etc. Throughout our city there are a few shops having signs such as "Herbalist, Botanic Medical Hall," and others of like significance, where a comfortable trade is done in the sale of medicinal herbs, or ointments and extracts made from them, with what benefit to the patient I do not presume to say, but am of opinion that, if they do no good, they certainly do no ill. Regarding the literature of the subject, there are several books in circulation containing much chaff and little wheat, many of the remedies being recommended on purely empirical grounds, and the fulsome praise in which they are referred to excites suspicion. One herb is lauded so highly as a panacea for rheumatism that the most obstinate case may be cured by simply carrying about a piece of the plant in the pocket.

There are, however, many plants in the Clydesdale flora possessing the Pharmacopœia stamp of authority, or, though not official, the beneficial action of which has been proved by long and general use, and it shall be the province of this brief paper of mine to point out and describe a few of the plants which fall under these two heads.

Let us for a beginning take the spotted hemlock, *Conium maculatum*; order, Umbelliferae. This is a common plant in the district, and in some places I have seen it grow to a height of five feet, and last year I was surprised to find it in wild profusion on a recently-acquired piece of ground now within the city boundary. Its umbelliferous inflorescence, tripinnate leaves, and purple spotted stem make its recognition easy. The plant, on being pressed, gives forth a mice-like odour. The fresh leaves, young branches, and unripe fruit are official, and the preparations are the succus and ointment made from the leaves, and the tincture from the fruit. Internally the use of this plant is valuable as a sedative and antispasmodic, while the ointment eases the pain of hæmorrhoids. None of the preparations are popular in the West of Scotland.

Hyoscyamus niger, Solanaceae.—The henbane is extremely rare in the district, but is still found; the lower leaves are stalked, upper ones sessile, sinuate, clasping the stem. The flowers are pale dingy yellow, with purplish veins. The fresh leaves, flowers, with the branches, also the dried leaves and flowering tops, are official. These must be gathered from the flowering biennial plants. The preparations are the green extract, succus, and tincture. Its action is diuretic and narcotic, and it is largely prescribed.

Digitalis purpurea, Scrophulariaceae.—The foxglove is a common plant in the Clydesdale Flora, sometimes growing to a height of four feet. Its purple, finger-shaped flowers in a unilateral raceme, with long-stalked ovate lanceolate rough of leaves, are so characteristic that it is easily known. The dried leaves collected from

plants beginning to flower are official. The infusion and tincture are extensively used for cardiac affections.

Aconitum napellus, Ranunculaceae (common name, monkshood), is still catalogued as found in the district, and I have a specimen on the table, but it is almost obsolete. The much-divided leaves and dark-blue flowers with hood-like sepals are very striking. The root collected in autumn is official, and the preparations are the liniment used for rheumatism and neuralgia and the tincture prescribed to reduce inflammation.

Humulus lupulus, Urticaceae.—The hop plant is not common, but I have found it growing in hedges near Glasgow. It has long twining stems that climb over hedgerows and thickets. The leaves, heart-shaped at the base, and the greenish-yellow flowers are characteristic. The dried strobiles of cultivated plants are official, and the preparations infusion and tincture. The medicinal properties are tonic and soporific. In some villages near here the miners collect the plant and prepare a decoction for their own use.

Taraxacum officinale, Compositae.—The dandelion is so common that I need not describe it. The fresh and dried root are official, and the preparations are succus, extract and liquid extracts. It is an invaluable medicine for stomachic and liver complaints, and much prized by the people, who gather the roots and prepare a decoction for themselves.

Valeriana officinale, Valerianaceae.—This plant is frequently met with growing on the banks of streams and ditches near the city. It is a tall, coarse, herbaceous plant with large pinnate leaves and pale purple flowers in broad corymbs. The dried rhizome and roots collected in autumn are official, and there is now only one preparation—the ammoniated tincture. When fresh, strange to say, the plant has no odour, but on drying a volatile oil is developed of characteristic disagreeable smell. The medicinal properties are nerve stimulant and antispasmodic.

Arctostaphylos uva ursi, Ericaceae.—The bear berry has rarely been found in the Clydesdale flora, save on heaths in the islands of Cumbrae and Arran. The leaves are official, and there is one preparation, the infusion. Its medicinal properties are tonic and astringent, but is not in demand in the West of Scotland.

Sambucus nigra, Caprifoliaceae.—The elder, or boortree, is common all round the city. It is a small tree, with spreading branches and pinnate leaflets. The inflorescence is cymose, with cream-coloured flowers. The flowers are official, with one preparation, the aqua. Its medicinal properties are to reduce inflammation, applied in the form of a lotion. An ointment made from the dried flowers is much valued by those who believe in domestic medicines.

Cytisus scoparius, Leguminosae.—The broom grows in bush-like form, wherever we turn, and is known by everybody. The fresh and dried tops are official, and the preparations succus and infusion. Its action is diuretic, and used largely in dropsical complaints. When walking in the country I have often met people collecting the plant for medicinal use.

Aspidium filix-mas, Filices.—This is the only official fern, and is very common in our district. The stripes are very scaly, and the fronds grow in tufts. The liquid extract is the official preparation, and is used to expel tapeworm.

Solanum dulcamara, Solanaceae.—I have found the bittersweet frequently in the hedgerows a few miles from the city. Its climbing habit, hastate upper leaves, corymbose flowers, purple corolla, and yellow anthers make it easy of recognition. It is not official, but an infusion of the young twigs is used in skin diseases.

Tormentilla potentilla, Rosaceae.—The tormentil is a very common plant growing on heaths and pastures in the vicinity, and is easily known by its beautiful little yellow rosaceous flowers. It is not official, but a decoction of the rhizome is popularly used as a remedy for dysentery. I have occasionally seen Glasgow physicians prescribe it boiled in milk for the same complaint.

Menyanthes trifoliata, Gentianaceae.—The bogbean is frequently found in marshy places, its delicately-fringed corolla making it an

object of great beauty. It has a place in several foreign Pharmacopœias, and in our own locality is gathered for medicinal purposes, the rhizome and seeds being used as a substitute for gentian. The powdered leaves have proved beneficial in ague.

Galium aparine, Rubiaceæ.—The goose grass or cleavers is a common plant in hedges, its scrambling habit and reflex prickles marking it readily. A decoction of this plant has long been used for obesity, scurvy, etc. Squire says that the most suitable preparation of it is a fluid extract.

Linum catharticum, Linaceæ.—Purging flax grows in many places in the vicinity, and has a beautiful inflorescence of white cymose flowers. Among country people a decoction of the leaves is often used as a safe purgative.

Geum urbanum, Rosaceæ.—The wood avens is a common yet beautiful plant growing in woods and by the banks of streams. The root is much prized for its tonic and astringent properties. In the neighbourhood of the city I have frequently met women gathering it for medicinal purposes.

Symphytum officinale, Boraginaceæ.—The comfrey is one of our commonest plants, and grows everywhere in our district. Squire says that after removing the rind the mucilaginous root is most valuable as a casing for fractured limbs.

Tussilago farfara, Compositæ.—The coltsfoot is our earliest wild flower, and in a few weeks may be found in flower on all waste places on the fringe of our city. It is said to be a good remedy for coughs, and itinerant quacks make candy from it, which finds a ready sale.

Agrimonia eupatoria, Rosaceæ.—Agrimony is frequently found in the district, growing on the borders of fields, sometimes to the height of two feet. Medicinally it is much valued, and used in the form of an infusion for hæmorrhage of the lungs.

Scrophularia nodosa, Scrophulariaceæ.—The figwort, or, as it is sometimes called, rose-noble, is the typical plant of its order, and, as its name indicates, was famous as a remedy for scrofula. Now it is chiefly used on account of its tonic properties and in combination with bogbean. It is a common local herb.

Cochlearia officinalis, Cruciferae.—The scurvy grass may be found growing on the banks of the Clyde, and, like most cruciferous plants, is of great value as a blood purifier.

But what need I say more? For although I have only touched the fringe of the subject, I am afraid I have wearied you with so much detail. And now, it may be asked, what is the good of all this information I have compiled and laid before you? Well, I can answer that a druggist nowadays is expected to be able, like Solomon, to discourse on everything, from the Cedar of Lebanon to the hyssop that grows on the wall. From a trade point of view, one of the most serious blunders a shopman can make is to have to answer "I don't know." That response weakens the inquirer's confidence alike in the seller and his wares. In acquiring a language, the larger your vocabulary the abler you are to speak. So, the wider the knowledge which we possess on all that bears on our trade, the greater the likelihood of our success. We hear in these days a great deal about the store *versus* private trading. In my opinion, the great antidote to the store opposition is strong personality in the private trader, and one of the factors to make personality is knowledge. Many of the obscure remedies I have mentioned are occasionally asked for in drug shops, and although you may not have the herb your customer wants, still if you can tell him anything about its nature, habitat, use, etc., make sure he will come back another day and purchase something you have got. Knowledge is power, and it is often the knowledge of little out-of-the-way matters connected with pharmacy that gives the shopkeeper a name, and through time a good business in the district. Again, let us not despise the ministry of some of these simple herbal remedies I have mentioned. Remember that the curative power of such valuable barks as cinchona and cascara sagrada was known to barbarous tribes long before the civilised

world knew their worth, and in the same way it is quite likely that the humble villager may discover among the plants growing round his home some safe and effectual remedy for the physical troubles against which he has to contend. The element of faith, doubtless, contributes to the benefit derived from simples. But the same may be said of the most scientific treatment, for if a patient have faith in a remedy it is half the cure. I have yet another reason for bringing before your notice "The Medicinal Plants of the Clydesdale Flora," and it is this: Although the subject has a direct bearing on our trade, it will also bring you into touch with the broader study of botanical science; and there is no science the pursuit of which asks so little of you and gives you so much in return. It will take you out of the crowded city to the open, breezy country, by stream and lake, on moor and meadow, o'er hill and glen, in fen and forest, ever discovering something new to charm and interest you, a discipline alike to eye and brain. And although you may never be able to discover any herb which will help to lessen the sum of human suffering, nor even be able to add anything to the catalogued flora of your district, yet you shall be repaid for the interest and energy expended and of the infinite secret of nature. You shall at least know a little.

NEW REMEDIES.

CIMICIFUGA RACEMOSA IN AURAL TINNITUS.—A. Robin and Mendel have found that fluid extract of cimicifuga gives good results in the treatment of aural tinnitus, which is notoriously difficult to treat; the remedy has only failed in old-established cases, or where previous disease existed. It is given in doses of ten drops three times daily. It is prescribed thus: Extr. cimicifugæ fluid, 25 Gm.; menthol, 10 centigrammes. Take ten drops three times daily. Cimicifugin, a resinoid from the drug, the dried extract, or an alcoholic tincture are also employed. The doses of these preparations are: Cimicifugin, 6 to 40 centigrammes daily; of the dry extract, 20 to 60 centigrammes per diem; and of the tincture (1:10), five drops given hourly.—*Merck's Report*, 1899, 68.

ARSENIC CASEINATE.—A patent has been taken out for the preparation of a combination of arsenic and casein by heating casein in aqueous or alcoholic solution with an arsenic haloid. The arsenic caseinate obtained dissolves easily in water, and in weak alkaline solutions, from which it is reprecipitated by acids.—*Pharm. Cent.* 40, 575.

PARNASSIA PALUSTRIS IN EPILEPSY.—Peters ascribes to this plant remedial powers in epilepsy. He employs a tincture of the whole plant (1:5), and gives an adult a dose of half a teaspoonful after meals. If the tincture produces congestion, an infusion may be used, made by allowing two teaspoonfuls of the fine-cut dried herb to infuse for fifteen minutes with 500 C.c. of boiling water, half of which infusion is to be taken morning and evening.—*Pharm. Cent.*, 40, 611.

THYROID IN FRACTURES.—In the *Echo Medical du Nord*, Lambret suggests that thyroid medication may materially hasten the process of union in cases of fracture. He points out that in 1895 Hanau and Steinlein drew attention to the tardiness with which the union of broken bones takes place in animals which have been deprived of the thyroid gland, and that they suggested, as a corollary, that medication with thyroid would promote the formation of callus. Gauthier, Quénu, and Folet have all found this to be borne out in practice. In support of this, the author brings forward a case of fractured tibia, in which solid union resulted on the seventeenth day, the patient having been treated with nine grains of thyroid gland per diem. This case, although not conclusive, is suggestive.—*Therap. Gaz.*, 22, 750.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

Pharmaceutical Festivities.

Dances, dinners, and smoking concerts are the three recognised social functions amongst pharmacists; and of those we appear—in London, at least—to have quite enough to prove that the British pharmacist does not take his pleasures sadly. The oldest established pharmaceutical dance dates back to just over a third of a century—this “so-called nineteenth century,” of the approaching end of which the genial honorary secretary to the Chemists’ Ball has been so persistently reminding us. He does not appear to have been so fortunate as to establish a record by the last ball of the century, which is also, as rumour has it, the last under his secretaryship; but I doubt if a more generally satisfactory meeting of the kind was ever held. The rooms were far from crowded, but everyone present seemed to be taking a fair share in the entertainment of the rest of the company, and the common or garden wallflower was entirely masked, if present, by other and even sweeter blossoms. The supper was good, and the speeches subsequently delivered were—perhaps fortunately—none too audible. I say fortunately because, after supper, no one wishes to hear speeches; of wise sayings we can have enough at any time, and witty ones we all overflow with for the time being. The most noticeable feature of the ball was the diminution in the number of elderly persons who have been wont to dissipate on that one night in the year at least; the younger element does not yet attend in sufficient force to fill the gap, and to that fact, rather than to the war or the prevalence of influenza, must be attributed the smaller attendance than usual. But, really, there were quite enough present for comfort; those of us who like a crowd were able to indulge freely in that respect at the Junior Pharmacy Ball this week. To many that was a more enjoyable affair than the Chemists’ Ball; but each fills a distinct place, and they do not clash in the least.

Wanted—A Chemists’ Club.

The brief description in last week’s *P.J.* of the Chemists’ Club established in New York serves to accentuate the fact that London pharmacists are so badly served as regards club accommodation. A chemists’ club, of a sort, existed near Ludgate Circus some time ago; but it was altogether out of the way, and failed utterly to satisfy an undoubted want. The Pharmacy Club, again, is by its very nature insufficient for the purpose. It is nothing but a social dining club, at the meetings of which persons connected officially with the Pharmaceutical Society, together with a limited number of elected members, are brought together on a footing of equality and friendship. The meetings are but few in number, and the absence of proper accommodation makes the Club one in name only. Moreover, many of the individuals constituting the select circle referred to are understood to appreciate their exclusive privilege so little that they are but rarely seen or heard of at the meetings, and the main object of the club is therefore not attained. What is required is a house, or a set of rooms, adjoining the Pharmaceutical Society’s house if possible, where all the accommodation and comforts of a club—properly so called—should be available. Club premises containing a reading-room, writing-room, tea-room, billiard-room, etc., etc., with the privileges of membership limited to persons connected with the Pharmaceutical Society, should prove a sufficient attraction for a real pharmacy club to be managed at a profit. It might be run as a joint-stock affair, say with ten-pound shares, and I believe there would not be much difficulty in securing the necessary hundred or more subscribers to provide the capital required to commence operations. Apart from the actual subscribers, the hospitality of the club might be freely offered to other members of the Pharmaceutical Society, on presentation of their

eards; but in time membership of the club would probably come to be regarded as being as much a matter of course as membership of the Society.

The Conference Membership.

I take it that the present year may be regarded as a critical one in the history of the British Pharmaceutical Conference. According to the figures in the last financial statement, the members’ subscriptions do little more at the present time than cover the cost of the ‘Year-Book’! That being so, a very large addition to the membership roll is absolutely necessary if the work of the organisation is to be continued on existing lines. At one time, I understand, there were more than three thousand subscribing members; now there are not many more than one-third of that number, and three hundred of those hail from the London district. London, therefore, supplies the backbone of the Conference, and unless London can furnish material for reconstructing the sadly-diminished body, I fear that the B.P.C. as a separate organisation is within measurable distance of the time when it will cease to exist. Lack of enthusiasm may be survived for awhile, but a diminishing list of members and accompanying scarcity of funds must speedily prove fatal, unless checked. Any remedy, to prove effectual, must be less tentative than the addition of a number of members from the district where the annual meeting is held in any given year. Usually, I believe, that addition hardly makes good the continual waste due to resignations and deaths, and though Londoners may come to the support of the Conference in such numbers as to cover the losses of several years to come, the inevitable end will only be postponed for a few years. To be really effective, every part of the kingdom must take its share each year in maintaining the membership strength of the B.P.C. at a proper limit, and it seems to me that the list recently compiled by the president, Mr. E. M. Holmes, should prove extremely useful in enabling that to be done. It would be well, by the way, if similar lists were submitted to the Secretary of the Pharmaceutical Society with a request that he would be good enough to help the Conference authorities in determining what pharmacists in a given district are or are not members of the Society.

B.P. Standards for Drugs.

The only wholesale firm which appears to have taken notice of my remarks about the difficulty of obtaining certain drugs up to the B.P. standards is one with which I have done business for many years, and for which I have the highest respect, as I have always found that I could order drugs, galenicals, etc., from that firm in the full assurance of getting exactly what I require. But in the letter, published last week (see p. 100), a totally wrong view is taken with regard to the purport of my note, and a little too much is taken for granted. Thus, it is stated that there is “little or no difficulty in obtaining from any of the recognised wholesale houses the finest qualities of any particular drug.” It is a somewhat indiscreet thing for any wholesale house, however ancient or prominent, to venture to speak thus on behalf of other firms, the more especially as one presumably “recognised” wholesale house has recently published statements to the contrary. Moreover, the absurdly low prices quoted in some “prices current” for the “best” qualities of certain drugs preclude the idea that the articles quoted can meet the requirements of the British Pharmacopœia. For example, to refer only to articles which I have previously mentioned, it may be possible to supply aconite root, B.P., in the regular course of trade, at 8d. per lb.; asafetida, B.P., at 1s. 4d.; and pareira root, B.P., at 1s.; but I have serious doubts on the subject. Nevertheless, such prices are the highest quoted in lists issued by “recognised wholesale houses,” to which I have lately had occasion to refer. This is not as it ought to be, and I hope before long to have the satisfaction of seeing B.P. drugs quoted, as such, in the price lists of the leading wholesale houses.

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, FEBRUARY 7, 1900.

Present:—

Mr. WM. MARTINDALE, President.

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

Messrs. Allen, Atkins, Bateson, Carteighe, Corder, Glyn-Jones, Grose, Harrington, Hills, Park, Savory, Symes, Warren, and Young.

The minutes of the last meeting were read and confirmed.

Death of a Corresponding Member.

The PRESIDENT said he regretted to announce the death of a noted Japanese pharmacologist, Dr. Yataba, who was elected a corresponding member of the Society in 1892. He was well known by his work in the medical faculty of the University of Tokio, and was a man of great promise. He was unfortunately drowned while bathing.

The Late Mr. Daniel Frazer.

The PRESIDENT then proposed that a letter of condolence be sent to the family of the late Mr. Daniel Frazer, whose death was announced at the close of the last Council meeting. Mr. Frazer, who was an active member of the Council fifteen years ago, was well known in the western parts of Scotland. He was a man of sterling worth and genial character.

Retiring Members of Council.

On a ballot being taken, the lot fell upon the following members, who will retire from the Council at the next election:—Messrs. Bateson, Cross, Grose, Hills, Storrar, Symes, and Warren.

Election of Members.

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

Allen, Archibald Clive; Birmingham	Laverack, Ernest Wilson; Malton
Amiss, Albert Edward; Shipdham	McLean, Alexander Bennett; Glasgow
Annesley, Sara; Camden Town	Manley, Henry; Aston
Appleton, John Thompson; Sheffield	Martin, Henry Arthur; London
Archer, Joseph Sykes; Guiseley	Melling, Alfred E.; Ashton-in-Makerfield
Bailey, John Herbert; Nottingham	Mercer, Alfred; Bakewell
Bayes, James Austin; Stechford	Moate, Benjamin; Birmingham
Benzie, Robert; Ceylon	Morris, Robert Leitch; Aberdeen
Bowie, George Duncan; London	Muscott, Rowland W.; Birmingham.
Breese, John Soley; Manchester	Newcombe, Thomas; Liscard
Campbell, Andrew T.; Alexandria	Oldfield, Frederick Charles; Woodford
Coney, Joyce Muriel; Highbury	Oldham, Thomas, Towcaster
Davis, Richard Llewellyn; Southsea	Owen, Philip Nicholas, Whitland
Deane, Annie, M.; Cradley Heath	Pilgrim, Horace Greenville; Luton
Drabble, Frederick P.; Kensington	Poad, John Edward; Looe
Dutson, Robert Thomas; Chepstow	Pritchard, Elias Roberts; Ebenezer
Eakin, James; Bombay	Robertson, David Smart; Birmingham
Eastland, Thomas Nix; Wisbech	Sampson, John Wm.; Helpringham
Evans, Roger Jones; Liverpool	Samways, Wm. Edgar; Gillingham
Finnemore, Horace; London	Scattergood, William J.; Nottingham
Flowerdew, Frederick P.; Birmingham	Sharp, Ernest T.; Hayward's Heath
Foster, George; Burnley	Sleigh, Frederick Bentley; Walsall
Freeman, Andrew John; Newbury	Smalley, Charles; Bolton
French, Frederick, A.; London	Smith, Frederick A.; Birmingham
Greaves, Sydney Chater; Chesterfield	Smith, Harry; Edinburgh
Haddock, John; Birmingham	Smith, Richard Henry; Leeds
Halstead, Harold B.; Rawtenstall	Smith, Thos, William; Fallowfield
Hartley, Albert Edward; Burnley	Spear, Frederick A.; Birmingham
Heap, Thomas Henry; Sowerby Bridge	Stewart, Fergus Ferguson; Lasswade
Hodgson, Edgar; Manchester	Sturt, Clifford Henry; Seacombe
Hopps, William Thomas; Leamington	Sweetman, Robert; Ludlow
Hunter, John; Glasgow	Taylor, Emma Bennett; Hungerford
Jamieson, Martin; Edinburgh	Theakston, Thos. Walburn; Masham
Jeffrey, Alexander Hill; Craigton	Tonge, Chas. Bursall; Gravesend
Johnson, Frank Horace; Lewisham	Turner, Robert Michael; Oundle
Johnston, John William; Kennington	Uppill, William Thos.; Walworth
Jones, David Richard; Cardiff	Warneford, Frederick; Brighton
Kaberry, William Todd; Southport	Whitworth, Arthur Upsall; Battersea

Young, James; Torquay

Election of Student-Associates.

The following persons having passed the First examination, and

tendered their subscriptions for the current year, were elected "Student-Associates" of the Society:—

Arthur, James William; Peterborough	Jones, Thomas Ernest; Pontypridd
Barton, Ernest Alfred; London	Jones, Walter John; London
Battershill, Frank Easton; Truro	Keen, Florence Edith; Cheltenham
Bayley, Arthur Wesley; Brighton	Lasham, Harold Frank; Guildford
Bell, James Douglas; Cardiff	Lewis, Alfred Pearson; Birkenhead.
Brackenbury, Alice; Stroud Green	Male, Charles Edgar; Cottenham
Bullen, Frederic Edward; Streatham	Maw, Arthur Trentham; Nutfield
Cartwright, Alfred Harry; Silverdale	Michelmores, Philip John; Paignton
Cox, Horace Nelson; Edinburgh	North, Henry Howard; Grantham
Dale, Isabel Marian; London	Palmer, Ralph; Bedford
Davis, John David; Braintree	Paterson, Alex. G. C.; Scarborough
Ennals, William Selby; Clapham	Prevell, William; Newcastle-on-Tyne.
Field, William James; Witney	Richards, Shelley; Shaftesbury
Goble, Joseph Harold; St. Leonards	Riley, Walter; Derby
Harbordt, Paul Harold; London	Rogers, Edward Parsons; Cheltenham.
Hyslop, David Scott; Lockerbie	Swinn, Robert Fred; Manchester
Jensen, Harold R.; New Brighton	Thompson, Thomas W.F.; Edinburgh
Thorne, William Henry; Swindon	

The Registrar's Report.

The Registrar's Report (see page 124) was laid on the table and ordered to be published.

The PRESIDENT remarked that it was satisfactory to see that the Society was about one thousand stronger than it was last year. It was very unsatisfactory to find such a number of failures in all classes of the examinations, more especially in the Minor, the percentage in England and Wales being 71.6 and in Scotland 63.91. It was satisfactory to notice that the number of men on the Register was 15,595, which, notwithstanding the number of deaths and erasures, was 100 more than last year.

Mr. YOUNG suggested that in view of the enormous number of failures some investigation should take place as to the cause. Was it entirely due to the inefficiency of the candidates, or did it arise from over-zeal on the part of the examiners?

The PRESIDENT did not think there was any unfairness in the conduct of the examiners.

Mr. YOUNG did not suggest unfairness, but it was a singular fact that the enormous increase in the number of failures was contemporaneous with the change in the mode of conducting the examinations.

Mr. CARTEIGHE said it was not correct to say that it was contemporaneous, as there was a complete change in the examinations long before. At the next examination, no doubt, there would be a still greater number of failures, in view of the ten-guinea fee that was looming in the distance. It would be found that the failures were not necessarily in the subjects that were examined in by the teachers.

Dr. SYMES said there was always a little danger of a professor in any one subject expecting a candidate to be proficient in that one subject, though he did not suggest that that was the cause of the failures on the present occasion. A chemist was inclined to think that the candidate before him should be a thorough chemist whether he knew anything else or not.

Mr. CARTEIGHE said he was surprised to hear Dr. Symes say that. His experience of the Board of Examiners, both north and south of the Tweed, was that the most exacting examiners in science were pharmacists, and their object in appointing teaching examiners was that they had constantly before them the amount of elementary knowledge of the science that could be acquired in a definite time, and in that way the students would have greater consideration extended to them. Experience was worth more than any theory, and experience showed that if a pharmacist were put to examine in any of the subjects he would prove to be a stiffer examiner than one who was teaching day by day.

The PRESIDENT said there was a rush of candidates during the last year, which would no doubt continue at the next two examinations. It was a curious fact that there were a great number of failures in practical dispensing, which was not taught with that efficiency that it used to be in the old days. Ready-made remedies had perhaps decreased the amount of practical dispensing.

Mr. HILLS said he could entirely corroborate from his experience as President what had been said by Mr. Carteighe. He would only

REGISTRAR'S REPORT.

SUBSCRIBERS TO THE SOCIETY FOR THE YEAR 1899.

	Life Compounders.	Annual Subscribers.	
		Members.	Student-Associates.
Number in 1898	299	3524	864
„ restored in 1899	—	75	
„ elected in 1899	64	2152	
Deaths, Secessions, etc.	363	5751	—
	5	289*	—
Total Strength of the Society	358	5462	884

* Some of these have paid the life composition fee and have been transferred to the table of Life Compounders.

ANALYSIS OF EXAMINATIONS FOR THE YEAR 1899.

FIRST EXAMINATION.

Number of Candidates during the Year.	Number of successful Candidates during the Year.	Number of Rejections during the Year.	Number of Examinations during the Year.	Average number of Candidates at each Examination.	Average number of Rejections at each Examination.	Percentage of Rejections.
1530	723	807	4	382.50	201.75	52.74

Number of Certificates received in lieu of the First Examination, 167.

MAJOR, MINOR, AND MODIFIED EXAMINATIONS.

ENGLAND AND WALES.

Examinations.	Number of Candidates during the Year.	Number of Successful Candidates during the Year.	Number of Rejections during the Year.	Number of Examinations during the Year.	Average Number of Candidates at each Meeting.	Average Number of Rejections at each Meeting.	Percentage of Rejections.
Major	100	49	51	4	25.00	12.75	51.00
Minor	1,331	377	954	4	332.75	238.50	71.67
Modified.....	One	Candidate presented himself and passed.					

SCOTLAND.

Examinations.	Number of Candidates during the Year.	Number of Successful Candidates during the Year.	Number of Rejections during the Year.	Number of Examinations during the Year.	Average Number of Candidates at each Meeting.	Average Number of Rejections at each Meeting.	Percentage of Rejections.
Major	3	1	2	3	1.00	0.66	66.66
Minor	485	175	310	4	121.25	77.50	63.91

THE REGISTERS OF PHARMACEUTICAL CHEMISTS AND CHEMISTS AND DRUGGISTS, 1899.

Additions during the year:—

Number of persons who have passed the—	
Minor	552
Major	50†
Modified	1
Number of persons restored to the Register on payment of a fine	15
Number of persons registered on payment of the registration fee; having been in business before Aug. 1, 1868	1
	569

Erasures during the year:—

Deaths	282
Erased at the request of registered persons themselves ..	8
Erased by the Registrar in pursuance of the provision set forth in Section 10 of the Pharmacy Act, 1868, after sending two registered letters, to which no answer has been received	157
Increase of numbers on the Register	122
	569

† These, having already been included in the number who passed the Minor, do not increase the numbers on the Register.

Number of Pharmaceutical Chemists on the Register, December 31st, 1899 ..	2,248
„ Chemists and Druggists	13,347
	15,595

add that he hoped, with the improved preliminary testing in general knowledge, this sad condition of things would be altered.

Dr. SYMES said it was very gratifying to hear what had been said, and he thought such an authoritative statement would be satisfactory to those who were disposed to sympathise with rejected candidates and to fancy that the examiners were rather too exacting.

Restoration to Register.

The name of the following person, who has made the required declaration and paid a fine of one guinea, was restored to the Register of Chemists and Druggists :—

Thomas Newcombe, 134, Seabank Road, Liscard.

Restorations to Membership.

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

Examiners for the Council Prizes Examination.

The PRESIDENT said this examination had not recently been conducted by any members of the Scotch Board, and it was thought desirable this year to ask their co-operation. He therefore moved that Prof. Balfour, Dr. Dobbin, and Mr. Boa be invited to conduct the examinations for the Pereira Medal and the Council Prizes competition in April next.

The resolution was at once agreed to.

Finance Committee.

The report of this Committee was read, recommending the payment of various accounts.

The PRESIDENT, in moving the adoption of the report and recommendations of the Committee, said it was satisfactory to find that the finances of the Society were in a sound condition. There was nothing in the report calling for special comment.

The report and recommendations were unanimously adopted.

Beneyolent Fund Committee.

The report of this Committee recommended the grant of £63 in the following cases :—

The widow (70) of a registered chemist and druggist and subscriber to Fund Has had one previous grant. (Bradford, near Manchester.)

A pharmaceutical chemist, life member (81), and subscriber to Fund. Was in business in Manchester, and afterwards for thirty years in Richmond.

A registered chemist and druggist (56), who passed the Mod. Exam. in 1868. A former associate and subscriber to Fund. (Seedley, near Manchester.)

The widow (74) of a pharmaceutical chemist member. Has had three previous grants.

One case was deferred, and another was not entertained.

The death of Mrs. Naftel, aged 82, who had been an annuitant since 1877, was reported.

Mr. ATKINS moved the adoption of the report and recommendations. He said the list was not so long as usual, and it was remarkable in two respects; first, that the average age of the applicants was seventy-three, and, secondly, that the majority of them had been subscribers to the Society and the Fund. He regretted to say that was not always the case.

The report and recommendations were unanimously adopted.

Diplomas.

The undermentioned being duly registered as pharmaceutical chemists, were respectively granted a diploma stamped with the seal of the Society :—

- Britton, Alfred Brook.
- Edwards, John Griffith.
- Normansell, John William.
- Paterson, George Derwent.
- Sykes, Henry Vincent.
- Taylor, Samuel.

Library, Museum, School, and House Committee.

The report of this Committee stated that the Librarian had furnished his usual report, including the following particulars :—

Attendance.	Total.	Highest.	Lowest.	Average
December	259	25	1	11
Year 1899	4,117	37	0	14
Circulation of Books. Total.	Town.	Country.	Carriage Paid.	
December	119	59	60	9s. 10d.
Year 1899	1,776	950	826	£8 12s. 7½d.

Several donations to the Library and Museum had been received (see P.J., January 20 last, p. 51), and the Committee had directed the usual letters of thanks to be sent to the respective donors.

The Committee recommended that the undermentioned works be purchased for the Library in London :—

Braemer and Suis, Atlas de Photomicrographie des Plantes Médicinales 1900.

D'Aygalliers, L'Olivier et l'Huile Olive, 1900.

The Committee also recommended that a copy of the United States Dispensatory, 18th Ed., be sent to the Library in Edinburgh.

The Curator's report had been received and included the following particulars :—

Attendance.	Total.	Highest.	Lowest.	Average.
December	416	44	1	17
Year 1899	6,107	65	1	20

The PRESIDENT moved the adoption of the report which, he said, did not call for any comment, and it was carried with one dissentient.

Company Trading.

Mr. GLYN-JONES asked whether the company question was now out of the hands of the Council and in the hands of the Law and Parliamentary Committee.

The PRESIDENT said that was so.

Mr. GLYN-JONES said that being the case, and seeing that there was no report from the Law and Parliamentary Committee, and that they had since the last Council meeting acknowledged that the Government was introducing a Companies Bill, and that there was a probability, which amounted to a certainty, that that Bill would include a pharmacy clause similar to the clause in the last Bill, he would ask if the President had any statement to make as to what the Committee or the Council was doing in the matter.

The PRESIDENT said the Bill had not yet been introduced into the House of Commons. They had had no definite information on that head.

Report on the Examinations.

The report on the examinations was then read, and is printed at page 127.

Mr. GLYN-JONES said he forbore to say anything when the question of the failures at the examinations was mentioned earlier, because he thought it would be more appropriate to put his question on this report; but he knew that a large number of students and also members who wanted qualified assistants felt that the percentage of rejections was very serious, and also that the best remedy would be a division of the examination. He would ask, therefore, if there was any reason why the Minor examination should not be divided, provided, of course, that no sort of qualification was given to a man who passed any particular portion of it.

The PRESIDENT said the question had been considered, and it was a matter for consideration both for the Council and the Boards of Examiners whether any such division should take place until there was a curriculum in force. He could not say at present what the opinion of the Boards of Examiners was.

Mr. CARTEIGHE said he had always been of opinion that such an examination as the Minor ought not to be conducted at a two-days' sitting, and that in fact such a course was inimical to true education; but unfortunately they were told by the authorities that they could not interpose any interval between the various parts of the examination. Whether a bye-law interposing a three-months' interval between two parts of it would be accepted now by the Privy Council he did not know, but some years ago it was not entertained, and that had been the difficulty. It might be possible to give a man an option if that were thought desirable, as a matter of administration, but according to the opinion of the legal advisers of the Privy Council when a man was twenty-one he was entitled to come up and pass within a reasonable period a qualifying examination. The suggestion was to interpose a period of three or six

months, and whether a bye-law to that effect would be sanctioned now he did not know.

Mr. GLYN-JONES said if in the view of the Council some division would be wise under certain conditions, surely it would be well to consider it. He understood Mr. Carteighe to say that under the present bye-laws it could not be done.

Mr. CARTEIGHE said it was not merely the bye-law, it was the law, which accounted for many awkward things in connection with the examinations.

Mr. GLYN-JONES thought it would be worth while for the Council to again approach the authorities with the view of getting some division of the examination. Their own members were feeling it very keenly. He could give an instance where it had caused great dissatisfaction, and if the Council would at an early date go in for a division of the Minor their members would be well pleased.

Dr. SYMES said the question was discussed before the Council some years ago, when he strongly advocated the division of the Minor examination. Perhaps he was wrong, but he believed that under the law they could divide the examination; the bye-laws might require to be altered, but he believed the law allowed it. They had not the power to say that a man, when he attained twenty-one, might not complete the examination and obtain his certificate; but he always felt that if they could hold some portion of the examination—for instance, the written portion—before he was twenty-one, and was allowed to complete it afterwards, that that would be perfectly within the law. It possessed immense advantages. A youth who passed the preliminary examination soon after he entered on his apprenticeship or before that time had no examination before him for some four or five years, and he believed that that was at the root of many of the failures. The boy became unaccustomed to study, and it was all the more difficult for him to again enter on his studies when the time came. He thought it was worth while to consider whether something could not be done if they should have again to alter their bye-laws. The examination was already divided to a certain extent—that is to say, there might be a week between the first and second part—and he did not see that there would be any difference in making an interval of three months or so.

The PRESIDENT said before he came on the Council the matter was well considered, and it was then found that the Privy Council would not allow them to divide the examination so as to let the candidate come in before he was twenty-one and pass a part of the examination, and then, when he was of age, complete his examination. He was in favour of the examination being divided, because it was a great strain for a candidate to go through all the subjects in a satisfactory way in a limited time. It was hard pressure to get the mind filled with the amount of knowledge required all at one time to pass a qualifying examination.

Mr. YOUNG said there was a general impression that this question should only be discussed together with the question of an enforced curriculum. He agreed with that up to a certain point; but in view of the fact that the attainment of a compulsory curriculum was Utopian or remote, he thought it might be worth while for the Council to give this matter some consideration, especially as it did in some way or other rest with the Council to divide the examination into two parts. He took it that the Council had power to do this. He did not quite see that it should hold out in favour of what was distinctly an inconvenience, and he might almost say an obstruction to the examinations.

Mr. CARTEIGHE said he had had to fight this battle single-handed in former times, and knew all about it. There would have been no battle if the Council and the members of the Society had been agreed, and if other interests besides the welfare of pharmacy had not intervened. There were vested interests in teaching which were all set to work, and statements were made that the Society wanted to enrich itself through its School, and so on. The decision

of the Privy Council, speaking from memory, was that—in the opinion of their advisers—under the Act of 1868 there were no powers to impose a curriculum or interpose periods of time between the respective parts of the qualifying examination. It was] no use to say that the Preliminary was part of the Minor, and they had separated that, the bye-law to that effect had been authorised. The only way would be to approach the Privy Council again on general educational grounds, and see if there would be any probability of bye-laws in a certain direction not being refused.

Mr. GLYN-JONES asked if the Council had power to refer a man back in one part of the examination without referring him back entirely.

The PRESIDENT said each man must pass the whole examination at one time.

Mr. YOUNG said at one time a man could come up and pass one portion of the examination.

Mr. CARTEIGHE said that was so, and he was one who did so, but that was in the days when the examination was voluntary, and the Society could make what regulations it liked. After the passing of the Act of 1868, matters were altered.

Mr. HILLS said if at present a member failed in one subject he had to come up again and pass in every subject. What was desired, he understood, was that if a man passed in one subject, although receiving no certificate, he should not be called upon in that subject when he came up again. That was a question well worth discussing, and he would willingly go to Parliament, if necessary, for power to improve the method of education and examination, but he should prefer it being done in connection with a curriculum. He did not think it advisable that examination in so many subjects should be crowded into a few hours, and if by altering the bye-laws or by going to Parliament they could obtain power to divide the examination he should be glad. But he still thought it would be wise to try at the same time to improve the whole system of education.

The PRESIDENT said the matter had been under the consideration of the Boards of Examiners, but they had not come to any definite conclusion. Anything like a piecemeal examination—unless in connection with an authorised curriculum of study—would, he thought, be injurious.

Mr. HILLS said a man always had a chance of getting through if he were generally competent, and weak only in one subject. He was not rejected unless he was hopelessly ignorant in one or more subjects.

The PRESIDENT said, when he passed his examination, it was possible to take the subjects seriatim, and it was found decidedly disadvantageous. In some examining bodies, he believed in Scotland, credit was given to a candidate at a subsequent examination if he had passed in certain subjects before, but it was not a satisfactory mode. It was much better to have the examination divided, and a certain course of study should be distinctly laid down.

Correspondence.

The SECRETARY announced that a communication had been received from the Privy Council, enclosing regulations current in Austria with reference to the sale of drugs. That letter had already been acknowledged.

The SECRETARY announced that communications had been received from the French Ministry of Commerce with reference to the International Congress.

The PRESIDENT said the International Congress would be held in Paris, from the 2nd to the 8th of August; the subscription for attendance being twenty francs. He suggested that the question of whether any steps should be taken for the Society to be represented on the Congress should be referred to the Library Committee.

That was unanimously agreed to.

The PRESIDENT then announced that the following resolution had been received from the Hon. Secretaries of the School of Pharmacy

Drill Class:—"That this meeting of the Students of the School of Pharmacy requests the Council of the Pharmaceutical Society of Great Britain to favour them with the use of the Examination Hall for the purpose of drill." That permission had been verbally granted to the students, and he proposed that the Council should confirm it.

The proposition was unanimously agreed to.

General Purposes Committee.

The Council then went into committee to consider the report of this Committee. On resuming, the report and recommendations were adopted, and a special resolution was passed authorising the Registrar to take proceedings against the persons named therein.

Report on Examinations.

January, 1900.

The REGISTRAR reports the following statistics of the January Examinations:—

England and Wales:—

	Candidates.	Pass.	Fail.
Major	19	6	13
Minor	314	76	238*
	333	82	251

Scotland:—

Major	—	—	—
Minor	97	39	58
	430	121	309

First Examination.	Candidates.	Pass.	Fail.
January 9, 1900	391	168	223

Certificates of approved Examining bodies were accepted in lieu of the "First" examination in 44 instances.

The REGISTRAR further reports that:—(a) The Board in London, to whom the matter had been remitted by the Council, recommended that it be empowered to accept in lieu of the "First" Examination the "Certificat de Grammaire," submitted by Mr. L. W. J. B. Verdrier. In several other cases which were also submitted, the Board made no recommendation.

"FIRST" EXAMINATION RESULTS.

A meeting of the Board of Examiners for England and Wales was held on Tuesday, February 6.

Certificates from approved examining bodies were received from the undermentioned in lieu of the Society's First Examination:—

Butcher, Charles W.; Kennington	Pine, George; Bristol
Cardell, Harry Parminter; Bodmin	Spiers, Charles S.; Melton Mowbray
Davies, David Lewis; Clapham	Strange, Harold G.; Shaftesbury
Hornsey, John Frederick; Oxford	Edwards, Percy W.; Devizes
Jackson, James Eustace; Barnsbury	Edwards, Rowland F.; Devizes.
King, Herbert Henry; London	

The report of the College of Preceptors on the examination held on January 9 was received. 391 candidates had presented themselves for examination, of whom 223 had failed.

The following 168 passed, and the Registrar was authorised to place their names upon the Register of Apprentices or Students:—

Adams, Thomas Wilfrid; Coleford	Bullions, John; Glasgow
Alexander, William John; Aberdeen	Cargill, Daisy; Arbroath
Allan, David Souter; Aberdeen	Carter, Harold Lovelace; Exmouth
Anderson, William Purvis; Edinburgh	Cartmell, Edmund; Lazonby
Appleyard, Frederick W.; Bradford	Clark, Herbert Holmes; Leeds
Ashworth, Arthur; Lancaster	Cleaver, Gilbert Duncan; Poole
Austin, John; Burton-on-Trent	Conway, John; Conway
Baillie, J. D. Martin; Edinburgh	Cordwell, Walter Raleigh; Harleston
Baird, Douglas Graham; Margate	Coutts, Charles; Aberdeen
Barker, Jesse; Heanor	Craine, Thos. Howard; Douglas, I.M.
Barlow, Ernest Cranston; Werneth	Creasey, William Rufus; Heckington
Baxter, William; Lanark	Cross, William Henry; Preston
Beattie, James; Thornhill	Dallman, Arthur A.; Ashton-on-Ribble
Blair, William King; Girvan	Dell, George; Northchurch
Bolton, Joseph Hook P.; Southgate	Douglas, Albert; Egham
Bradbury, John H.; Market Drayton	Douglas, Alexander; Dunblane
Brown, Howard I. F.; Cockermonth	Dundas, Harold Hewson; Arbroath
Brown, Joseph W.; Galashiels	Dunningham, Albert Geo.; Colchester

* MEMO.—One of the candidates in London was detected in the use of unfair means, and was failed accordingly.

Elias, Evan; Ferndale
 Emslie, Francis Henry; Aberdeen
 Esam, Richard Middleton; Leicester
 Evans, David George; Tenby
 Evans, William Morse; St. Clears
 Farrow, George Clarkson; Scarcroft
 Ferguson, Peter; Glasgow
 Fillingham, Bryan; Grantham
 FitzGerald, Sam. Wm.; Balsall Heath
 Fletcher, Thomas William; Bootle
 Forbes, Maggie Wilson; Burntisland
 Formby, Joseph; Southport
 Gaulter, Charles Rainford; Blackpool
 Goulding, George; Lincoln
 Green, William; Westbury
 Grossmann, E. H.; South Kensington
 Hadden, David Rose; Ballater
 Haines, George Herbert; Wigan
 Harpham, Frank; Nottingham
 Harris, Alfred Norman; Burnham
 Hart, Edward Joseph; Cambridge
 Hill, Rowland; Darlington
 Hill, Wilfrid; Ashton-in-Makerfield
 Hinrichs, A. Christian; Greenock
 Huddart, J. Kilpatrick; Workington
 Huggins, Albert F.; Pontnewynydd
 Innes, Robert; Dundee
 Ismay, Arthur; Newcastle-on-Tyne
 James, Cyrus Charles; Marlborough
 Jewitt, William M.; Stockton-on-Tees
 Johnson, Harold Green; Derby
 Johnson, Herbert; Abergavenny
 Johnston, James Archibald; Glasgow
 Johnston, Thomas Hunter; Glasgow
 Joughip, Herbert; Manchester
 Liddell, John; Falkirk
 Livesley, John Samuel; Hayfield
 Lloyd, Thomas John; Llwynypia
 Luke, Frank Porteous; Kinross
 McGregor, Robert; Edinburgh
 McHardy, Robert Smith; Aberdeen
 MacLean, Daniel; Forres
 Marshall, Alfred Woods; Lincoln
 Marshall, Frederic W. D.; Rochdale
 Masters, William Alex.; Notting Hill
 Matthewman, Albert Ed.; Birmingham
 Matz, Sol; Manchester
 Mayne, William Robert; Thornhill
 Meek, Herbert Owen; Liverpool
 Mellars, Frank Weightman; Lincoln
 Millar, Alexander Hastie; Dundee
 Millar, William; Glasgow
 Milne, John Morrison; East Newport
 Morgan, Percy George; Wem
 Morris, Frank William; Luton
 Murray, Alexander; Aberdeen
 Neale, Archibald Henry G.; Arundel
 Neale, Walter Osborn; Arundel
 Oakes, James Addy; Weymouth
 Oddie, Arthur Muir; Faversham
 Ogle, Jessie; Sherborne
 Orchardson, Jessie Campbell; Paisley
 Owen, Reginald Joseph; Rhyl
 Parkinson, Frederick C.; New Lenton
 Pattinson, S. T. T.; Gt. Yarmouth
 Pearce, Oscar W.; Bradford-on-Avon

Penney, Arthur Harold; Tiverton
 Penrose, John; Plymouth
 Pigg, Thomas W.; Newcastle-on-Tyne
 Powell, John Montague; Reading
 Powell, Mary Perla; Llanfihangel
 Pulpner, Philip James; Rushden
 Radford, Claude Henry; Coventry
 Rae, John; Hawick
 Ramsden, Reginald; Pontefract
 Rawstron, Harold O.; Haslingden
 Reid, Arthur George; Aberdeen
 Richardson, Percy Grayburn; Dudley
 Ritchie, Mary Reid; Grangemouth
 Robb, Robert Walker; Elgin
 Roberts, John Frimston; Prestatyn
 Robertson, William L.; South Shields
 Robinson, Beatrice M.; Tipton
 Robson, Alfred Atkinson; Gateshead
 Robson, David W., jun.; Gateshead
 Rose, Dorothy Mary; High Wycombe
 Ross, William Stewart; Montrose
 Rutter, Ernest; Red Hill
 Sanderson, Edward; Manchester
 Savage, Frederick Charles; Bradford
 Savage, Harold; Bradford
 Schofield, Harry; Grimsby
 Semple, James Cameron; Glasgow
 Shankster, Harry; Grimsby
 Shaw, William; Lanark
 Sherwin, John Arthur; York
 Shield, William; Stanley
 Smith, Albert; Stockton-on-Tees
 Smith, John; Aberdeen
 Snape, Charles Edgar; Wrexham
 Southwell, Vincent; Summerseat
 Staffiere, Frank Greig; Dunfermline
 Stevenson, John, jun.; Cowdenbeath
 Sumner, Albert Ernest; Wilmslow
 Sumpton, William; Hull
 Tavener, Charles Peach; Chislehurst
 Taylor, James Walker; Milltimber
 Thomson, Andrew; Methil
 Timms, E. T. W.; Moreton-in-Marsh
 Todd, Andrew; Edinburgh
 Tomlinson, T. McN.; Poulton-le-Fylde
 Tozer, Walter George; Boscombe
 Trollope, Harry Ernest; Lincoln
 Turner, Anthonia N.; Wotton-u-Edge
 Tyreman, Ernest Lightfoot; Whitby
 Walker, George Wright; Banff
 Wall, Arthur; Liverpool
 Watt, Alexander, jun.; Huntly
 Waterworth, Harold; Bradford
 Waton, Wm. Marwood; Long Eaton
 Watson, Theodora; Edinburgh
 Webster, Ethel Wynne; Bangor
 Welch, Tom Salthouse; St. Helens
 White, Harold; Luton
 Whitehead, Vernon Alfred F.; Oxford
 Widdowson, E. Lucy; West Bridgford
 Wilcock, P. W.; Ashton-under-Lyne
 Wiles, Harold Oliver; Cambridge
 Williams, Benjamin; Hayle
 Windle, Josiah Weston; Wolsingham
 Windwood, Philip S.; Cambridge
 Wood, Margaret Mary A.; Montrose

The questions set at this examination were published in the *Pharmaceutical Journal* for January 13, p. 28.

The following is a list of the centres at which the examination was held, showing the number of candidates at each centre, and the result:—

	Candidates.				Candidates.		
	Examined.	Passed.	Failed.		Examined.	Passed.	Failed.
Aberdeen	28	12	16	Lancaster	6	3	3
Birmingham	13	5	8	Leeds	25	6	19
Brighton	5	3	2	Lincoln	11	5	6
Bristol	9	6	3	Liverpool	16	9	7
Cambridge	4	3	1	London	25	11	14
Canterbury	2	2	0	Manchester	36	12	24
Cardiff	10	4	6	Newcastle-on Tyne	18	6	12
Carlisle	8	3	5	Northampton	1	1	0
Carmarthen	4	2	2	Norwich	5	2	3
Carnarvon	9	3	6	Nottingham	11	8	3
Cheltenham	3	1	2	Oxford	5	3	2
Darlington	7	4	3	Penzance	1	1	0
Dundee	11	7	4	Peterborough	2	1	1
Edinburgh	28	12	16	Plymouth	3	1	2
Exeter	6	2	4	Sheffield	8	0	8
Glasgow	42	16	26	Shrewsbury	4	3	1
Hull	8	3	5	Southampton	7	3	4
Inverness	4	2	2	York	6	3	3

LETTERS TO THE EDITOR.

Company Trading and the Practice of Pharmacy.

The letter from "A Layman" to the President compels our admiration by the clear, strong common sense which it displays, and by the force with which the argument is clinched and driven home. Too seldom by far is the duty of the community towards proved ability employed in its service set forth with such surpassing skill and lucidity. The weak point in its contention is the assumption that the public demand from the average chemist a high moral standard and considerable technical knowledge. A large proportion both of the medical profession and their patients require only a man competent to take down from his shelves some factory-made medicament and to hand it across the counter. That ignorant contempt of science which has sent out soldiers to South Africa armed with inferior cannon and wrongly-sighted rifles shows itself towards our craft in a refusal to believe that a qualified pharmaceutical chemist can practise pharmacy. If science has been hooted at in the army, it has no less been derided behind the counter. Any assertion of a confidential position between prescriber and patient is fiercely resented. Not long since a lady demanded that I should translate her husband's prescription for her, with an asperity of tone which would have been unbecoming if she had told her footman to put some more coals on the fire.

Tabloids will be accepted as an equivalent for a dose of Easton's syrup, but no one will believe that a chemist can make a pill to do the like, even under the guidance of the President's invaluable book. Last week a doctor from a neighbouring fashionable resort came to me. Did I keep Corbyn's Mist, Bismuthi Co., or Gale's or Hewlett's? No; I had none but my own. It was produced; he dipped a finger into it and tasted it, remarking, affably, "I don't know how you find this answer, but nothing else seems to take hold of a patient like theirs." Then he wrote a prescription for something else. Seeing that he had mentioned three different makers, "theirs" was not as definite as could be wished. I silently summed up the situation that—like many of the public—he was willing to accept anything but the handiwork of the individual chemist he was addressing. And that is the crux of our position—the Tugela which we fail to cross—that the labours of a generation to educate and qualify ourselves result in an obstinate incredulity as to our capability to *do* anything. The confidence of the public is reserved for the advertising quack, and he has so industriously heaped calumny upon our heads that the most unswerving integrity and the highest craftsmanship cannot dispel the cloud of suspicion and mistrust.

Dover, February 4, 1900.

J. F. BROWN.

Company Legislation.

I do not think that Parliament will have much time to devote to home legislation this session, but there is evidently an intention to proceed with a new Limited Companies Act, and it is quite possible that the intention will be carried out. If so, it is more than likely that there will be a clause in it relating to pharmacy, and we have no good grounds for supposing that this clause will be very different from the one framed last year by the Lord Chancellor. It may be said, therefore, that the fate of pharmacy in this country hangs in the balance just now. I have never at any time been other than a friendly critic of the Pharmaceutical Council, and I have no wish whatever to indulge in criticism just now. I know the difficulties with which the Council has had to contend quite well, and I am not of those who think that all difficulties will be brought to an end by adopting any special line of policy. I think, however, that considering the importance of the Bill which may be brought before Parliament soon, we ought to know whether the Council of the Pharmaceutical Society has made up its mind to any definite line of policy, and, if possible, what that line of policy is. If it is

to play into the hands of the enemy, it may be wise not to divulge the tactics about to be adopted, but the world of pharmacy needs to be assured at the present time that the watchmen are not asleep, and that they have a reasonable prospect—if not of routing the enemy, at least of preventing him from routing us. The matter is, in my opinion, urgent. It is probable that this Bill will be taken early in the Session, and it is almost sure to be forced through without adequate discussion, simply because of the pressure of business in the House. It is quite plain that chemists throughout the country cannot give the Council a policy "cut and dry" ready to take into the House of Commons; but, after all, I don't think it is the duty of a body like the Council to expect this. The Council cannot shirk its responsibility by telling the chemists that they cannot agree. It is the duty of the Council to take the lead, to strike the keynote, and set the tune for chemists throughout the country. Chemists have agreed as far as agreement can be expected from so numerous a body of men, especially as they have so far got no strong lead. I believe that if the Council would produce a strong, well-considered, wise plan of campaign men of all shades of opinion, and men who have no opinions at all, would fall into step and follow the leaders. That the Council should do this is nothing more than chemists have a right to expect. It is the duty of leaders to lead, else why have they come forward as leaders? I do not know what we would think of officers in the Army who refused to go forward because the rank and file had not said how, or where they were to go. It seems to be supposed that I am an out and out supporter of the qualified directors' policy, but the most I have ever said is, that this appears to me the policy most likely to meet with success. I have repeatedly said that if any man will produce a better policy which has a fair chance of success I believe the supporters of this policy will give in at once. This is the feeling in pharmaceutical circles everywhere, I think. There is no appearance anywhere of stubborn adherence to opinions in the face of a large majority who think otherwise. Chemists have their opinions, but they are ready to fall in in support of any likely policy which will lead to a fair settlement of their claims. The world of pharmacy needs strong leaders with a strong definite policy. That is all.

Dumfries, February 5, 1900.

JAMES REID.

ANSWERS TO QUERIES.

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

Apprenticeship (J. D. D.—38/26).—The phrase "effluxion of time" means completion of the period of the contract. The indenture can be cancelled by mutual agreement at any time.

Removing Superfluous Hairs (J. A.—38/25).—Any maker or dealer in surgical instruments could supply you with an electrical apparatus for the purpose. You may be interested in a case of depilation by Röntgen rays recently recorded in the *Lancet*. See page 115 of this week's Journal.

Bell Scholarship Examination (I. N. I.—38/27).—(2) Refer to the article on the subject which appeared in the *P. J.* for September 9 last. With regard to your other queries, (1) you will find it advisable not to supply the substance under such circumstances. (3) We have no such recipe. Try the effect of fresh air, exercise, and mild tonics.

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LONDON: SATURDAY, FEBRUARY 10, 1900.

THE COUNCIL MEETING.

At the opening of the proceedings last Wednesday the PRESIDENT mentioned that he had received apologies for absence from several members of Council, and after the minutes of the previous Meeting had been read and confirmed, proceeded to read letters of acknowledgment that he had received from the relatives of the late Mr. J. G. F. RICHARDSON, and from Sir THOMAS LAUDER BRUNTON. Reference was made to the death of Dr. R. YATABE, the Japanese pharmacologist, who was a corresponding member of the Pharmaceutical Society, and also to the death of Mr. DANIEL FRAZER, a resolution being passed that the PRESIDENT should write to his relatives a letter expressing the regret and sympathy of the Council.

On the ballot being taken to determine which members of the Council should retire from office, the lot fell upon Messrs. BATESON, CROSS, GROSE, HILLS, STORRAR, SYMES, and WARREN. After this year the retirement of members of Council will take place according to the greater length of time that they have been in office.

The additions to the ranks of the Society comprised 77 members and 35 student-associates.

The annual report of the Registrar, showing the number of members of the Society, the state of the Registers of Pharmaceutical Chemists and Chemists and Druggists at the end of 1899, and giving an analysis of the examinations for the past year, was presented and ordered to be published.

The PRESIDENT commented upon the satisfactory addition that has been made to the strength of the Society in consequence of membership being thrown open to all registered chemists. He expressed regret that the number of failures should be so large in all classes of examinations, and pointed out that the number of persons on the Register of Chemists and Druggists is, nevertheless, 122 in excess of last year.

In reply to a question put by Mr. RYMER YOUNG, whether the present enormous number of failures in the examinations were due to inefficiency of the candidates or a consequence of over-zeal on the part of the examiners, the PRESIDENT said he did not think it was due to any unfairness, and, in response to a further suggestion by Mr. RYMER

YOUNG, that an increase of failures was contemporaneous with the altered mode of conducting the examinations, Mr. CARTEIGHE said that was not correct, as there had been a complete change long before. He thought there might be a still greater number of failures at the next examination, as the time for the ten-guinea fee would be approaching. Moreover the failures would not necessarily be found to take place in subjects that are undertaken by teachers. Dr. SYMES suggested that there might be some little danger of a professor unduly expecting a candidate to be proficient in his own subject, and Mr. CARTEIGHE expressed surprise at hearing that remark, as his own experience was exactly the reverse that the most exacting examiners in scientific subjects were pharmacists, and the object of appointing teaching examiners was that candidates might have the advantage of that greater consideration which teachers might be expected to extend to them from having the peculiar difficulties of the case constantly before them.

The PRESIDENT remarked that the rush of candidates which has taken place during the past year would probably continue at the next two examinations, and he mentioned as a curious fact that a great number of the failures had been in practical dispensing, which is now taught with much less efficiency than in the days when ready-made medicines were not so much in use.

Mr. HILLS added that he could entirely corroborate Mr. CARTEIGHE's remarks, and he hoped that the improved preliminary examination would have the effect of altering the present sad condition of things.

Dr. SYMES expressed gratification that such an authoritative statement had been made, and hoped it would be satisfactory to those disposed to sympathise with rejected candidates as having been hardly dealt with.

In reference to the appointment of examiners in connection with the Council prizes, the PRESIDENT suggested that members of the Scottish Board should, on this occasion, be invited to conduct these examinations, and on his motion it was resolved to invite Professor BALFOUR, Dr. DOBBIN and Mr. BOA.

The report and recommendation of the Finance Committee were adopted without comment.

On the recommendation of the Benevolent Fund Committee, four grants, amounting to sixty-three pounds, were ordered to be paid. The SECRETARY reported the death of an annuitant who was elected in 1877.

The TREASURER, in moving the adoption of the report, mentioned that the average age of the applicants on this occasion was seventy-three, and that most of them had been subscribers to the Fund, which he regretted to say was not always the case.

The report of the Library, etc., Committee contained the usual statement of particulars as to the attendances at the Library and Museum, donations, etc., and when put to the vote was carried with one dissentient.

In answer to an inquiry by Mr. GLYN-JONES whether the company question was now out of the hands of the Council and in the hands of the Law and Parliamentary Committee, the PRESIDENT said that was the case. Mr. GLYN-JONES then said that as there was no report from that Committee he would ask if the PRESIDENT had any statement to make as to what was being done in the matter by the Committee or by the Council, since the Companies Bill would probably include a clause affect-

ing pharmacy similar to that in the last Bill? The PRESIDENT replied that the Bill had not yet been introduced into the House of Commons and the Council had no definite information on that head.

The SECRETARY having read the Report on the Examinations, Mr. GLYN-JONES—referring to the circumstance that a large number of students as well as members who wanted qualified assistants felt that the large percentage of rejections was a very serious matter and that almost the best remedy would be a division of the examination—asked if there was any reason why the Minor examination should not be divided? The PRESIDENT replied that the subject had long been considered by the Council and by the Board of Examiners, and the question was whether any division of the examination should take place until a curriculum was in force.

Mr. CARTEIGHE said he had always been of opinion that the Minor examination ought not to be conducted in two days' sitting; but the Council had been told by the authorities that it could not be divided by interposing an interval between parts of it. Whether a bye-law for that purpose would now be accepted by the Privy Council he did not know; but some years ago that was not entertained. The opinion of the Privy Council's legal advisers was that a candidate when twenty-one years of age was entitled to come up for examination and have an opportunity of passing a qualifying examination within a reasonable time. After some conversational explanation between Mr. CARTEIGHE and Mr. GLYN-JONES that the division of the examination is not merely a matter of bye-law, Dr. SYMES suggested that further consideration of the matter is desirable in view of the advantage that might be secured; the PRESIDENT also agreed that the examination as now conducted is a great strain upon candidates, and Mr. RYMER YOUNG added that whether the question of an enforced curriculum was necessarily connected with the division of the examination or not, he thought there should be no holding out in favour of what appeared to be distinctly an inconvenience, and he might say an obstruction to examinations.

Mr. CARTEIGHE, referring to former contests in connection with this subject, said there would have been no contest if the Council and the members of the Society had been agreed; but other interests had also intervened, representing that the Society wanted to enrich itself through its School. The only course now would be to approach the Privy Council on general educational grounds to see if there were any probability of suitable bye-laws being sanctioned. Mr. HILLS also expressed his opinion that it is not advisable to crowd so many subjects into a few hours of examination and that, if the whole system of education could be improved, it would be desirable to obtain power to divide the examination. Some conversation then followed, chiefly in reference to the practice followed while the examinations were voluntary.

The SECRETARY announced that a communication relating to the International Pharmaceutical Congress had been received from the French Minister of Commerce, and the PRESIDENT stated the nature of the conditions for becoming members, proposing also that the communication should be referred to the Library, etc., Committee.

The PRESIDENT drew attention to a resolution passed at a meeting of students of the School of Pharmacy remarked that he was glad to see that all the men were not gone requesting the Council to grant them the use of the Examination Hall for the purpose of drill: he had provisionally given permission, and proposed that the Council should confirm it, which was agreed to.

After the report of the General Purposes Committee had been considered, it was adopted, and special resolutions were passed authorising the Registrar to take proceedings in various cases of alleged infringements of the Pharmacy Acts.

DIVISION OF THE QUALIFYING EXAMINATION.

As will be gathered from the report of the discussion at the Council meeting on Wednesday (see p. 125), the question of dividing the qualifying examination appears likely before long to come within that sphere of practical politics, which—as a contributor recently pointed out—it can hardly be said to have entered yet. So far as the discussion goes, the members of Council appear to be at one regarding the desirability of dividing the examination into two parts, but the report of Wednesday's proceedings also reveals the fact that there are many points to be considered, and several difficulties to be overcome, before the proposed division can become an accomplished fact.

In the first place it must be ascertained whether the alteration can be effected by means of a modification in the bye-laws, or whether the necessary powers can only be procured by means of an Act of Parliament. The Privy Council alone can decide that point, and if, as Mr. CARTEIGHE seems to fear, fresh legislation should be required, it may be some time before the matter can be settled, the more especially as any Pharmacy Bill that may be promoted by the Pharmaceutical Society at the present time must obviously deal with other matters besides an alteration in the examination arrangements, so that the consummation of the wide-spread desire to lighten the candidates' burden may be deferred indefinitely.

One of the best arguments in favour of dividing the examination was that advanced by Dr. SYMES, who urged the desirability of endeavouring to keep apprentices interested in the necessary subjects of study during the long interval which may elapse between passing the preliminary and entering for the qualifying examination. But other good arguments are plentiful, and of serious opposition there would now, probably, be none. Most pharmacists will doubtless agree that division of the examination is desirable, but whether that division be made to coincide with the enforcement of a curriculum, or dealt with as a separate matter, will probably depend upon the manner in which powers to divide the examination are secured. If such powers can be obtained by a mere alteration of the Society's bye-laws the probability is that division of the qualifying examination will come long before a curriculum can be enforced, but if fresh parliamentary powers should be needed it may be anticipated that the two great changes will be effected together.

ANNOTATIONS

THE COMPANIES ACTS AMENDMENT BILL, which passed the House of Lords last Session, is being introduced into the House of Commons by Mr. Ritchie, the President of the Board of Trade, as a new measure, but it is understood that the Bill will be practically identical with its immediate predecessor. Assuming that to be the case, the Bill will contain the following clause, applying the provisions of the Pharmacy Act, 1868, to limited companies:—“No company may carry on the business and use the description of a pharmaceutical chemist or chemist and druggist unless such business is *bonâ fide* conducted by a manager or assistant being a duly registered pharmaceutical chemist or chemist and druggist, as the case may require, and unless the name of the person so qualified is conspicuously posted in the shop or other place in which the business is carried on, but, subject to this provision, anything which would be an offence under section fifteen of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.” In addition, the Bill will contain the clause providing that it shall be unlawful for a company to carry on the profession or business of a physician, surgeon, dentist, or midwife.

THE NOTTINGHAM AND NOTTS. CHEMISTS' ASSOCIATION may have to effect some rearrangement in the course of instruction provided at University College, Nottingham, for pharmaceutical students, as support is being given in the City Council to the attempt that is being made to secure the benefits of the course for others than those on whose behalf it was especially arranged. Reference has already been made to the matter in the *Pharmaceutical Journal* for December 23 and 30 respectively, where it was explained how the managing director of a limited company carrying on the business of a chemist and druggist had complained in the local newspapers because persons employed by the company were excluded from classes specially organised and conducted for the benefit of chemists' assistants and apprentices. It now appears that a member of the City Council has been induced to ask, at a meeting of that body, whether it was true that the Nottingham Chemists' Association had arranged with the University College Committee that certain classes for pharmaceutical study should be provided at the College, the Association guaranteeing a minimum sum for each subject taught, and—if it were true—whether the Association, which was in no sense responsible to the Council, had the power to exclude from those classes anyone they chose, considering the fact that the University College was established for the benefit of the ratepayers? In reply, the Councillor who had so suddenly developed an anxious desire to know what has been matter of common knowledge for several years past, was informed that, in the early history of the College, an arrangement was made with the Nottingham and Notts. Chemists' Association by which certain classes were held in addition to the ordinary College classes.

THE BASIS OF THE ARRANGEMENT is that the Nottingham Chemists' Association should bear the cost of such additional classes, but that in return the classes should be limited to the young men in the employ of members of the Association. The object of the classes is to prepare those young men for the pharmaceutical examinations, and the ordinary College classes, which are open to all at a fee less than that charged for the classes arranged for the Association, give an adequate preparation for those examinations in botany and inorganic chemistry. In materia medica and dispensing, however, the committee did not arrange classes, but allowed the use of a room at the College for classes to be held under the auspices of the Association by teachers appointed by that body. The Association is so determined that the classes shall be confined to chemists' assistants that the Committee has been given to understand that, in the event of the classes being thrown

open, the Association will arrange for their own men outside the College. If that were done, it was pointed out, there would probably not be sufficient demand for pharmaceutical classes to justify the College Committee in arranging such classes. For the information of the Council it was also stated that the practice of having limited or closed classes was receiving the attention of a committee. At the next meeting of the Council the matter is again to come under consideration, and it is thought probable that some modification in the existing arrangements may be made.

THE BRITISH PHARMACEUTICAL CONFERENCE, the affairs of which were briefly alluded to last week, is held to represent the progressive element in pharmacy, including, as it does, every member of the Council of the Pharmaceutical Society and, with few exceptions, all the Scottish Executive and the examiners of the Society, besides having had during nearly forty years some of the most loyal and scientific members of that body as its presidents. It would seem, therefore, that the B.P.C. should be better supported by the local secretaries of the Pharmaceutical Society, for only eighty-eight out of three hundred and two local secretaries belong to it. The proportion of Welsh and Scottish local secretaries is greater than that of English ones. A map showing the distribution of members of the Conference would reveal some singular blanks and curious anomalies. Thus, large towns like Portsmouth, Blackpool, and Darlington are not represented at all, and others such as Perth, Canterbury, Winchester, Middlesborough, and Weymouth have only one member each on the list. It is also interesting to note that in many towns where a local secretary of the Pharmaceutical Society exists, but does not belong to the Conference, there are often other chemists who do, being apparently more fully awake to the business advantages that accrue to the man who moves about the world, exchanging views with others who may have wider opportunities of acquiring useful information, and seeing and hearing of the newest and best things in science and commerce.

THE CONFERENCE MEETINGS are regarded by many as mere occasions for unnecessarily expensive holidays, the opportunities they afford of coming in contact socially with business people, seldom met otherwise, and of learning much that is useful, not being sufficiently recognised. Mr. Holmes, the President of the Conference — who asks us to state that copies of the classified list of members referred to last week can be obtained by any pharmacist who is inclined to make use of it, in furthering the aims of the B.P.C.—would like to direct the attention of local secretaries of the Pharmaceutical Society and other pharmacists to the fact that the Conference is to pharmacy very much what the British Association is to the scientific societies of Great Britain, and should accordingly be more widely supported. It is obvious that the work it is capable of accomplishing must be in direct proportion to the numbers who belong to the body, and perhaps, with a more thorough organisation than exists at present, it may become a useful factor in combination with other bodies that are working for the good of pharmacy.

ETHER AND ATOMS provided Professor Fleming with interesting subject-matter when lecturing recently at the London Institution. He began by pointing out that among the achievements of philosophic thought in the nineteenth century a high place must be given to speculations on the existence of an ether filling space. He then gave a brief sketch of the rise of the undulatory theory of light, and, as a second stage in the development of the ether theory, of the conception of an electro-magnetic medium. The existence of electric waves was deduced as a consequence of the system set forth by Clerk Maxwell in 1864, Maxwell prophesying that they would be found to have the same speed as light waves. Hertz discovered an experimental way of verifying those predictions in 1879. Hertz's method of detecting the existence of the waves was described, as well as that afforded by the “coherence” of metallic filings, discovered by

Hughes in 1879, afterwards rediscovered by Branly and applied by Marconi to the purposes of wireless telegraphy. The chief thing known about the all-pervading ether is its power of taking up enormous quantities of energy, though what becomes of the energy thus sunk in it remains to be discovered. The ether possesses elasticity which, however, probably differs from the bulk elasticity of a compressed gas or the elasticity of a steel spring. With regard to atoms, Lord Kelvin and others have of late years approached some conception of their dimensions. But even if it were possible to improve the microscope so as to render visible things of the size of atoms, they could not be seen, for to be seen they must be still, whereas they are in very rapid motion, a hydrogen atom, for example, going a mile a second, while the velocity of the atoms in solid bodies is probably not of a very different order. In conclusion, reference was made to the recent work of Professor J. J. Thomson, which seems to show that chemical atoms are not the smallest objects with which we can be acquainted, and that each one can be split up into about a thousand parts—a condition in which they form, in Sir William Crookes's phrase, "a fourth state of matter."

THE SUBJECT OF BOTANY IN SCHOOLS was discussed by Professor Miall at a recent Conference of Science Teachers. He pointed out that while chemistry and physics have lately come to the front in education, botany has stood still, though it is admirably suited for school work, as being the best initiation into the group of sciences formerly known as natural history. It also has a practical value, since exact scientific knowledge has become more and more necessary for success in farming. But at present botany is often not taught in the right way. In classes consisting of children ranging from about eight to twelve years of age Professor Miall thinks the lessons should be based on natural objects, not on pictures or photographs, and the introduction of books into the class or the use of technical terms of Greek or Latin origin should not be permitted. Where the ages of the students range from thirteen to sixteen, Professor Miall thinks that chemistry, mathematics, and physics should take the lead; but students from about seventeen to nineteen should return to the natural history sciences, and the great practical value of botany would make it a favourite subject. Since, as urged by a writer in the *Standard*, the main aim of a scientific training is to inculcate accurate observation and inductive reasoning, the students should be told nothing that they can find out for themselves, but they should be shown how to set about doing that. With regard to the use of technical terms, for fairly advanced pupils their employment is often useful, and sometimes necessary, but they should be employed cautiously, as many young people delight in using fine words to conceal hazy ideas.

FOR TEACHING BOTANY—the science on the natural history side, which is best suited for school work—the materials for object-lessons and for more mature study are alike easily obtained. They afford great variety and subjects progressing in difficulty, and do not involve the pain or death of sentient creatures, while the beauties and the marvels of plant structure cannot fail to attract and awaken an intelligent curiosity. But the study of botany, as Professor Miall regretfully admitted, is at present very far from having realised his ideal—at any rate, in this country. It has to contend with various difficulties, such as expense, lack of time, etc. Professor Miall, however, would teach fewer things at a time, rubbing in one subject well before going on to another, so that the knowledge is likely to stick. The multiplication of subjects is one cause why so many students quickly forget what they have learned. It is also possible to set too high a value on examinations. Though useful in their way, they have become almost a fetish in this country, and too often at the present day preparing for examinations is superseding genuine education.

BACTERIOLOGICAL EXAMINATIONS have been conducted on a satisfactory basis, in the Lambeth district, during the past year, judging from the report presented to the Lambeth Vestry by its medical officer, Dr. J. Priestley. The report shows the result of the first year's working of the bacteriological laboratory established by the Vestry. Bacteriological outfits were supplied to medical practitioners in the parish, and examinations made free of charge. A total of 388 examinations were made during the year, and out of 214 suspected cases of diphtheria, the true diphtheria germs were found in 99 (*i.e.*, 46.2 per cent.); whilst in 81 cases of suspected typhoid, 43 (*i.e.*, 53.1 per cent.) gave the Widal or typhoid reaction. There was thus a saving in notification fees sufficient to justify the provision of the bacteriological laboratory, not to mention the great advantages from more exact diagnoses.

ACETYLENE MAY CAUSE SERIOUS ACCIDENTS when mixed with air or oxygen, such mixtures being peculiarly liable to explode. It is not surprising, therefore, to find the *London Gazette* giving notice this week that it is proposed to submit to her Majesty in Council the draft of an Order in Council providing that acetylene, when in admixture with atmospheric air or with oxygen, shall be deemed to be an explosive within the meaning of the Explosives Act, 1875, and that it shall not be manufactured, imported, kept, conveyed, or sold. Notice is also given that, in accordance with the provisions of the Rules Publication Act, 1893, copies of the proposed draft Order in Council can be obtained by any public body at the Privy Council Office, Whitehall.

THE 'MEDICAL PRESS' has at last expressed regret for giving needless offence to pharmacists by its untrue statement that the very active alkaloids "cannot be compounded even by the most capable and conscientious chemist without the risk that the entire dose will be concentrated in one or two pills." It is suggested that the remarks published on the subject have been misinterpreted, but the words quoted above do not lend themselves to obvious misinterpretation. In the circumstances, the *Medical Press* does not abase itself unduly by stating that it does not doubt there are "many skilled and punctiliously careful compounders" who could properly subdivide a quantity of strychnine into a given number of pills. There is, of course, no doubt about the accuracy of our contemporary's original assertion that, while makers of compressed tablets "can grind a drachm or an ounce" of strychnine into a multitude of tablets, an individual dispenser "cannot be certain of effecting the same subdivision for half-a-dozen pills." Apart from the fact that no manufacturer is ever likely to attempt to "grind" strychnine into tablets, it is a physical impossibility to get a drachm, let alone an ounce, of the alkaloid into six pills of any ordinary size. But perhaps the words quoted cover a hidden joke, and failure to appreciate that constitutes the misinterpretation of which the *Medical Press* now complains.

THE NINETEENTH JUNIOR PHARMACY BALL was held on Wednesday, February 7, at the Portman Rooms, Baker Street, W. The arrangements were admirably carried out under the direction of Mr. R. Cassie, who held office as secretary for the first time. The company numbered about 320, and amongst those present were the President of the Pharmaceutical Society and Mrs. Martindale, Mr. W. Warren, Mr. and Mrs. Francis, Mr. and Mrs. J. C. Umney, Mr. and Mrs. A. J. Phillips, Mr. and Mrs. E. W. Lucas, Mr. J. H. Mathews, Mr. F. W. Gamble, etc. Mr. W. Martindale took the chair at supper and, in proposing the double toast of "Success to the Junior Pharmacy Ball" and "The Ladies," coupled the name of Mr. Cassie with the first part of his toast, and that of Mr. R. A. Robinson, jun., with the latter. Both gentlemen briefly replied, and a very successful ball terminated at about 3.30 a.m. Messrs T. C. W. Martin and C. W. Martin acted as M.C.'s.

PROCEEDINGS UNDER THE PHARMACY ACTS.

THE LABELLING OF POISONS.

Pharmaceutical Society of Great Britain v. Lewis's, Limited.

At the Manchester City Police-court on Friday, February 2, before Mr. Headlam, Stipendiary, Lewis's, Limited, who have large stores in Market Street in that city, were summoned by Mr. Harry Moon, acting on behalf of the Pharmaceutical Society of Great Britain, for contravening the Act regarding the labelling of poisons.

Mr. Robson, solicitor, Manchester, appeared on behalf of the prosecutor, and Mr. Orford, solicitor, conducted the defence.

Mr. Robson said the summons was taken out under Section 17 of the Pharmacy Act of 1868, and he might remind his worship that this Act was one under which the Pharmaceutical Society acted the part of police, and that in taking out the summons they were just doing their duty under the Act. The summons charged Lewis's, Limited, with selling certain poison—to wit, chloroform and morphine, forming part of Dr. J. Collis Browne's chlorodyne, on January 3, 1900, without labelling the bottle with the name and address of the seller, and under the Section they were liable to a fine not exceeding £5. He might say his friend, Mr. Orford, had admitted, and was willing now to admit, the presence of the poison, so that he had no need to call witnesses to prove that part, but he should call a witness who bought poison, and that would form his case.

Arthur Foulds stated that on January 3 last he went to the drug department of Lewis's shop and bought the bottle of Dr. J. Collis Browne's chlorodyne, which he produced. He paid 2s. 2d. for it. There was no label showing the name and address of the seller. He bought the bottle of castor oil produced at the same time. The young man who served him was about twenty-five years of age, and he thought he should know him again if he saw him.

By Mr. Orford: It was five or six years since he bought anything at Lewis's, or attempted to do so.

Mr. Orford: You mean to say that during the last six years you have not made a single purchase at Lewis's of this kind, or with this object in view?

Witness: No.

Mr. Orford: I have nothing further to ask him. I have not seen the bottle, your worship. (Bottle handed in.)

Mr. Robson: The Section says it shall have the name and address of the seller.

Mr. Headlam: Quite right. It ought to have had Lewis's label on in addition to Dr. Collis Browne's.

Mr. Robson: My friend has just asked a question which I should like to make one remark upon, and that is as to the witness having bought anything at Lewis's before. It is only fair to assume on that, that this being only one purchase, there are other cases in which labels have been omitted.

Mr. Orford: I think my friend must confine himself to the case in point, although I do not think he has dealt very harshly with me. Proceeding, Mr. Orford said he thought the briefest way to put it was that it was an accident—an accident it was impossible to provide against where the employees were so numerous and the establishment so extensive. He would put the chemist, who was a competent man, into the box, and he would explain how, in all probability, the accident had arisen. He thought it was a case which could be dealt with by the smallest punishment which could be meted out.

Wm. Hartley Nichols stated that he was the chief of Lewis's, Limited, drug department, in Market Street, and they kept the poisons in a particular place. Dr. Collis Browne's chlorodyne was kept upstairs in the stock-room, and brought down each morning as required. The practice was simply to send it down the hoist, and an assistant put the bottles on the counter, and stamped them with a rubber stamp, as time is valuable. This had been inadver-

tently omitted. Since he got the summons he looked, and there was only one unstamped. There must have been two unstamped.

Mr. Orford: The sale is very extensive?

Witness: Very extensive indeed, and we do our best to see that the law is carried out. It is a matter of inadvertence. To do away with this I have since insisted upon the assistants putting adhesive labels on. You cannot do more than that. You cannot be behind every assistant's back. I give them the order to do that, and they ought to do it.

Mr. Robson: I should like to ask if there are many qualified assistants, and, if so, how many, at your drug counter?

Witness: Simply myself.

Mr. Orford: And he has issued instructions that these bottles are to be labelled.

Mr. Headlam: And this bottle has got none. It is very remarkable.

Mr. Orford: It is useless for me to waste your time. We have made a blunder, and must abide by it.

Mr. Headlam: We shall fine you 40s. and costs.

ENGLISH NEWS.

THE PHARMACOPŒIA AS A STANDARD.—The following comments on Mr. Baggallay's recent decision appear in *Food and Sanitation* for February 3:—"Mr. Baggallay is, it would appear, right in his statement that there is no Act of Parliament which makes the B.P. the standard for any compound of drugs, but there is a high court decision in *White v. Bywater*, 19 Q.B., D. 582; 36 W.R., 280; 51 J.P., 821, which recognises the British Pharmacopœia as the standard, and is nearly on all-fours with the case dismissed by Mr. Baggallay. A chemist sold some tincture of opium deficient in strength as compared with that prepared according to the standard of the British Pharmacopœia. It was held by Lord Coleridge, C.J., and A. L. Smith, justice, that the chemist was rightly convicted, although the purchaser had not asked for tincture of opium prepared according to the standard of the British Pharmacopœia. Mr. Justice A. L. Smith said, 'Tincture of opium must mean the article known in commerce as tincture of opium. The thing supplied was not tincture of opium, but an inferior article.' (*Vide* Bell and Scrivener, 'Sale of Food and Drugs Act,' 2nd edition, pp. 19 and 20; Hedderwick, 'Sale of Food and Drugs Act,' page 10; Cribb and Robinson, 'Food and Drugs,' page 48; Macaulay, 'Law on Adulteration of Food,' page 5.) Amongst others Mr. Glyn-Jones states: 'In reference to drugs, it is sometimes argued that the B.P. is the standard under the Food and Drugs Act. There is not a sentence in any of the Food and Drugs Acts which warrants the assertion, and no magistrate could rightly convict a defendant on the ground that the analyst's certificate says the article in question is not of B.P. strength. He must have oral evidence to prove to him that the B.P. is the commercial standard for that particular article. At Plymouth, Dr. Attfield, surely an authority as to what the Pharmacopœia is or is not, stated that it was not the legal standard, that it was not prepared with that object in view.' Mr. H. Wippell Gadd, of Exeter, says:—"That the authority of the Pharmacopœia as a standard should be disputed is not surprising, in view of the conflicting views of different authorities.' The legal position of the question appears, however, not to disclose any serious conflict by authorities. We believe that had the case been taken to the court of Queen's Bench Mr. Baggallay's decision would have been reversed. In any case, it is not worth taking as a serious precedent because it is clearly overridden by the case of *White v. Bywater*, in the Queen's Bench appeal."

"TRUTH" ON ARMY MEDICAL COMPOUNDERS.—In last week's *Truth* the editor says:—"It appears that I overrated the generosity of the War Office last week when I said that 4s. a day was being offered to dispensers for service with the Army in South Africa."

The pay is really only 3s. 6d. a day. There is not the slightest possibility that chemists holding the diplomas of the Pharmaceutical Society will be recruited on these miserable inadequate terms, and, in default, the War Office will have to accept the services of men supposed to have had more or less—generally less—practical experience of dispensing. In this respect, however, the War Office is only following in the footsteps of the Local Government Board, which admits men to Poor-law dispenserships with qualifications of much less value than those required for similar appointments in her Majesty's prisons. Soldiers and paupers are apparently both considered of less account than criminals."

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.—The sixth meeting of the session was held in the Lecture Theatre, at 17, Bloomsbury Square, on Friday, 26th ult., Mr. E. M. Chapman in the chair. There were thirty-eight members present. The minutes of the previous meeting were read and confirmed, and the Chairman then asked if any member had business to bring before the meeting. Mr. Garsed asked what had been done in regard to printing a fresh supply of pamphlets of the Rules of the Association. He was informed by Mr. Heslop, one of the secretaries, that no decision to print a further quantity had been come to. Some discussion ensued as to the advisability of revising the existing Rules and appointing a committee for the work. It was finally decided to revise the Rules, and the following are the names of those elected as a committee to undertake the revision:—Messrs. Garsed, Upsher Smith, Gray, Pollard, Finmore, Allen, Woolcock, and Heslop. The Chairman then called on Mr. Lenton to read his paper, "Digestion, with a Short Note on Digestive Ferments." Mr. Lenton first described, in a simple and interesting manner, and with frequent reference to explanatory diagrams, the mechanism by which the process of digestion is carried out in the human body. He then proceeded to explain the various actions to which our food is subjected before it can be absorbed by the tissues of the body, and concluded with some remarks on those ferments which play an important part in digestive operations. Mr. Lenton was thanked by the Chairman for his paper, which was greatly appreciated by all present. Several members had questions to ask, and those having been answered by the writer of the paper, the meeting terminated.

BURNLEY AND DISTRICT CHEMISTS' ASSOCIATION.—At a general meeting held on Tuesday, January 30, Mr. J. A. Heaton, President, in the chair, several questions of importance came up for consideration, and amongst other things it was decided shortly to hold a dinner. Mr. U. A. Coates read a paper entitled "Test Your Drugs," in which he pointed out that the greatest mistake a chemist could possibly make was to endeavour to supply an article as cheaply as possible without consideration as to quality. He mentioned a number of the different adulterations and impurities in drugs he had met with during recent years. A good many chemists, he said, were content to leave the responsibility for the purity of their drugs to the wholesale houses who supplied them, or, if made by themselves, they trusted to the perfect accuracy in manufacturing them. But, however pure and up to the standard they might be at first, time eventually worked wonders, and when a prosecution ensued the only plea that could be put in was that it had been a long time in stock. It was really astonishing when a man accustomed himself to continually examine his stock how easy it was to detect deterioration or adulteration. On the motion of the Chairman, seconded by Mr. Dodsley, a vote of thanks was accorded to Mr. Coates for his paper, which was greatly appreciated by all present.

A MEDICAL "PICK-ME-UP" containing strychnine appears to have caused the death of Dr. Harvey (34), a single man, and a well-known practitioner in the Ecclesall Road district of Sheffield.

According to newspaper reports, on Saturday evening, February 3, Dr. Harvey and a Mr. Barraclough played a friendly billiard match at the Conservative Club in Ecclesall Road. The game was followed by supper and an impromptu concert, during which Dr. Harvey delivered a short speech. He arrived at his home about 3 a.m., and Mr. Barraclough went into the house with him, leaving about 3.30 a.m. A short time afterwards the housekeeper and her husband were aroused by Dr. Harvey, who came to their bedroom door and said, "Do you want to see me die? If so, come now, because I shall be dead in ten minutes." His prediction was practically verified, for before Dr. Furness, who was immediately summoned, arrived, he died, apparently in great agony. It is surmised that after Mr. Barraclough left him, Dr. Harvey consumed a large quantity of whisky out of a bottle, which had been nearly emptied, and subsequently mixed himself a "pick-me-up," such as he was known to be in the habit of taking, and one of the ingredients of which was strychnine. A beaker, which Dr. Furness stated had contained a strychnine solution, was found on the surgery table. Dr. Harvey was a Sheffield man, and at one time was employed as a chemist's assistant by Messrs. Cubley and Preston.

THE SALE OF CAMPHORATED OIL.—At Cwmbran Police-court, George Frederick Thorne, grocer, of Newport, Caerleon and Cwmbran, was summoned for selling camphorated oil said to be deficient in camphor to the extent of 50 per cent.—It was contended for the defence that the county analyst's certificate was bad, on the ground that it did not specify the ingredients, consequently the Bench could not form an opinion upon it, the case of *Fortune v. Hanson*, Queen's Bench Division, being quoted in support of the argument.—The Magistrate's Clerk, after reading the certificate, said the analyst did not certify that he was analysing camphorated oil, merely stating that he had analysed oil from a bottle marked "Camphorated Oil."—The Bench retired to consider the point, subsequently giving judgment to the effect that the case must be dismissed, and ordered the prosecution (the County Council) to pay the Court costs and two guineas towards the solicitor's fees. The magistrates did not wish to discourage such prosecutions, but proceedings must be taken in the proper form. In the event of the County Council appealing, the Bench was prepared to state a case for the High Court.

SCOTTISH NEWS.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES ASSOCIATION.—At the weekly meeting, on the 2nd inst., Mr. J. P. Gilmour, President, occupied the chair, and Mr. W. Bowie read a paper on "The Medicinal Plants of the Clydesdale Flora," which is printed at page 119. The Chairman, in conveying the thanks of the meeting to the essayist, remarked that the mediæval Doctrine of Signatures, which asserted that Providence or Nature had "signed" or distinguished certain plants with the appearance of the organ whose diseases they had intended to cure, had led to the inclusion of many inert vegetable substances in the popular materia medica, e.g., Solomon's seal, pilewort, eyebright, etc. At the same time, as Mr. Bowie had reminded them, it was as unwise as it was pedantic to despise domestic simples just because they were vulgar, since it was always from empirical sources that science took its rise. Mr. Mayo had long ago shown even the most grotesque popular superstitions had often some substratum or suggestion of scientific truth in them.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—During the practical demonstration on "Botany in January," referred to last week (see page 112), Mr. J. Rutherford Hill said among the plants gathered were *Geranium robertianum* growing luxuriantly in a sheltered corner, *Lamium album* in flower under the shelter of a railway bridge, *Stellaria media* and *Senecio vulgaris* in flower and fruit on open ground; *Epilobium montanum*, bearing last

year's stems, and opened empty capsules, and the young shoots with compact four-ranked leaves; *Taraxacum officinale* with root containing much thick latex; *Geum urbanum*, an excellent illustration of a rhizome; and *G. rivale*, with large lyrate leaves: *Lychnis dioica*, *Mercurialis perennis*, young shoots with panicles of unopened flowers; *Valeriana pyreniaca*, *Sanicula europæa*, *Scrophularia nodosa*; large tuberous root showing stems of two years and the young shoots of a third, and bearing the two-celled opened capsules of the Scrophulariaceæ. *Urtica dioica*, *Cratægus oxyacantha*, a branch loaded with ripe fruit. There was a Scotch maxim, "Many haws many snaws," but this proverb had been belied so far as the present winter had gone. *Ulmus campestris* with flower buds almost ready to open, *Fraxinus excelsior* bearing last season's two-celled winged capsules, *Hedera helix* in flower and fruit, and showing that the ivy does not flower till it gets free of supports on which it is climbing, *Bellis perennis*, lateral rooting offsets showing how the common daisy spreads rapidly and damages fine lawns; *Ranunculus ficaria* gathered at an earthslip, where the tubercular roots had been freely exposed; *Heracleum sphondylium*, showing the very large perennial roots of this common umbellifer, *Prunus padus*, with well-developed clusters of flower buds; *Cytisus scoparius* in fruit; *Rubus fruticosus* in bud and flowers and also with rain-washed, dried fruits from which the fleshy parts had disappeared; *Taxus baccata fastigiata* bearing flower buds; *Acer pseudoplatanus*, the ground in some places was littered with green leaf buds of this. Was it birds, or wind, or frost that detached them? Dead branches of this tree were showing bearing a rich crop of the pretty red beadlike fungus, *Tubercularia vulgaris*; *Buxus sempervirens* with flower buds almost open; *Galanthus nivalis*. The pretty musci *Funaria hygrometrica* and *Mnium cuspidatum* from a stone and lime dyke, *Hypericum perforatum* and *H. quadrangulare* bearing the open three-celled capsules of last season and the young shoots of the present and *Ulex europæa* in flower.

POLITICAL GOSSIP.

JUDGE SNUBBING is a form of amusement in which few mortals can indulge, for it is too apt to be attended by unpleasant consequences to ever become generally popular. Even privileged folk like members of the House of Commons are somewhat chary of selecting the Bench as the subject for their admonitions, homilies, or exhortations. Mr. D. A. Thomas (Merthyr Burghs), however, is not one of the timid members of St. Stephen's, and he has secured Tuesday, March 6, for the purpose of inflicting the following classic snub on a High Court judge:—"That an Address be sent praying her Majesty to express her disapproval of the many foolish and extra judicial utterances made from the Bench by Mr. Justice Grantham, one of her Majesty's Judges of the High Court, and previously a member of this House." Mr. Thomas is a J.P. and a D.L. for Glamorganshire, and appears to have merited his appointment to these high honours if the judgment displayed in his notice of motion be taken as a criterion, for he has devised a form of punishment calculated to "fit the crime." Judges must not be garrulous, and if inclined that way must have gentle aid to self-restraint, thinks this Welsh mentor of judicial morals. But the subtlety of it, too; the House will not, of course, adopt Mr. Thomas's motion—but what of that? The honourable gentleman has obviously calculated on Mr. Justice Grantham perusing the Votes and Proceedings of the House, and thus receiving a psychological castigation through the medium of an accusing conscience. The motion may fail, but "rescripta manet," and no man, however judicial his mind, cares to be written down an ass, even by implication.

BILLS, BILLS, BILLS, but no Companies Bill! Nearly 400 members took part, or intended to take part, in the ballot for private members' Bills, and sixty-seven measures were let loose on Friday

night—but Mr. Ritchie did not produce *the* Bill pharmacists were expecting on Monday evening with so much anxiety. As a matter of fact, there may possibly be an intention to make some short general statement in introducing the Bill under what is known as the "ten minutes" rule, and this would account for the postponement of the first reading until February 8. If the debate on the Address be still in the way a further postponement may then be necessary. It must be remembered, too, that all Parliamentary business must be subordinated to the exigencies of the military situation. Meantime patience and hope, together with a little further trust in the constituted leaders, must be enjoined upon the pharmaceutical calling. There is good reason to believe that the Minister in charge of the Bill is quite disposed to give pharmacists an opportunity of stating their case; but he is not disposed, nor are any of his colleagues in the House, to consider the matter in any other aspect than as affecting the interest, safety, and convenience of the public.

A COMPANIES ACT AMENDMENT BILL was announced as having been introduced on Friday, 2nd inst., and quite a flutter of excitement was experienced in some pharmaceutical circles until it was discovered that the announcement referred to Mr. Faithfull Begg's measure, which has now become an annual one. With Mr. Begg are associated Messrs. L. Walton (S. Leeds), J. E. Gordon (Elgin and Nairn), Hedderwick (Wick), and H. H. Marks (St. George's, E.), a combination highly representative of the capitalist and financier. The Bill is purely commercial, and possesses no special feature of interest for the pharmacist—ordinary or otherwise. Its second reading is tabled for April 4.

AMONG OTHER FAMILIAR FRIENDS making a reappearance on the Parliamentary stage may be noted the following:—Boiler Registration and Inspection, brought in by Mr. C. Fenwick (Wansbeck), and fixed for a second reading on March 7; Midwives' Regulation, in charge of Mr. Tatton Egerton (Knutsford), to be read a second time on February 28; a Bill on the same subject brought in by Mr. Seton-Karr (St. Helens); Registration of Firms (Sir Stafford Northcote's old Bill), under the pilotage of Mr. Emmott (Oldham); Street Noises Regulation, promoted by Mr. Jacoby (Mid-Derby), which will essay its second stage on May 30; and the Shops Regulation Bill of Sir Charles Dilke, which has the uncommon good fortune to be fourth order of the day for next Tuesday. Some, at any rate, of these measures will see other Sessions before they reach the statute book, but it seems a pity the Registration of Firms Bill should be numbered with the hopeless annuals. As has been pointed out in these columns before, its passage into law would immensely facilitate the detection of fraudulent trading, and, incidentally, would considerably aid in the administration of the Pharmacy Acts.

CONCESSIONS carry their own punishment. Having wrung from the Post Office authorities at various times little departures from the strict interpretation of official regulations, Mr. Henniker Heaton and reformers of a similar kind are for ever taunting the Postmaster-General with the anomalies and inconsistencies thus occasioned. On Monday the member for Canterbury pointed to the glaring example of official wrongheadedness exhibited by the fact that "p.m." was, telegraphically, one word, whilst "P.M." was rated at a penny. He further wanted to know why "s.s." should be two words, whilst "steamship" was reckoned as one word. He finally asked that "Charing Cross" might be treated as a halfpenny-worth, on the ground that "Saint Cloud" in foreign telegrams was only charged as one word. Mr. Hanbury, in reply, declined to see the analogy between the cases, and, further, laid down the rule upon which the Department charges. As this is useful know-

ledge it may be well quoted here:—"All combinations of letters which are in the nature of cipher are charged at the rate of five letters to a word. In the case of all other letters, not being words in any European language, or in Latin, each letter is charged for." Hence, if a constituent wishes to wire to his member, and dutifully pays him the compliment of telegraphing the honourable distinction conveyed by the letters M.P., it will cost an additional penny, K.C.B. would cost three halfpence, and the despatch of the full string of letters properly appertaining to H.R.H. the Prince of Wales could only be thought of by a millionaire.

LONDON UNIVERSITY ELECTION is proceeding—not like an election at all, but more on the "sale now on" principle. The poll will be open until the end of the week, in order to give the widely-scattered electorate an opportunity of recording their votes. Up to the time of going to press Sir Michael Foster was well ahead of Dr. Collins, his nearest competitor, and there appeared to be a reasonable prospect of his election.

CHEMISTS' ASSISTANTS' ASSOCIATION.

A meeting of this Association was held at 73, Newman Street, W., on Thursday, February 1, the President, Mr. F. W. GAMBLE, in the chair. There was a fair attendance. The preliminary business being dispatched, the PRESIDENT called upon

Mr. T. E. WALLIS to read a paper on:—

AQUATIC PLANTS.

The paper was of considerable length, illustrated by a number of cleverly-executed coloured diagrams, and was of an absorbing character throughout. The following is a brief abstract:—

Aquatic plants as a group show wide differences from the ordinary terrestrial plants, owing to the influence of the environment upon their mode of life. Roots are either badly developed or are entirely absent; root-hairs are generally wanting. A great degradation is seen both in the vascular and supporting tissues, which are not needed as in land plants for the transport of water and the maintenance of rigidity. The epidermis is usually not cuticularised, and absorption is carried on by the whole general surface of the plant. Another striking general characteristic is the large development of the intercellular space system, which allows for the more ready performance of gaseous interchange, and makes the plants buoyant, so that the leaves are brought into the upper and more brilliantly illuminated layers of water. Many aquatic plants also make special provision to ensure safety from extinction during the winter season when the upper layers of water become frozen. This is accomplished by the development of winter buds, which sink to the bottom of the pond at the end of autumn, and when spring approaches rise to the surface, where they develop into plants resembling the parent. To study aquatic plants systematically they may be divided into two great groups:—(1) Plants living in deep water. (2) Plants living in shallower water.

(1) *Plants Living in Deep Water.*—Plants require a certain intensity of light if they are to be successful in the struggle for existence, and it is found that at a depth of more than 300 or 400 feet the gloom is so great that green plant life is impossible. For this reason the ocean is, as it were, fringed with a comparatively narrow belt of vegetation, consisting mainly of algæ. The seaweeds show peculiarities in two directions—difference in colour, which is used as a basis for classification, and difference in form, which varies from a simple spherical cell to a large straggling plant with a stout and almost woody stem.

(2) *Plants Living in Shallower Water.*—These are chiefly vascular plants, and can be subdivided into two sets:—Submerged plants and semi-submerged plants.

(1) *Submerged Plants* can be further divided into two sets:—
(a) *Those rooted in the mud.* These belong chiefly to several of the

most primitive monocotyledonous orders—e.g., Najadaceæ, Potamogetonaceæ. The embryo is of the type known as macropodous or big-footed, and exhibits a peculiar method of germination. Pollination is effected either beneath the surface of the water, when the pollen has the same specific gravity as water, and is filiform or spherical; or at the surface, when special means are adopted, as in Vallisneria. (b) *Those floating freely in the water.* This set embraces such plants as Hydrocharis, the frogbit. It also includes two very interesting carnivorous plants—viz., Utricularia and Aldrovanda.

(2) *Semi-submerged Plants* are similarly divisible into two sets:—
(a) *Those rooted in the mud.* These include the well-known Nymphæas or Water-lilies and the Victoria regia, which shows curious orbicular leaves with upturned edges and a waxy cuticle to keep water from their upper surfaces, upon which are found the stomata. (b) *Swimming Plants.* A good example is found in the Nat. order Pontederiaceæ, some genera of which have rosettes of leaves with inflated petioles, so that they float on the surface, and are blown about on the lakes of S. America like little ships. A familiar swimming plant is the little duckweed, so common on the surface of neglected ponds. Here also are included two little ferns:—Salvinia and Azolla.

A general survey of aquatic vegetation has now been made, and two points stand prominently forward—viz., the many variations in structure developed to cope with their peculiar environment and the small size of the majority of these plants, a fact which may be connected with the absence of a transpiration current.

At the conclusion of the paper the PRESIDENT heartily congratulated Mr. Wallis on having produced a paper of so interesting a character. He thought that if some of the carpens who are of opinion that botany should be excluded from the pharmaceutical syllabus had been present, they would have been converted. He had always found botany to be the most interesting subject in the syllabus, and no one who took up the study failed to derive pleasure from it. He then went on to comment upon the wonderful adaptation of nature to environment, and remarked that aquatic plants, apart from forming a most interesting study, at times became almost of national importance, instancing cases where their rapid growth had caused considerable trouble in the navigation of rivers. He congratulated Mr. Wallis on the excellence of his diagrams.

A conversational discussion then ensued on the properties of water-cress, seaweed, and other aquatic plants, in which Messrs. Strother, Hymans, Evans, Morley Taylor, and others took part.

Mr. WALLIS having replied to several questions that had been put, a vote of thanks was accorded to him, and the meeting adjourned.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY.

An excellent meeting of this Society took place at the Liverpool School of Pharmacy on Thursday evening, the 1st instant.

After the usual business had been transacted the PRESIDENT, Mr. Prosper H. Marsden, called upon Mr. EDWARD DAVIES, F.I.C., to give a lecture on

THE LIQUEFACTION OF GASES,

in the course of which, by means of a very effective series of experiments, the laws governing gases were illustrated and impressed upon the imagination of those present in a way that no amount of mere book study could compete with. The effect of pressure on gases, causing both diminution of volume and rise in temperature, was dwelt upon, and what is known as the "critical point" clearly explained. The result of reducing the pressure being to cause a corresponding reduction in the boiling point of liquids was shown by means of a tube containing ether and mercury and fitted with

a movable corresponding tube after the style of a nitrometer. On raising or depressing this loose tube the volume of the ether was increased or decreased by its vapour being condensed by pressure or vaporised on the removal of this pressure. The well-known experiment of making water which had been boiled and then corked up in a flask boil again on the application of cold was then shown. That the removal of pressure from a gas is attended by an increase in volume and absorption of heat was illustrated by means of compressed oxygen causing a coloured liquid to rise in a bulb tube when the gas was allowed to impinge on the bulb and cool it in escaping. By boiling or evaporating ether water was frozen, and that led to a discourse on the present methods of obtaining great cold by the evaporation of gases which have been condensed by pressure and the use of low temperatures. The work of Professor Dewar in liquefaction of gases was described and the manner of obtaining liquid air entered into. The peculiar phenomena attending the "spheroidal state" of liquids next came under attention, illustrated by using water in a platinum crucible and also liquefied SO_2 . In connection with the latter the lecturer showed the paradox of obtaining ice from a red-hot crucible by first causing some SO_2 to take the spheroidal state and then adding water, which became at once converted into ice, floating in the sphere of liquid SO_2 . The great cold attending the evaporation of SO_2 was shown also by its causing mercury to become solid. A close was put to a very enjoyable and instructive lecture by a commentary on the total change of properties and chemical effects exhibited by such gases as oxygen when liquefied, which lent considerable weight to the theory that all the so-called elementary bodies known to us are simply one fundamental form of matter in different physical states. In the future real progress in chemistry could only be looked for when both the physical and chemical properties of bodies were regarded.

A good discussion followed, in which Messrs. COWLEY and MARSDEN complimented the "students" on their privilege in being permitted to hear such a valuable lecture, and a vote of thanks was passed to the lecturer, on the motion of the PRESIDENT, seconded by Mr. H. WYATT, Jun., and supported by Mr. COWLEY.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.

On Tuesday, January 30, Mr. Waddington read before the members of this Association, at the County Restaurant, Bradford, a paper on:—

PROPRIETARY ARTICLES; HOW FAR IS SUBSTITUTION JUSTIFIABLE?

Mr. WADDINGTON said the subject was so important to every individual in the business that no apology was needed for introducing it. After tracing briefly the origin and development of medicine, he went on to refer to the uprising of the quack medicine maker and his penchant for extensive advertising, and spoke of the way in which the Government took advantage of this development to replenish an impoverished exchequer. He held that the qualified chemist and druggist had a heritage which it was their duty in every possible way to maintain intact and hand on to their successors in a more perfect condition than they received it, impressing upon their customers and the public generally the fact that they were an educated body of men, specially trained for the carrying on of certain work, and not merely to act as distributors of article put up by the million, a phase of the business which an errand boy could perform just as well as a pharmaceutical chemist.

Of actual patent medicines, he said, there were very few remaining, for the simple reason that no sane individual would now disclose the actual composition and mode of preparation of his specific when a 1½d. stamp will do the trick just as well. The so-called patent medicines were only "proprietary articles," subject to an *ad valorem* stamp duty, and in many instances Pharmacopœia pre-

parations with various fanciful names. After the passing of the Pharmacy Acts unqualified individuals found they were in a fix, but, unfortunately, the proverbial loophole was found in the Act, and limited liability companies became the order of the day. These folk wanted advertisement, and what could they do better than use proprietary articles at cost price as a bait to bring customers to their stores, where they would probably also buy goods put up by the firm, on which they made a handsome and altogether unusual profit, the sale of these things of home manufacture being increased by a commission on them to their assistants.

This was the origin of substitution. The stores have taught chemists a lesson that they would do well to take full advantage of. The chemist who was willing to act as the tool of an advertiser in handing over his goods, whether he got profit or not, was simply throwing away his livelihood. He was not compelled by law to go through a systematic course of training and study in order that he might sell a few so-called patent medicines. He was perfectly justified in endeavouring to prove to his customers that he was able, by personal attention to the preparation of his articles, for which he was individually responsible, to give them something better than factory-made goods. If the manufacture and sale of proprietary articles was to go on increasing as it had done, there would be no need for either doctor or chemist in the very near future. They had to consider not only how far, but in what manner it was wise to practise substitution. They must use discrimination, or they would find that, as politeness and personal attention soon told in increased returns, so an invariable effort to substitute whenever proprietaries were wanted soon told the other way. His invariable rule was that when a customer asked for a proprietary article he wrapped it up, handed it over, and then, but not till then, advised or introduced his own article—generally very dissimilar to the one wanted—and often was asked if he would mind changing it. The man who put up a specialty in such a manner as to resemble an advertised one was not justified, and was running great risks, as well as doing a mean action. Substitute, but do not condescend to a mere attempt at imitation. He would not substitute in cases where the article was really original, cannot be imitated and was the best of its kind. But in cases of compounds where the essential ingredients were well known, why should they not push their own goods as much as the firms that advertised and tried to push theirs out? One great difficulty was the medical man, and they ought all, as far as possible, try substitution with him. The progress of firms, principally of American origin, who had made a specialty of the exhibition of drugs, either particular or general, in some new form, through the recommendation of members of the medical profession, was phenomenal, and he proceeded to give instances. The number of prescriptions now written containing proprietary article was something tremendous, and most trying to the dispensing chemist. When would the doctor learn that in supporting these people he was taking away his own and the chemist's livelihood? He was convinced that the time had come when they must set their faces against these things. Discard the use of all show-cards, billheads, memorandas, etc., carrying advertisements of these specialties, and spend a few shillings in printing your own. Make their business an individual one, and the question of substitution would soon right itself. As to the P.A.T.A., which was hailed by many as the panacea for all ills, he was afraid that now he was even less sanguine than at first. The success so far as the articles protected was concerned was, no doubt, pretty nearly perfect; but where it had failed was in getting on to its list the most widely-known proprietaries. He had every possible appreciation of the ability and energy of the Secretary, but the want of success was due to the indifference of thousands of chemists. To summarise:—(1) Sell proprietaries at store prices, but not below cost; (2) Keep them in the background; (3) Let your customers know you have them; (4) Then try substitution; (5) Maintain your

standing as chemists and not storekeepers; (6) Discard all gratuitous bills and stationery and P.A. show-cards; (7) Use your own; (8) Influence the medical men as much as you possibly can. If he were asked to suggest one remedy for the ills to which he had referred, he would say that, as the Government would soon require increased taxation, there should be a large increase in the *ad valorem* stamp duty and also in the annual licences to such a figure that it would not pay the small grocer to infringe upon the legitimate business of the qualified chemist.

A discussion ensued, and Mr. Waddington was afterwards thanked for his paper.

PRESTON CHEMISTS' ASSOCIATION.

The Preston Chemists' Association held a meeting at the White Horse Restaurant, Preston, on Thursday, February 1, when a discussion took place on the question of

AMENDING THE PHARMACY ACTS.

Mr. WILLIAMSON (the Secretary of the Association), who introduced the subject, observed that a great deal had been said and written on the subject of pharmacy law, but even now it would seem they did not all appreciate to the full its object, the extent of its operation, or the principle on which it was based. It was not his intention to discuss in detail the present pharmaceutical position, preferring rather to touch upon one or two subjects with which they were most deeply concerned. Throughout the country one was constantly greeted with the appeal that when grappling with the company pharmacy problem they should employ language so clear, so definite, and so emphatic as to render impossible anything approaching misconception. This was undoubtedly a most sensible request, but at the same time any student who had followed the discussions could not deny the assertion that despite the use of plain English, as free from ambiguity "that he who runs may read," they had not thus far achieved that success and made that advancement which they felt and realised was so honestly due to the cause they pleaded. He entertained the opinion that if they hoped to redress the serious grievances which, for years had crippled their calling and at the present day threatened it almost with destruction, they must call to their aid that wonderful influence and support which history repeatedly demonstrated to be the strongest and most important factor in the realisation of any aim. Bear in mind, this question was not limited to themselves, not confined within the circle of the profession, nor alone associated with trade interests; it was a question which embraced and immediately affected the British public. Free trade in poisons did not commend itself to laymen as a rule, and for that reason Mr. Balfour's historic "man in the street" was as much interested in this matter as they. So far it might with truth be urged that the general public had not given evidence of any keen desire to support the chemists' cause. This was due to a want of knowledge on the part of laymen, and if the profession neglected to educate them in the difficulties which surrounded them they could not complain of any lack of support. Let "the man in the street" once understand that the company drug store, whatever its attractions, was not a suitable place for the sale of poisons, or for the careful and proper dispensing of medicines, and the profession overcame one of its greatest obstacles. Although the Pharmacy Act of 1868 was avowedly passed to secure "that persons keeping open shop for the retailing, dispensing, or compounding of poisons, and persons known as chemists and druggists, should possess a competent practical knowledge of their business," it did nothing of the sort. Any seven persons—be they chimney sweepers, butchers, or scavengers—could register themselves as a joint stock company to carry on the business of a chemist and druggist, and the law was powerless to prevent them. If these facts were brought home to the lay mind with all their attendant dangers, did they think the evils from which they suffered would long remain? There would!

no objection to pharmacy legislation; indeed, there would be an earnest desire to appeal to the House of Commons to prevent the frauds that were being practised upon the public. It was because the country remained in ignorance of these matters that chemists occupied the present undignified and unfair position. They had also a right, the speaker maintained, which they should insist upon with unswerving determination, to look to the Pharmaceutical Council for guidance in this crisis. From that body they hoped for much, and the utterances of members in council or in public led the registered chemists of the country to believe than an appeal to the parent Society would produce a satisfactory result. Strange to record, however, this authority had adopted an almost inexplicable attitude, which was little better than a policy of absolute inaction. The Council would appear to be "waiting for something to turn up," and the singular admission of the Law and Parliamentary Committee at the last Council meeting that they had no report to offer furnished a regrettable proof of that masterly inactivity of which they were the victims. The chemists of the country were fighting for a great principle, and it was for them to urge upon the Pharmaceutical Council the need of a Bill calculated to abolish the wrongs under which the profession had long been weighed down. From the Pharmacy Acts they gathered that the qualification of a chemist and druggist was a purely personal one, and, while recalling it, they must not forget to urge that the practice or use of titles was not confined to registered chemists and druggists, as was intended. Therefore, the original purpose of the Act had not been fulfilled, and all that the absurdly insufficient measure did was to protect the public in regard to the sale of a few poisons. It was their duty to sacrifice minor matters of difference in favour of a general campaign to secure the legal recognition of individual qualification. Local Associates throughout the country, and all registered chemists must combine and direct their efforts towards emphasising the fact that the qualification of the chemist and druggist was a purely personal one, and one not capable of being exploited for the benefit of "a business man with money." They must not listen to suggestions for a compromise, nor to anything suggesting a partial redress of the wrongs. The Council of the Society must be made to feel that from them was anticipated definite and decisive action as some amends for their present indifference and carelessness, and that the chemists further looked to that body to instruct those who made the laws.

Mr. ARKLE did not propose to go over the whole ground traversed by the Association during the last six months, as no good could possibly result from such a course. The resolutions passed and the opinions expressed had been echoed from one end of the country to the other, indeed, it must be so, as their wants were contained in a very small compass, and when considered, their remarks must to a large extent follow those spoken before. To-day they were faced with the position of a Government strong beyond any of recent years, yet unable to give one tittle of the time expected to domestic legislation, and, therefore, most unlikely to consider the just claims of only 15,000 of its constituents. Yet the chemists of the country could not afford to remain idle, and it therefore behoved them to keep their claims well to the fore. Since the Lord Chancellor executed his famous somersault a long Parliamentary holiday had supervened, so that practically nothing had been done on their behalf. Therefore, they must renew their efforts, and he did not think they ought to find much difficulty in persuading his Lordship how undesirable it was for the public at large that association of unqualified persons should be allowed to assume and use their titles which had been granted to their profession under a stringent law. To the lay mind the answer was an easy one, but to those who had given any thought to such a subject it bristled with difficulties from which they had not as yet found a satisfactory way out. They could not approach either the Lord Chancellor or Parliament on behalf of the trade; they could not mention the cutting

of prices for which, unfortunately, some registered men were the greatest sinners; nor could they exclude as such all limited companies, as many of them were old-established families of registered men; nor could they plead that chemists, and chemists only, sold the genuine unadulterated article, and that the goods sold by every registered man were always up to date in purity, and strictly B.P.! A blush would and ought to rise to the cheek of every man who read the police court cases wherein shabby defences were tendered, where arrant nonsense was talked about chemists being the only judges of the goods they sold, the B.P. to be ignored, and all the thousand and one quibbles to get out of the mire in which a man's lack of business morality had placed him. This, to Mr. Arkle's mind, had done their cause more harm than all the drug stores combined. It had "given the show away," and reduced a professional man to the level of the street hawker and gutter-snipe. He did not touch upon the recognition of companies, for that they could not admit. But he did wish to allude to the declaration of the President "that the members of the Council are agreed upon two great points—viz., to protect the titles and uphold the principle of the Pharmacy Act, 1868," and urged that meeting to lose no time in furthering by every means the accomplishment of this end. The Council could have no better work before them than to take the clause suggested in the *Pharmaceutical Journal* (Nov. 25, 1899, page 508), and bring it to maturity, or by incorporating it in a Bill of their own, as simply and yet as comprehensive as might be. To this end he proposed:—

That this Association would respectfully urge the Council to proceed at once with the drafting of a Pharmacy Bill as an independent measure, which would restrict the titles and practice of the profession to legally qualified chemists. As he had already hinted, the Parliamentary Session was not favourable for the promotion of new Bills in the direction of domestic legislation, but success might attend their efforts—in any case, the Council would watch the other Medical Bills, and push the clause he had quoted.

Mr. W. J. WATKINSON seconded the resolution.

Mr. W. F. LIVESEY said the resolution expressed what, in his opinion, was a useful measure on the part of the Council. The Bill, when drafted, would, no doubt, meet with the endorsement of the whole trade.

Ultimately the resolution was carried, and a copy was directed to be sent to the Council.

CHEMISTS' DEFENCE ASSOCIATION.

A meeting of the chemists of Liverpool, called by the local association, was held on Thursday, February 1, to hear an address by Mr. W. S. GLYN-JONES upon the

P.A.T.A. AND THE CHEMISTS DEFENCE ASSOCIATION.

The chair was taken by Mr. ANTHONY S. BUCK, who, in introducing Mr. Glyn-Jones, stated that they were interested in the new scheme, though not perhaps so much as chemists in other towns, because they had not been unduly worried in Liverpool by the authorities.

Mr. GLYN-JONES, having dealt with the work of the P.A.T.A., went on to describe the aims and objects of the Chemists' Defence Association, which have already been dealt with in these columns.

Dr. SYMES proposed a vote of thanks to Mr. Glyn-Jones, and said that the P.A.T.A. had always received his support. He thought it was work in the right direction, and if it had not succeeded quite to the extent they hoped, it was due to the fact that retail chemists did not support it as they ought. Mr. Glyn-Jones had stated that it was the experience of the Pharmaceutical Conference, of the P.A.T.A., and all local associations that the majority of the trade were prepared to accept the good results from those organisations but were not prepared to give them monetary or any other kind of support, and he was glad that the new defence association would give to those who paid a subscription substantial advantages over and above the person who was not a member. He had taken

an active part in the old Chemists' Association, which had its headquarters at Birmingham, and he thought it was the greatest pity that the Association had been allowed to fall through from lack of support.

Mr. JOHN SMITH, in seconding the vote of thanks, said that they were always glad to welcome Mr. Glyn-Jones. He had perhaps become the "naughty boy" of the Council, but though they might not agree with him at all times they must welcome, as Committee members of the Council, men who had strong convictions, and were not afraid to announce them, and to strenuously contend for them. He thought it was a compliment to the Committee who had drawn up the rules of the new association that they had met with so little serious criticism.

Mr. T. S. WOKES complimented the P.A.T.A. upon the prompt and business-like way in which it treated all matters referred to it.

The CHAIRMAN, in putting the vote, which was carried unanimously, said that he strongly supported the new departure of the P.A.T.A.

PUBLIC AND POOR-LAW DISPENSERS' ASSOCIATION.

The first meeting of the amalgamated Association was held at St. Bride's Institute, St. Bride's Lane, Ludgate Circus, E.C., on Wednesday, January 31, Mr. F. NOAD CLARK in the chair.

To mark the occasion of its first meeting, a proposal was made that Mr. R. Jones, of Poplar, should be elected the first honorary member of the Association, in recognition of his great services to dispensers during the past twenty years. This, coupled with a hearty vote of thanks to him for his services, was proposed by Mr. HEWITT, seconded by Mr. WELFORD, supported by Mr. FAIN, and carried unanimously.

The CHAIRMAN then delivered the

INAUGURAL ADDRESS.

He said: With your kind indulgence I would like to make a few remarks applicable to the commencing meeting of our newly amalgamated Associations. In reviewing our success of the past year tribute has just been paid to one of our body who has worked for the general good of his fellow craftsmen. That maxim of co-operation, "Each for all and all for each," has been carried out with some few exceptions. I refer more especially to those dispensers who have held aloof from our movement, but who are now, thanks to the successful results of our efforts to obtain better terms of remuneration, in a position to participate in the advantages derived therefrom. We have amongst us here now men who have uniformly attended our meetings and assisted in our deliberations. They may not perhaps have benefited to the fullest extent from the results of our united action, but, to quote a high authority, "'Tis not in mortals to command success, but do more, deserve it." As in our own particular instance, concessions granted to a body are of little avail to the individual unless he proves himself worthy of respect and appreciation. In this connection I sometimes think (and I refer more particularly to those of our calling in charge of institutions) that we are not sufficiently self-assertive concerning our duties and abilities as we have every just cause and right to be. "The labourer is worthy of his hire," but in whatever station of life a man may be placed his services are apt to be valued according to the price he puts upon them. There is still a large amount of ignorance amongst the powers that be respecting the nature of our duties and responsibilities, and I fear that this is in a great measure due, if I may so term it, to the innate modesty of our profession, or, as I have just called it, a want of assertiveness. So that it is obviously our duty to ourselves, as well as to our *confrères*, so to conduct ourselves and, in a manner of speaking, educate our boards, managers, or committees so as to command their respect, and in so doing render ourselves as nearly as may be possible indispensable in our office. There appears to me to be no reason why there should

not be reciprocation and mutual confidence between the medical staff and the pharmacist. It may be a question of personality on both sides, but a good deal can be said on behalf of the latter, in that he is usually a man deserving of confidence. His opinion is often of great value to the prescriber. Who of us has not had experience of this? Questions of incompatibility, ingredients and solvents suggested, and even doses corrected, to the benefit of both prescriber and patient. Of course, it is not in the province of the dispenser to dictate to the doctor what he shall prescribe, but undoubtedly the dispenser can exercise a great deal of influence in this direction. Some of us have included in our duties, or have been added thereto from time to time, work of a technical and scientific character, such as the analysis of articles of food, water, urine, etc., the preparation of microscopic sections, photographs, and other work of a nature, so to speak, on the borderland of pharmacy proper, but requiring special knowledge and skill. Such work, in my opinion, should be accorded remuneration in addition to the regular salary, unless, of course, stipulation to the contrary was made at the time of undertaking such duties. And in consideration of such extra duties the Local Government Board, or other ultimate authority, might reasonably be asked to sanction additional remuneration. Many instances might be given of individual services rendered by the pharmacist, apart from the regular routine of his duties, which would go to show that he is not "a mere compounder of drugs" in the commonly accepted sense of the term, but a gentleman of education, training, and experience worthy in every way of the confidence and respect of his superiors.

A general discussion followed, Messrs. Fain, Goodall, Trayner, Duff, Miller, and others taking part.

Mr. FORSTER (Hon. Secretary) brought forward two items of dispensing interest—one was the uncertainty of *tr. strophanthus*, the other the toxic effect of $\frac{1}{4}$ grain doses of *ext. stramonii*, and urged the need of standardisation of these drugs.

The general opinion of members was that from their experience *tr. strophanthus* could not be relied upon.

Several items of Poor-law interest were brought up and discussed, Mr. MONTAGUE SMITH, the Poor-law Secretary, answering the queries.

EXETER ASSOCIATION OF CHEMISTS AND DRUGGISTS.

The annual meeting of this Association was held on Tuesday, February 6, at the Albert Memorial Museum, Exeter, Mr. P. F. Rowsell, President, in the chair. There was a representative attendance, including Mr. C. J. Moor, the City Analyst. The annual report and the Treasurer's statement having been read and adopted, the following officers were appointed:—President, Mr. T. C. Milton; Vice-President, Mr. P. F. Rowsell; Hon. Secretary, H. Wippell Gadd; Hon. Treasurer, Mr. J. W. Lake; Committee, Messrs. H. Gadd, J. H. Lake, Lemmon, Stocker, Vinden, and Stone. On the motion of Mr. Lake, seconded by Mr. Rowsell, Mr. Moor was elected an honorary member of the Association. The question of the standardisation of drugs was then introduced by Mr. Moor, who advocated the adoption of the B.P. as a standard. A discussion ensued, in which Messrs. J. H. Lake, G. Stocker, H. Wippell Gadd, Alderman Gadd, and others took part, and it was finally resolved:—

That the Exeter Association of Chemists and Druggists is quite prepared to recognise the B.P. as a standard for drugs and in dispensing prescriptions, but the members would draw attention to the fact that certain tests and processes require modification.

Mr. Moor having been thanked for the trouble he had taken in the matter, Mr. Rowsell expressed a hope that the members would become shareholders in the Chemists' Defence Association, Ltd. The meeting then adjourned.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Anthemidis Flores.

CHAMOMILE FLOWERS are the dried, expanded flower-heads of *Anthemis nobilis*, Linn. (N.O. Compositæ), the common or Roman chamomile, collected from plants cultivated in England, Belgium, France, Saxony, and Hungary. They may occur in three forms—double, semi-double, and single or Scotch chamomiles, but the double and semi-double flowers alone are official. The English flowers yield most volatile oil when distilled and are usually reserved for distillation purposes; those imported from Belgium, France, and Saxony are what are chiefly met with in commerce. The entire flower-heads are collected for medicinal use and dried in a warm room. Chamomiles are tonic, aromatic, and stomachic; they are used for the preparation of *extractum anthemidis* and *oleum anthemidis*.



ANTHEMIDIS FLORES.—A, double flower head; B, single do., cut vertically through middle; C, D, flower heads of *Matricaria chamomilla*, cut vertically through thalamus; E, central floret of chamomile with, paleæ; F, ray floret of ditto, with phyllaries, F1 and F2 (A, B, C, D, natural size; E, F, enlarged).

CHARACTERS.—Chamomile flowers are from 12 to 20 Mm. in diameter, hemispherical in shape, and white or nearly white in colour, becoming buff-coloured or yellow when kept. Each flower-head is surrounded by an involucre consisting of two or three rows of overlapping oblong bracts with membranous margins, but that is almost entirely concealed when dried by the reflexed outer florets, which are ligulate, white, and pistillate. The inner florets of the semi-double variety are tubular, yellow, and hermaphrodite, but in double chamomiles the florets are all white and ligulate. Single chamomiles, which are excluded by the official description, have only a single outer row of white ligulate florets, the rest being tubular and yellow. On carefully removing the florets from a flower-head of any of the three varieties, the solid conical receptacle is seen to be covered with concave, blunt, narrow, scaly bracts or paleæ, one of which occurs at the base of each floret. The calyx limb is completely adherent to the ovary and indistinguishable owing to the absence of pappus, the calyx tube not being developed. The corolla is sprinkled with minute, yellowish, shining oil-glands on its lower part, as may be seen on closely examining it with a powerful lens. The strong aromatic odour of chamomiles is due to the volatile oil they contain, and their bitter taste to the presence of anthemic acid.

NOTES.—The distinctive characters of chamomiles are the solid elongated conical receptacle and the presence of the blunt, narrow, scaly bracts or paleæ. In German chamomiles, *Matricaria chamomilla*, Linn., the conical receptacle is hollow and there are

absent, a distinction being thus afforded between arnica and any starch-forming rhizome.

Asafetida.

ASAFETIDA is a gum-resin obtained from the root of *Ferula fetida*, Regel (N.O. Umbelliferæ), and probably other species growing in Eastern Persia and Western Afghanistan. The cortex of the stem and root contains numerous large schizogenons ducts, filled with a milky emulsion; on incision or on cutting off the stem close to the crown of the root the emulsion exudes and hardens to form the gum-resin. That is collected and conveyed to Bombay, whence it is exported to Europe. It occurs in commerce in more or less agglutinated tears and masses, but ordinary lump asafetida is excluded by the official description. The drug possesses stimulant, antispasmodic, expectorant and laxative properties, and is used in the preparation of pilula aloes et asafetidæ, pilula galbani composita, spiritus ammoniæ fetidus, and tinctura asafetidæ. The dose of asafetida is from 5 to 15 grains.

CHARACTERS.—Asafetida should be in rounded or flattened tears, from 12 to 25 Mm. in diameter, or in masses of agglutinated tears. The dull yellow colour of the fresh tears darkens on keeping, ultimately changing to reddish-brown. They are usually tough at ordinary temperatures, becoming harder when cooled and softer when warmed. Internally the tears may be yellowish and translucent, or milky white and opaque, the difference in that respect probably depending upon the relative freedom from moisture. The freshly exposed surfaces of broken tears gradually assume a pink colour, which changes to red and finally to reddish-brown, probably owing to oxidation of the volatile oil present. The strong, persistent, alliaceous odour, and bitter, acrid, alliaceous taste are due to the volatile oil and resin.

TESTS.—Asafetida forms a white emulsion when triturated with water, as it contains both resin and gum. The fine green colour assumed by the freshly-fractured surface of a tear when touched with nitric acid (s.g. 1.2), distinguishes asafetida from galbanum. It is distinguished from ammoniacum (see *ante*, p. 67) by containing umbelliferone or a substance yielding it, which causes a blue fluorescence when a small fragment of the drug is strongly heated in a dry test-tube, and, after cooling, treated with boiling water, the solution thus obtained being subsequently largely diluted with cold water, and made alkaline with solution of ammonia. Asafetida should contain not less than 65 per cent. of matter (resin, etc.), soluble in 90 per cent. alcohol, and should not yield more than 10 per cent. of ash when incinerated.

NOTES.—The distinctive characters of asafetida are the change in colour of the fractured surface, the nitric acid reaction, the intense alliaceous odour, and the presence of umbelliferone or a substance yielding it. The chief constituent of the drug is the resin—said to be a combination of ferulic acid with asaresinotannol—of which it may contain more than 60 per cent. It also contains about 25 per cent. of gum, and 3 to 9 per cent. of a volatile oil containing 20 to 25 per cent. of sulphur, in addition to ferulic acid, moisture, and various impurities, such as earthy matter, stones, etc.

Aurantii Cortex Recens.

FRESH BITTER-ORANGE PEEL is the fresh outer part of the pericarp of the Seville orange, the fruit of *Citrus aurantium*, var. *bigaradia*, Hook. f. (N.O. Rutaceæ), a small tree grown especially in the countries bordering on the Mediterranean. The fruit is collected and exported before it is quite ripe, the process of ripening being completed during the voyage from the south of Spain (Seville), whence the best oranges for medicinal purposes come, or from Sicily (Palermo). The peel is removed from the fruit after it arrives in this country; care being taken to avoid rupturing the oil-glands, which occur in the epicarp. Orange peel is used in medicine as a mild tonic and an aromatic bitter. The fresh peel which is not readily obtainable except during February, March

and April, is employed in the preparation of tinctura aurantii vinum aurantii, and, indirectly, of syrupus aromaticus, syrupus aurantii, and syrupus cascaræ aromaticus.

CHARACTERS.—The bitter orange is deep orange-red or red in colour externally, and generally rough and glandular, the glands containing the volatile oil; the sweet orange, the peel of which has been used as a substitute, is usually paler, more yellow in colour, and has a thinner and smoother peel. The peel of the bitter orange should have but a very small portion of the white, spongy "zest" or mesocarp attached, as that is lacking in bitterness. The pleasant aromatic odour of the peel is due to the volatile oil it contains, and the bitter taste to an amorphous bitter principle—aurantiamarin. Other constituents of the peel are hesperidin—a colourless, tasteless, crystalline glucoside; isohesperidin, and aurantiamaric acid, a bitter principle of secondary importance.

Aurantii Cortex Siccatus.

DRIED BITTER-ORANGE—PEEL is the dried outer part of the pericarp of *Citrus aurantium*, var. *bigaradia*, Hook. f. (N.O. Rutaceæ), and is largely imported from Malta and Spain, the Maltese forming the bulk of the imports. It is used in the preparation of infusum aurantii, infusum aurantii compositum, infusum gentianæ compositum, spiritus armoraciæ compositus, tinctura cinchonæ composita, and tinctura gentianæ composita.

CHARACTERS.—Dried bitter-orange peel should be in thin strips, the outer surface of which is deep orange-red in colour, rough and glandular; sweet-orange peel is much lighter in colour, thinner, smoother, and much less bitter in taste. As in the case of the fresh peel, and for the same reason, the dried peel should be as free as possible from the white spongy portion of the pericarp. The odour and taste resemble those of the fresh peel, but the dried peel is less aromatic.

Obituary.

BENNETT.—On January 27, George Bennett, Pharmaceutical Chemist, Southwell. Mr. Bennett had been a member of the Pharmaceutical Society since 1842, and was a constant subscriber to the Benevolent Fund.

POWELL.—On February 4, at 4, Queen's Square, Leeds, from pneumonia, William Powell, Chemist and Druggist. Aged 64 years. Mr. Powell was born at Market Weighton, and coming to Leeds, was trained for the drapery trade, which he left for the drug business, being associated with his late brother-in-law, Mr. Robert Goodall. In 1858, Mr. Goodall made a great development of wholesale business, Mr. Powell being admitted to partnership in the new firm, which then took the name of Goodall, Backhouse, and Co. The world-known "Yorkshire Relish" became its leading specialty, and was supported by such gigantic advertising as is suited to articles intended for every household. Since 1870, Mr. Powell has been sole proprietor of this extensive business, the management being shared of late years with his nephew, Mr. W. Powell Bowman. Mr. Powell's capacity for organisation, sound judgment, and a habit of commencing business in the morning two or three hours before most principals put in an appearance at their offices, were causes of his unusual success. He was unmarried. Fond of rural sports, he kept a country house at Pocklington. His fellow citizens and business connections will regret the loss of a much esteemed friend.

WILLIAMS.—On January 29, William Williams, Pharmaceutical Chemist, St. Clears, Carmarthenshire. Aged 44. Mr. Williams had been a member of the Pharmaceutical Society since 1880.

YORATH.—On February 3, Christopher Yorath, Chemist and Druggist, Swansea. Mr. Yorath, who was a member of a well-known Vale of Glamorgan family, was one of the most highly respected inhabitants of Swansea.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

MOUNTING OF AMYLOID SECTIONS.

A. B. Green describes a method of mounting amyloid sections stained with iodine, which he has found to give more permanent results than any other method he is acquainted with.

A small quantity of pure white soft paraffin is placed on a coverslip, ready for immediate use as a mounting medium; the section is then floated from water on to a slide, after which as much water as possible is removed from the specimen. Next stain the section with a few drops of Weigert's iodine, drain away the excess of liquid, and from a second drop-bottle pour over the section a fine stream of a solution of iodine in pure liquid paraffin (1 Gm. in 30 C.c.), thus dehydrating the specimen without removing any iodine from it. Again drain off excess of liquid and remove the last traces by pouring over the section a solution of iodine in xylol (1 Gm. in 30 C.c.). For the third time drain and remove the remaining liquid by the aid of blotting paper, then place the prepared coverslip in position over the specimen and ring with cement.—*Lancet*, No. 3989, 381.

RUSTS OF CEREALS.

In the "Bulletin No. 16" of the U.S. Department of Agriculture (Div. of Vegetable Physiology and Pathology). Mr. M. A. Carleton gives an exhaustive account of the Cereal Rusts of the United States, the nature of the injuries which they inflict on the crops, and the most efficient remedies. They are six, or probably seven, in number:—*Puccinia rubigo-vera Tritici*, the orange leaf-rust of wheat; *P. rubigo-vera Secalis*, the orange leaf-rust of rye; *P. coronata*, the crown-rust of oats; *P. graminis Tritici*, the black stem-rust of wheat and barley; *P. graminis Secalis*, the black stem-rust of rye; *P. graminis Avena*, the black stem-rust of oats; and *P. sorghi*, the rust of maize. By far the most destructive of these fungi are the black-stem rusts of wheat and oats. The uredospores of the orange leaf-rusts of wheat and rye do not appear to attack hosts outside the genera *Triticum* and *Secale*, while the black stem-rust of wheat occurs also on barley and on *Hordeum jubatum*.

NITROGEN AND THE ROOT GROWTH.

From a series of experiments carried on by Herr Müller-Thurgau on the effect on the growth of plants of an extra supply of nitrogen to the roots, he derives the following general conclusions:—The roots are enabled to form an abnormally large amount of albuminoids when the nitrogen is presented to them in the form of a nitrate, but only if they can obtain a sufficient supply of sugar. This is manifested in the greater length and thickness of the roots, in their greater branching, and in the increased amount of protoplasm in their cells.—*Bot. Centralblatt*, 80, 1899, p. 74.

CHLOROPHYLL ASSIMILATION BY LEAVES.

For the purpose of determining the extent to which the power of assimilation in leaves is affected by the light having passed through other leaves, M. E. Griffon has carried out a series of experiments on various plants. He finds that, as a rule, passing through a single leaf does not greatly affect the power of light to decompose carbon dioxide; while if the light has passed through two leaves this power is so weakened that respiration becomes more energetic than assimilation. The reduction in the assimilating power resulting from the light passing through a single leaf varies between 1:7 in the case of the beech and 1:20 in the case of the ivy.—*Comptes rendu*, 129, 1899, p. 1276.

SYNTHESIS OF ALBUMINOIDS.

According to Herr W. Palladin, the nitrogenous organic substances in plants may originate in several different ways. Besides the intermediate products of the primary synthesis of albuminoids, we may also have products of the decomposition of albuminoids. This takes place only in growing organs. Asparagin and tyrosin are among these products.—*Bot. Centralblatt*, 80, 1899, p. 17.

FORMATION OF RESIN IN PLANTS.

Herr A. Tschirch describes in detail the mode of formation of the oil-cells in *Cinnamomum cassia*. They are developed from small cells filled with protoplasm by the gradual suberisation of the cell-walls, accompanied by the formation of a layer of mucilage. Ultimately the inner strata of the mucilage-layer become absorbed, and the protoplasm fuses with the remainder of the mucilage; the resinogenous layer results from this fusion. Small drops of oil are formed in it, which gradually pass into the cavity, and the resinogenous layer is finally almost entirely absorbed.—*Festschrift für Schöndener*, 1899, p. 464.

INDICAN AND PSEUDINDICAN.

In the case of several indigo-producing plants—*Indigofera*, *Isatis tinctoria*, *Phajus grandifolius*—Herr H. Molisch has determined that the indican is produced chiefly, though not entirely, within the chlorophyll-grains. In the cystolith-cells of a few species belonging to the Acanthaceae he finds a chromogen which gives rise to the same reactions as indican, but very unstable, which he proposes to call pseudindicin.—*Sitzber. k. Akad. Wiss. Wien*, 108, 1899; and *Ber. Deutsch. Bot. Gesell.*, 17, 1899, p. 228.

GERANIUM OIL.

Jeancard and Satie state that, as the amount of free acid in geranium oil is always considerable, this should be determined in the course of analysis, instead of being calculated into esters and expressed in terms of geranyl acetate, as is usually done. So markedly acid is the oil that the condensers of the distilling apparatus used in its preparation are much attacked, and the hands of the workmen employed in the distillation are blistered. To determine the amount of this free acid 3 Gm. of the oil is weighed off, dissolved in 10 C.c. of alcohol, 96 per cent., and 10 C.c. of semi-normal alcoholic potash. After two minutes' contact in the cold the amount of potash used up is titrated, after dilution with water, in the usual way. Experiments show that if this time be not exceeded the saponification of the esters is a negligible quantity. The saponification number of the sample is then determined in the usual way, by heating, the amount equivalent to the free acid is deducted, and the difference calculated into terms of geranyl acetate. A series of samples thus examined gave the following figures:—

	Sp. g. at 15°	Op. Rot. 100 Mm. at 15°	Free Acid Number.	Ester Number.	Esters as C ₁₂ H ₂₀ O ₂ p.c.	Alcohols as C ₁₀ H ₁₈ p.c.
French Geranium Oil	0.8972	-9.40	26.60	54.60	9.80	61.31
Spanish "	0.9073	-7.30	43.40	65.80	7.84	66.23
Corsican "	0.9012	-8.00	40.13	60.20	7.00	68.55
African "	0.9006	-8.06	42.93	65.80	8.08	63.19
Bourbon "	0.8905	-8.20	56.00	74.00	6.65	71.28
Indian "	0.8960	-0.48	9.6	43.00	11.30	84.62

If the total saponification number were calculated, as is usually done, into equivalents of geranyl acetate, these samples would be stated to contain: French, 19.11; Spanish, 23.03; Corsican, 21.07; African, 23.03; Bourbon, 25.95; and Indian, 15.05 per cent. of that ester, results which would appear to be greatly in excess of the truth.—*Bull. Soc. Chim.*, 23, 39.

AROMATIC SPIRIT OF AMMONIA.*

WITH NOTES ON SOLUTION OF AMMONIA AND AMMONIUM CARBONATE.

BY EDMUND WHITE, B.SC.

Solution of Ammonia.

The strong solution of ammonia of the British Pharmacopœia is defined as "an aqueous solution containing 32.5 per cent. by weight of ammonia NH_3 ," and its specific gravity is given as 0.891. In determining the purity and strength of the materials to be employed in an investigation dealing with aromatic spirit of ammonia. I was unable to obtain results which agreed with this relationship between the specific gravity and strength. A large number of samples of strong solution of ammonia were examined, with the result that the percentage of ammonia appeared uniformly lower than that indicated in the official monograph. I therefore examined the published literature relating to the strength of solutions of ammonia gas, and found that the official figures were based upon the table published by Carius in 1856.† In the British Pharmacopœia of 1867, the liquor ammoniæ fortior was defined according to Carius's results, and these figures have been repeated without alteration for the same preparation in the 1885 and 1898 editions.

In 1889 the subject was reinvestigated by Lunge and Wiernik † with great care, and they published a table showing considerable variations from the table of Carius, particularly in the figures relating to the stronger solutions. They determined the specific gravities at 15° C., while Carius worked at 14° C. For comparison the following table is given:—

CARIUS (14° C.)		LUNGE AND WIERNIK (15° C.)	
Sp. gr.	Per cent. NH_3	Sp. gr.	Per cent. NH_3
0.8907	33	0.890	31.75
0.8911	32.8	0.892	31.05

By interpolation it may be seen that a solution of ammonia of sp. gr. 0.891 should contain, according to Lunge and Wiernik, 31.4 per cent. of NH_3 , while the Pharmacopœia gives the strength as 32.5 per cent. Lunge and Wiernik's results seem to have been accepted in standard works published since 1889. They are quoted, for instance, in Thorpe's 'Dictionary of Applied Chemistry,' in Dammer's 'Handbuch der Chemische Technologie,' and in several works devoted to the alkali industry. In Comey's 'Dictionary of Chemical Solubilities' both these tables are given, as well as several others in use before 1856, and preference is given to the results of Lunge and Wiernik. My own results also accord closely with these. The exact determination of the specific gravity and strength of strong solution of ammonia is somewhat difficult owing to the loss of gas which inevitably occurs unless great care be exercised. The rapid evaporation of the gas which occurs during the necessary manipulations also produces considerable reduction of temperature, so that the adjustment of the temperature at which the specific gravity is taken also requires great care. The direct titration of a given quantity by standard acid gives lower results than those obtained by adding the solution of ammonia immediately to an excess of standard acid and titrating back with alkali. The results in the table below were obtained in the following manner; the specific gravities were obtained by means of a Regnault's bottle, whose capacity had been previously determined with water twice distilled from a still constructed of Jena glass. The solution of ammonia was poured rapidly into the bottle slightly above the mark in the neck,

the bottle was immediately closed and immersed in water at 15° 5 C. When the fluid had attained a constant level in the neck of the bottle its volume was rapidly adjusted and the bottle weighed. The ammonia was determined by placing 20 C.c. N/1 H_2SO_4 in a stoppered weighing bottle; the weight of this was determined, and a quantity of solution of ammonia of rather less than one gramme added. The stopper was immediately replaced, the contents mixed by rapid rotation and the bottle re-weighed. The fluid was then washed out and titrated back to neutrality by N/1 NaOH . The results in the appended table are the averages of several closely agreeing experiments in each case.

	Sp. gr. at 15.5.	Per cent. NH_3 (M.W. 16.94)
Sample 1	0.8893	32.19
" 2	0.8902	31.85
" 3	0.8916	31.42

These figures closely agree with those in Lunge and Wiernik's table, especially if allowance be made for the difference of 0.5 C. in the temperature at which the specific gravities were determined. The direct titration of numerous samples of strong solution of ammonia gave results 0.2 to 0.3 per cent. lower than those obtained by the method described above. With regard to the liquor ammoniæ B.P. whose constants are given as sp. gr. at 15° 5 C., 0.959 and percentage of NH_3 , 10, Lunge and Wiernik's table gives sp. gr. 0.959 percentage of NH_3 , 10.19. There is therefore a close approximation in the two sets of constants for solutions of lower concentration.

Ammonium Carbonate.

In the British Pharmacopœia, 1885, it was stated that Ammonii Carbonas "is considered to be a compound of acid carbonate of ammonium (NH_4HCO_3) with carbamate of ammonium ($\text{NH}_4, \text{NH}_2\text{CO}_2$) and the compound molecule is usually regarded as containing one molecule of each of these salts." The empirical formula for the salt was given as $\text{N}_3\text{H}_{11}\text{C}_2\text{O}_5$; this corresponds to a salt containing 32.57 per cent. of NH_3 , and one gramme should neutralise 19.2 C.c. of N/1 acid. In the tests 52.3 grains dissolved in water were required to neutralise 1,000 grain measures of the volumetric solution of oxalic acid. This is equivalent to 1 gramme neutralising 19.1 C.c. of N/1 acid, and corresponds to 32.36 per cent. of NH_3 . In the British Pharmacopœia, 1898, Ammonii Carbonas is described as a "variable mixture of ammonium hydrogen carbonate, NH_4HCO_3 , with ammonium carbamate, $\text{NH}_4\text{NH}_2\text{CO}_2$," and 1 gramme dissolved in 40 C.c. of water is required to neutralise 18.7 C.c. of N/1 H_2SO_4 , corresponding to 31.68 per cent. of NH_3 . When fresh the salt is in translucent, crystalline masses but when stored under ordinary conditions it becomes opaque owing to the formation of a white efflorescent layer of ammonium hydrogen carbonate (bicarbonate), while if freely exposed to the air it becomes opaque throughout. As the result of prolonged exposure a residue consisting of ammonium hydrogen carbonate is finally obtained. This residue no longer smells of ammonia and contains only 21.58 per cent. of NH_3 . Its production is due to the disappearance of the carbamate, which dissociates into ammonia and carbon dioxide—



The percentage of ammonia contained in the salt thus falls progressively by exposure from about 32 per cent. to 21.58 per cent. In the official characters and tests (B.P. 1898) the employment for dispensing purposes of ammonium carbonate which has thus deteriorated is precluded by the statement that the white efflorescence should be only superficial and should be scraped off before the salt is used for dispensing purposes. In the volumetric test 1 Gm. dissolved in water is required to neutralise 18.7 C.c. of N/1 H_2SO_4 , corresponding to

* Read at an Evening Meeting of the Pharmaceutical Society, in London, February 13, 1900 (see page 163).

† *Ann. d. Chem. u. Pharm.*, 99, 164.

‡ *Zeit. ang. Chem.*, 181, 290.

Allowing for loss in manufacture alone, it is therefore evident that in case 3 the standard will only be slightly above the official limit, while in case 4 it will be hopelessly below. In cases of deficiency due to the ammonium carbonate the total alkalinity may be sufficiently raised by the addition of a few C.c. per litre of the strong solution of ammonia. This addition will not appreciably affect the alcoholic strength or specific gravity of the product. *In no case is it necessary to add more ammonium carbonate*, especially as an addition of this kind would tend to raise the specific gravity beyond the official limit. This point will be more fully referred to under the test for carbonate.

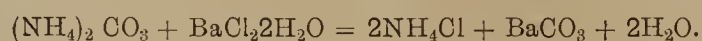
2.—TEST FOR DUE PROPORTION OF CARBONATE.—This test is based upon the reaction between barium chloride and ammonium carbonate. A definite volume of the test solution containing a known weight of barium chloride (B.P. Appendix, p. 504) is added to a measured volume of the aromatic spirit of ammonia. After warming to about 70° C. to promote the completion of the reaction, the mixture is to be filtered. The filtrate should then yield a further precipitate, after adding more solution of barium chloride, and again warming the liquid. The inference to be drawn from this result is that the given volume of aromatic spirit contains more than sufficient ammonium carbonate to react with the quantity of added barium chloride according to the equation:—



This test was suggested by Thresh in the paper read before an evening meeting of the society, to which reference has been already made. Thresh calculated that aromatic spirit of ammonia made according to his formula would contain 3.45 per cent. of normal ammonium carbonate, formed by combination of the carbamate and acid carbonate with water and ammonia respectively:—



Based upon this calculation Thresh stated that one fluid ounce of the spirit, after addition of 330 grain measures of solution of barium chloride (containing one part of barium chloride in ten fluid parts) should yield, after filtration, a further precipitate when more of the reagent is added. These quantities correspond in the metric system to 20 C.c. of spirit, and 15 C.c. of barium chloride solution. According to the equation (using the atomic weights of the 1885 B.P.):—



M.wt. 96 M.wt. 244

1.5 grammes of barium chloride, contained in the 15 C.c. of solution will react with 0.59 grammes of normal ammonium carbonate. But the 20 C.c. of aromatic spirit of ammonia weighing 17.92 grammes (sp.gr. 0.896 B.P. 1885) should contain 0.62 grammes of $(\text{NH}_4)_2\text{CO}_3$. Assuming that the reaction proceeded according to the equation given above, the filtrate should therefore contain 0.03 grammes $(\text{NH}_4)_2\text{CO}_3$, which would yield a further precipitate on the addition of more barium chloride. In the British Pharmacopœia of 1898 the test was slightly modified, 16 C.c. of the test solution of barium chloride being ordered in place of 15 C.c. Now 16 C.c. of the test solution of barium chloride require for precipitation, on the basis of the calculation given above, 0.63 grammes $(\text{NH}_4)_2\text{CO}_3$; but 20 C.c. of aromatic spirit of ammonia should contain only 0.62 grammes of normal carbonate. It would therefore appear either that the test had been made too stringent, or that the reaction between the ammonium carbonate and barium chloride did not proceed in the manner indicated by the equation given above. There were several reasons, to which I shall refer again, which led me to suspect that the reaction upon which the test

was founded would prove on investigation to be unsuitable for the purpose. As a preliminary step I tried the test (B.P. 1898) on several samples of aromatic spirit of ammonia prepared by myself, and containing the accurately-weighed proportion of carbonate. The test in the official monograph is described in terms which might be widely interpreted by different workers so far as the time devoted to the successive steps of the process are concerned. My method of procedure was as follows:—The reacting fluids were mixed in a flask, which was then corked and shaken for five minutes. The contents of the flask were then heated to 71° C., and maintained at a temperature of 70°-71 C. for ten minutes, the thermometer being immersed in the reaction mixture. The flask and its contents were then cooled to 15° C. by means of a stream of water and filtered. The filtrate was then divided into two parts: one half was set aside, and to the other 1 C.c. of the test solution of barium chloride was added. This mixture gave no immediate precipitate, but on again warming a faint turbidity appeared which gradually increased to a distinct precipitate. The next day this precipitate appeared still larger, and the reserved half of the filtrate to which *no further addition of barium chloride* had been made also contained a distinct precipitate as a somewhat crystalline crust on the sides of the containing tube. Two more experiments were then made using 10 C.c. and 15 C.c. of the aromatic spirit, diluted in each case to 20 C.c. with alcohol of equal strength so as to ensure the same strength of alcohol in the reaction mixture, which contained, however, in these two experiments only one-half and three-fourths respectively of the proper proportion of the carbonate. The official test was then applied to these two diluted products under the conditions described above, and with practically the same results as those obtained with the aromatic spirit of ammonia containing the full proportion of carbonate. That is to say, the filtrates gave a further precipitate after adding more barium chloride and warming, while if set aside they yielded a precipitate without the addition of barium chloride. The precipitates were not obtained quite so readily, but still distinctly enough to comply with the official test, and in other similar experiments I observed that the time required for the appearance of the turbidity was shortened in proportion as the quantity of barium chloride added to the filtrate was increased. The results of these experiments may be seen in the test tubes on the table, and they show that the test fails in accomplishing its object. Thinking, however, that the failure might be due to working in too concentrated solutions, I arranged another set of experiments in which 18, 19, 20, 21, 22, and 23 C.c. of aromatic spirit were first diluted to 80 C.c. with water. Thus diluted they were treated as before with barium chloride with the results shown in the annexed table:—

No.	Test Mixture.		Result of Adding to Filtrate.	
	Arom. Spt.	Test Solution of Barium Chloride.	More Solution of Barium Chloride.	Solution of Ammon. Carbonate.
1 ..	18 C.c.	16 C.c.	Slight Ppt.	Copious Ppt.
2 ..	19 C.c.	"	" "	" "
3 ..	20 C.c.	"	" "	" "
4 ..	21 C.c.	"	" "	Slight Ppt.
5 ..	22 C.c.	"	Distinct Ppt.	No Ppt.
6 ..	23 C.c.	"	Copious Ppt.	No Ppt.

It will be seen that in Nos. 1, 2, 3, where the barium was present in excess of the proportion represented by the mol. wts. $(\text{NH}_4)_2\text{CO}_3$, and $\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$, the precipitation of the barium carbonate was incomplete. On the other hand, in cases 5 and 6, where the ammonium carbonate was in excess, no further precipitate was produced by adding more ammonium carbonate. In experiment 4

where the two salts were present in almost molecular proportions, the reaction was not complete in either direction, and a precipitate was obtained in both cases.

These phenomena may be readily explained in the following manner. It is a common rule in all precipitation reactions to add an excess of the precipitating substance. Since no substance is absolutely insoluble in water, precipitation is seldom complete, especially if the reacting substances be present in the exact proportions represented by the equation one wishes to realise. It is also found that when a substance is produced by precipitation, its complete separation requires an appreciable amount of time. The time required for complete precipitation is distinctly prolonged in the case of certain substances which, when produced, form supersaturated solutions with the fluid, in whose presence they are produced. The duration of this condition of supersaturation may be shortened by warming, by agitation, or by the addition of a substance having a basylous or acidulous radical in common with the substance to be precipitated. Translating these statements to the case under consideration, it must be noted that barium carbonate is one of the substances whose precipitation is not quickly completed, owing to a portion remaining in a condition of supersaturation. It appears, moreover, that when solutions of barium chloride and ammonium carbonate are mixed, the condition of supersaturation may be terminated more easily by the addition of excess of ammonium carbonate than of barium chloride. That is to say, the separation of barium from solution by an excess of the soluble carbonate, is more rapidly and completely accomplished than the precipitation of a soluble carbonate by excess of a barium solution. As a matter of fact, in the ordinary course of analysis barium is usually separated as carbonate by the addition of ammonium carbonate. It is recognised that this separation is sufficiently complete for ordinary purposes, but is not absolutely so, partly owing to the condition of supersaturation already referred to, and partly to the fact that barium carbonate is to some extent soluble in the ammonium salts present in solution.

It appears, therefore, that the precipitation of barium carbonate in presence of ammonium salts by barium chloride does not form a satisfactory basis for the determination of ammonium carbonate in aromatic spirit of ammonia. Possibly the test might be improved by more rigidly controlling the conditions under which it is directed to be performed, but I do not think the reaction can in any case provide a very satisfactory means of determination. For this reason I turned my attention to the subject of an alternative test. Shortly after the publication of the 1885 Pharmacopœia, Gravill* suggested that the determination of carbonate should be effected in the nitrometer by measuring the carbon dioxide evolved when the aromatic spirit of ammonia was treated with an acid. Gravill stated that brine could not be used in the nitrometer (as in the case of spirit of nitrous ether) because of the solubility of the gas in that liquid, and recommended the use of mercury instead. From my own experiments I think that the use of brine is precluded because of the impossibility of sufficiently agitating the reaction mixture without hopelessly mixing it with the brine. This agitation is very necessary in the present case, because the evolution of such a soluble gas as carbon dioxide until a condition of equilibrium is attained between the gas and liquid in the nitrometer is not thoroughly complete without thorough agitation. Gravill used a mixture of equal parts of hydrochloric acid and water, and found that the gas obtained from 5 C.c. of the spirit measured 32.5 C.c., the temperature not being stated. In my experiments with this method I have used 5 C.c. of aromatic spirit of ammonia and 5 C.c. of diluted sulphuric acid. Working with the samples of aromatic spirit prepared by myself, and at a temperature of 15° to 15.5 C. I obtained in five successive experiments 29.8, 29.7, 29.9, 29.7, and 29.8, or an average of 29.8 C.c. of carbon dioxide. In

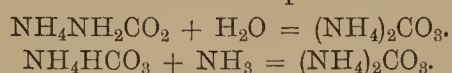
order to determine the volume of carbon dioxide retained by the reaction mixture, equal parts of aromatic spirit of ammonia and dilute sulphuric acid were mixed. The dissolved gas was then extracted by placing the mixture in a flask which was exhausted as completely as possible, a gentle current of air being drawn through the flask to remove the expelled gas. A measured volume of carbon dioxide was then admitted into a Lunge nitrometer, and 10 C.c. of the exhausted reaction mixture run in. After thorough agitation, it was found that in four successive experiments 7.6, 7.8, 7.5, and 7.5 C.c., of gas, measured at 15.5 C., had been absorbed by the liquid, or an average of 7.6 C.c. Adding this quantity to the 29.8 C.c. actually obtained, we get a total yield of 37.4 C.c. of gas at 15.5 C. from 5 C.c. of spirit. The volume of carbon dioxide theoretically obtainable from the carbonate present would measure 35.76 C.c. at normal temperature and pressure. Under the conditions of the experiments, however, the gas was measured at 15.5 C., and its volume would be further increased by the vapour tension of the alcoholic fluid over which it stood. I have not yet determined the value of this vapour tension, and it cannot be calculated with any accuracy from the published tables given for alcohol and water. The difference between the results given by Gravill and myself is due to the fact that he employed fairly strong hydrochloric acid, in which carbon dioxide is less soluble than in diluted sulphuric acid. It would appear, however, that a method founded upon Gravill's suggestion would furnish reliable indications not only of the presence of a due proportion of ammonium carbonate, but also of the amount actually present in cases of deficiency or excess. Any objection to the necessity for employing mercury in the nitrometer may be met by using a Lunge nitrometer provided with a two-way stop cock, and filled with brine. The reaction between the spirit and acid may then be effected in a flask or bottle connected by rubber tube with the side tube of the nitrometer. The acid and spirit are kept apart in the bottle by means of a partition, or by introducing the acid into the flask in a test tube standing obliquely. When the connection and adjustment of the apparatus is complete the contents of the flask may be mixed, and the evolved gas measured with the usual precautions in the nitrometer. The agitation of the reaction mixture may be thoroughly effected in the bottle, and the solubility of the gas in the brine does not interfere very much with the results, partly because the co-efficient of solubility of carbon dioxide in that liquid is only about 0.3 at ordinary temperatures, and partly because the gas actually standing above the brine is nearly all air expelled from the upper part of the bottle by the carbon dioxide evolved at the bottom. In order to avoid altogether the solvent action of the brine upon the carbon dioxide I have, in other experiments, introduced between the evolution bottle and the nitrometer another bottle containing a thin rubber bladder arranged in such a way that the gas evolved passed into the bladder, and forced an equal volume of air from this bottle into the nitrometer. I have found, however, that it makes hardly any appreciable difference to the result. This method does not give such constant results owing to the variations produced by the effects of temperature and pressure upon the comparatively large volume of air contained in the apparatus. The volume of gas measured in the nitrometer is in this method 2 to 3 C.c. higher than that obtained by the mercury method, a result which appears to be due to the effects of the vapour tension of the liquid upon the large volume of air in the apparatus.

It is obvious that other methods of determination for the carbonate which are based upon the barium chloride reaction are vitiated by the objections I have already advanced. Among these methods may be mentioned the titration of the washed barium carbonate precipitate, or the weighing of the barium carbonate. Hoseason* employed the latter method in the examination of ten commercial samples of aromatic spirit of ammonia. He reported

* *Pharm. Journ.* [3], 17, 445.

* *Pharm. Journ.* [3], 21, 510.

that they were all, with one exception, slightly deficient in carbonate, and this result was no doubt due to incomplete precipitation. Among other methods which have occurred to me is the substitution of a soluble lead salt for barium chloride, since the precipitation of lead carbonate appears to be more complete and to yield good results in other ways. I have not, however, yet experimented with this method. Before leaving the subject I should like to point out that the condition of the ammonium carbonate as to age and reduction of total alkalinity has little or no effect upon the carbonate value of the salt. Each molecule of the carbamate and acid carbonate yield one molecule of the normal carbonate when dissolved in water in presence of ammonia:—



and the molecular weights of the two salts are nearly the same:—

$$\text{M.wt. NH}_4\text{NH}_2\text{CO}_2 = 78.49.$$

$$\text{M.wt. NH}_4\text{HCO}_3 = 77.55.$$

From this it follows that if the correct weight of the commercial salt be introduced, no deficiency of carbonate will occur in the product, since ammonium bicarbonate produces even slightly more normal carbonate than an equal weight of a freshly-sublimed specimen composed of carbamate and acid carbonate.

NOTE ON MURCIA LEMONS.*

BY FLORA C. MADGSHON.

A few months ago my attention was attracted by some unusually large lemons for sale in one of our Edinburgh fruit-shops. Having purchased some, I found that in the flavour yielded by the peel they differed from Palermo or Messina lemons. On inquiry as to their source, I was informed that they came from Murcia, in Spain. Not having hitherto had to my knowledge lemons from this source, I made a number of experiments by way of comparing them, from a pharmaceutical point of view, with the lemons ordinarily in use. Some of my results I venture to bring before you to-night. To give you an idea of the size of those which first led me to take this matter up I may say that three of them weighed $19\frac{1}{2}$ oz., $13\frac{1}{2}$ oz., and 12 oz. respectively. The first of these yielded $2\frac{1}{4}$ oz. of peel for tincture. I have made tinctures from peel of Murcia lemons with various strengths of alcohol, and I find that, compared with tinctures from Messina or Palermo lemons, they have a finer, fuller flavour and aroma. In addition to the flavour which we are accustomed to call lemon, there is associated with it what may be called a "bouquet." Palermo lemons afford an aroma and flavour suggestive in a faint way of musk and verbena. Messina lemons yield a purely lemon flavour and aroma. These Murcia lemons embody the lemon flavour of the Messinas with the scented flavour of the Palermos in a mellower form. The pharmacopœial tincture made from Murcia lemons is distinctly superior in point of flavour to any I have tried made from lemons from other sources, and the same can be said of the syrup. Samples of syrup and tinctures are shown for comparison. The juice of the Murcia lemons which I have handled is slightly "sweeter" than that of Messina lemons; the difference in citric acid content being about 4 grains in an ounce. Very large lemons, such as those which led me to take up this subject, are not in regular supply, only a few cases of them come into the market during the season. Those which are obtainable regularly are much the same in size as Messina lemons. The province of Murcia, where they are cultivated, is called the African district, the climate being quite tropical. The soil is all irrigated by a network of canals, spreading over plains of many square miles; the canals being fed by vast reservoirs. Such plains in Valencia and Murcia are known by the Spanish name huertas (gardens); the soil, on the other hand, for vines and olives being dry. The Murcia lemons reach the English markets in November, and the

supply is continuous till April; but being most plentiful during December and January. The quantities are yearly increasing, as they are coming more into favour. They bring a little higher price than the Messina or Palermo lemons, owing to fine smooth skins and clean appearance.

THE OUTLOOK IN PHARMACY.*

BY JOHN TAYLOR.

If brevity were as much the soul of an address as it is said to be of wit, I might say in a sentence, "The outlook in pharmacy is bad," and be done with it. But I feel that such a hasty generalisation, besides spoiling the object of to-night's meeting—which is, I presume, to discuss pharmaceutical politics—would not be a perfectly true summing-up of the position. It would be too bald and stark a statement, and little in accord with my own feelings. Not that I am *very* optimistic about pharmacy and its prospects, but I have an idea, as I move about and discuss the problem with my fellow-craftsmen and read in the trade journals the observations of others, that after all we are no worse off except in one respect than traders and professional men generally. The exception is certainly an important one—viz., so far as keeping open shop for the sale of poisons and the use of qualifying titles is concerned, the operation of company law inflicts an injustice on us. Financially that injustice is less than it is morally, although it is the financial aspect we think of most. Mentally it causes, as injustice ought to do, great distress and anger in those who are wronged. Perhaps some of you will not agree with what I say on the financial aspect of the injustice.

DEFINITION OF "PHARMACY."

Before going further, let me define what I mean by the title of my paper. By "pharmacy" I mean the whole of the professional and trading operations usually carried on in this country by a pharmaceutical chemist, or a chemist and druggist. I do not use the word in its strictly technical sense of preparing and compounding medicine and dispensing drugs and chemicals; for the majority of our trade pharmacy in such a narrow and technical sense has lost much of its interest and meaning. There are those who say that this is one of the principal causes of our troubles, and that if we could only get back to the time when each pharmacist did all his own laboratory work, and was far more a professional man than he is to-day, a solvent would be found for our difficulties. It is said, "That would get rid of the trading character of our craft," and with that would probably go much of the objection to a greater restriction of free pharmacy. It may be so, but it is plain that then most of us would have to look for "pastures new." Such a strictly professional class need not be large. Besides, people who so argue forget two things—first, that probably pharmacy never had such a distinctly professional status. The pharmacist always made or sold many articles besides therapeutic remedies. He was always, if not to the extent he is now, "a mere trader." I do not use the phrase in an offensive sense.

Then it is overlooked that, for good or ill, pharmaceutical research has largely passed into the hands of the experts employed by wholesale houses, and from research they have gone on to preparation. (I am not forgetting the labours of individual pharmacists in business.) The result is the flood of special preparations, and it is idle to deny that for reliability in action, elegance of form, and moderation of price few individual pharmacists can produce equal results. Even when they can they usually lack the means to place them effectually before the prescriber.

I do not think pharmacists are to be blamed for these things. If "manufacture" were an essential part of the practice of law, medicine, or any branch of art, those professions would similarly have suffered, for the change is almost entirely the result of social and economic progress. No trade now presents the same limitations in character that it did formerly, and the only difference

* Read at a meeting of the Edinburgh Chemists', Assistants', and Apprentices' Association, February 7, 1900 (see P. 161).

* Read at a meeting of the Manchester Pharmaceutical Association, February 14, 1900 (see p. 163).

from others in this breaking-down process which we as pharmacists present is that alongside our trading operations we have a modicum of professional character and work, and are the State-appointed sellers of poisons. It is of the outlook in this broader pharmacy that I am speaking.

It seems to me that in reading the discussions and correspondence relating to our trade insufficient attention is given to some

FACTORS WHICH LIE OUTSIDE PHARMACY,

and are common to all trades and professions. Yet they affect us powerfully. It is quite common to hear it said that we are suffering from keen competition. But little heed seems to be given to the causes of competition. If the cause were better understood, the thing itself might be faced with greater equanimity and probably greater unity. We have competition from two directions—one from our own ranks of qualified pharmacists, and one from outside, including company pharmacists, individuals trained but not qualified, and all the trades—drapers, grocers, ironmongers, and the rest—which can add some of our lines as side lines to their own. We complain most of this outside competition, but I fear it is not that which harms us most. Let us look at the inside competition first.

In the exceedingly valuable retrospect of the year given in the *Chemist and Druggist* of December 30, 1899, are some interesting figures. Dealing with Great Britain alone, and taking that set of figures which includes the rest, we see that in—

	Passed Prelim.	Mod. and Minor.	On Register.
1869	—	919	12,500
1879	783	282	13,551
1889	721	313	14,080
1899	887	553	15,473

The writer emphasises:—

(1) "The increasing numbers entering the business; (2) the increase of proportion of those who, after passing the Preliminary examination, go forward to the Minor, and are registered—viz., 1 in 27 in 1879, 1 in 23 in 1889, and 1 in 14 in 1899." The increase in proportion of those who qualify is due, it is said, to the more stringent enforcement of the Pharmacy Act, and it, doubtless, is so. But that does not affect the increase in number of those entering the business. That increase is due to the need of finding work for our sons and daughters. In my own town of Bolton there are annually 1,000 lads needing places. An increasing proportion of these lads are well enough educated for the business, and if only Latin occupied a place in the curriculum of Higher Grade schools, most could at once pass the first examination. An efficient system of secondary education will provide for that. Further, owing to the increased thriftiness of the better artisan class, the parents of a greater proportion than was formerly the case can find the capital needed for their education and a modest start in business. Then, I think, a smaller proportion of those who enter the ranks now look to setting up on their own account. They are more content than formerly to enter the employ of others, and the stricter enforcement of the Pharmacy Act has added to the value of their labour and its price. Time will bring better conditions of service.

So far, then, as our outlook may be brightened by a more stringent first examination, I fear there is little hope. What I call "the bread and butter" factor will force an increasing number into the trade. The higher and more thorough education which will result from the establishment of a national system will keep pace with any added stringency of examination. The same argument applies to a more stringent Minor. Moreover, it should not be forgotten that the true object of examination is to sift and attest, not unduly to prevent; and if the Minor be divided, and we introduce the practice of referring students back in weak subjects, the entrance of fresh pharmacists will be facilitated.

Turning from the competition of numbers to the competition amongst men in business on their own account, I think I observe a paradox. It is, that the cash chemist and pharmacy companies have by the extinction of weak business and incapable traders actually benefited those who are

strong enough to stand the competition. No firm or company, however big, can do all the trade. There is, and always will be, room for individual employment of capital, skill, and personal character. I do not fear the absolute extinction of individually practising pharmacists. I foresee, however, that such private businesses will want more capital than formerly, better application of it, more business energy, and above all, a high standard of ethical conduct in all their operations. I am not forgetful that in this weeding-out process, some of us may go under, but it were childish to complain of the operation of social and economic forces which, while fatal to some, were beneficial to the many, and forwarded the progress of humanity. The only manly thing to do is to strive to correspond with our commercial environment, and if we fail in that to accept with as much dignity and courage as is possible the inevitable result.

I speak with some diffidence on this point. I cannot boast of being a very successful man. Perhaps on that very account my evidence may be more disinterested. Whether so or not, I have a strong conviction that pharmacy—the broader pharmacy I mean—has not an entirely hopeless outlook. I have friends in the trade who have done as well in it as, with the same means, they would have done in any other business. In the course of business journeys extending over ten years, I have come across old pharmacists and new who were doing very well out of their craft, quite as well, in proportion to their capital, energy, and skill, as men in other trades, and I have had opportunities of comparison not given to every retail pharmacist. It goes without saying that we all find the stress greater, the struggle more desperate, and the anxiety keener than did our fathers; but that is the lot of all, whatsoever their positions or calling. I believe in my heart the outlook of our trade is as bright as that of any other.

I turn now to the

COMPETITION OF OUTSIDERS.

This is not due to any taint of original sin on their part. You will probably find Mr. Jesse Boot and Mr. Alderman Duckworth in the kingdom of Heaven, and there may be some legitimate pharmacists "left outside the gate." Neither is it because the pharmacist companies have a heaven-sent task of delivering the great British public from the extortion of the retail druggist, although some of them would like to persuade us so. It is simply due to the fact that they are capitalists or are the servants of capital. Now, it is in the nature of capital as such to know no law of humanity, to have no sense of patriotism, no tie of brotherhood, to know nothing, in fact, and acknowledge nothing, save and except the need and duty of making a return for its possession. If you needed any proof of this you can see it in the fact that Boots, Limited, having delivered the people from the high profits of pharmacists, are now delivering them from the extortion of stationers, art dealers, trunk and bag sellers, and—save the mark!—of booksellers!

Against a power like this we shall, if we seek a monopoly, fight in vain. If even, short of a monopoly, we seek to limit freedom of trading, except so far as public welfare dictates, we are doomed to defeat. Has it ever struck you that if Boots and their like were barred out entirely from the sale and dispensing of poisons, they could still do us almost as much harm. When Mr. Carteghe was in Manchester about ten years ago he hinted that the Council had cards up its sleeve, and talked of limiting the compounding of medicines to qualified pharmacists. I asked him at the time if he thought such a proposal had any chance, and the question was evaded. We never had, and never will have, such a monopoly, and we do not need it. What is the backbone of the profits of the companies? Is it not the immense sale they have for preparations of their own—substitutes, if you like—on which they have enormous profits? And most of these specialities could still be sold—it is only a question of capital, trade methods, and advertising, skilfully done—if the Pharmacy Act actually prevented their dealing in poisons. We call these concerns company-pharmacies, but they are scarcely

that more than they are company wine and spirit merchants, company sundries-dealers, or, even now, company picture and book-sellers and opticians.

However dogmatic it may sound, let it be said plainly Parliament will never limit the practice of pharmacy more than it limits the practice of law, medicine, surgery, dentistry, or divinity. What it does with regard to these professions is to prohibit the use of titles not legally possessed. Apart from that, we may sell our own houses and draw up the deeds ourselves, physic or operate on ourselves or others, and no one can prevent us. But if anything goes wrong we must bide by it.

I do not pretend to have discovered anything in setting down the beginning of company-pharmacy to the possession of capital and its need of securing a return. That is an old tale. Still it seems almost forgotten, and there is far too much writing and speaking of company-pharmacy, as if it might be suppressed like a habit or a fashion, instead of being, as it is, one expression of the aggressiveness of capital.

Should we, then, sit down and say "it is inevitable" (like the war)? By no means. If that were all that remained for us the outlook would indeed be bad. From the aggressiveness of capital we are not the only sufferers. Can we obtain any hints from fellow sufferers? I think so.

Some people advocate the

RECOGNITION AND REGULATION OF COMPANY-PHARMACY.

They say, "It is here; we cannot get rid of it. Let us recognise and regulate it." Do they think that capital will submit to their regulation, or to regulation in their interests? Surely not. Neither will the Legislature regulate company-pharmacy in our interests. It only cares for the commercial bearing of company trading. Besides, we do not want its legal recognition. If the law will not suppress, at least it may leave it to the play of forces, and not put it on a recognised basis.

From this standpoint, I do not think the proposal for a qualified directorate will, or ought, to satisfy us. If its effect would be to suppress the companies, we have no chance of getting it. If it does not suppress them, it will not help us. After much thought I have settled to the opinion that it is not our duty to regulate company pharmacy. Managers *must be* qualified, and it seems to me that we gain little, if at all, by a qualified directorate. In an article (November 11) the *Chemist and Druggist* says this proposal, *i.e.*, the qualified directorate, "holds the field (1) for stopping the evil, (2) placing companies in the same position as individuals, and (3) not giving them the splendid advertisement of being registered pharmacies." Well, in reply to this, I say that if it pays to do it, the power of capital will overcome these difficulties, even supposing we succeed in placing any in the path of the companies. The proposition will not stop the evil, and it will only lessen it by keeping out the smaller and financially weak companies who cannot afford the luxury of a qualified directorate. Thus it will leave the field clearer for the operation of the strong companies. Who would not sooner face a weak competitor than a strong one, and the presence of the weak one sometimes keeps the other away. It follows that merely to place recognised companies with a qualified directorate on the same footing as individuals will not help us much. It may legalise properly what is now outside competition, it certainly will not lessen it. Who are the proprietors of a company? The directors only, or the whole body of shareholders? The shareholders, certainly. They are not in the same position as a capitalist who lends money to a man who starts a pharmacy. The capitalist, so long as he receives interest only on his loan (the rest of the profits going to the trader), is in no sense a proprietor. But the shareholders in a company, equally with the directors of it, are proprietors. Now, it is not proposed that all shareholders shall be qualified, and I do not see that it helps us any to get a qualified directorate. If such a law were passed to-morrow, do you not suppose Boots, Limited, would at once conform to it and yet secure that their trade policy should be carried out?

What, then, should we do regarding company pharmacy? I think we should lose nothing by giving up a constructive policy towards it. Our opponents in South Africa have adopted what in military phrase is called "defensive strategy, offensive tactics." So far it has served them well and given them an opportunity of displaying national qualities which will probably preserve to them some form of autonomy. I think a similar policy may possibly serve our turn best. Let us sit tight on the principle that titles being the result of personal qualification cannot be bestowed on companies. As the whole of the proprietors of a company cannot qualify, let us resent the use of our titles by corporations. Attack with the united forces of pharmacy, and all the allies we can get, any attempt to bestow

TITLES WITHOUT QUALIFICATION,

and so, if we cannot suppress company pharmacy, at least make it keep its extra legal position. Let the Legislature deal with company law and construct it so that no injustice is inflicted on any existing interest. If a government proposes legislation which will infringe our titles, let us oppose it. Such a policy, it seems to me, offers a better chance to us than the others referred to. In time, if some new economic factor has not previously solved the problem, I believe the Legislature will recognise the justice of the plea, "A company should not do what an individual without qualification may not do," and deal with the point on that principle. It seems to me that there is no logical solution of the problem, "How shall we bestow on a corporation a personal qualification?" If I am right, it is a waste of time to try and find one.

It may be said that this position of entrenching ourselves will not drive the foe from our front, or, to drop the metaphor, do away with the outside competitor. That is true. It is equally true that the other plan will not get rid of it either. In fact, it cannot be got rid of by anything we can do. In time the capital employed in company pharmacy may find other and better channels, and the individual pharmacist once more be supreme. But the inside competition and trade necessities will prevent the restoration of the old prices and profits, and by that time the "old man with the scythe" will have settled the question for most of us.

I fear you will say, "This is a very bad outlook." Well, if we were children desiring that the order of the universe be altered so that we could have the moon to play with, it would be so. But if we are practical, courageous men it need not be. I think we can do much

TO IMPROVE OUR OUTLOOK.

Our objective is "to unite *all* qualified pharmacists in defence of their legitimate interests and titles, and to secure that in future legislation on pharmacy and poison selling the personal qualification of pharmacists be upheld."

In the first place, let us remember we are 15,000 strong. Of this number, some are in other walks of life. Still, I think their sympathy and help are available to us. Others are serving our friends the enemy, and an essential factor in an improved outlook is to detach them.

Then we have, and it is our greatest trouble, the lukewarm in our ranks, the pharmaceutical Gallios, who "care for none of these things."

I fear we could never have described the ranks of pharmacy in a parody of Macaulay's lines:—

"The druggists were like brothers
In the brave days of old."

Nor would it be all untrue if we were to say:—

"Now druggist is to druggist
More hateful than the foe,
For the poor ones beard the high,
And the rich ones 'cut' the low."

But these lines at least suggest an ideal to be attained, and an example to be avoided. One of the very first things to be done is weld together all ranks and states of qualified pharmacists. We have many and valuable interests and traditions in common. Why should we throw away through loose combination and selfish living

such sources of help, and encouragement, and hope? But tradesmen, as such, will never unite for an ideal in the abstract, however high. Nor can a corporate life be built and sustained on the abstract. Nor, again, is there any need for us to try such a futile method of subsistence. There are enough concrete things for us to strive for and live on.

These must be brought to the front. Our unity ought to focus itself on the Society, and will do if we can be led aright. But then the Society must stand to each one of us for something more than an examining and registering body. Those functions are pseudo-State functions, and that relationship is as much one to the State as to ourselves. Nor must it retain so absolutely the status of a pseudo-scientific society. It must become far more frankly and thoroughly than it is a trades' organisation.

Now it seems to me that the Society (I am not intending to blame its present Council) can maintain these three states without any inconsistency. It can be the State-appointed examiner of and registering body for pharmacists; it can keep in touch with the medical and scientific bodies, and so continue to promote the interests of pure and technical pharmacy; and it can be, and should be, the centre of trade life and unity, the representative and defender of trade interests, and the means whereby we can collectively act and do what individually we are helpless to accomplish. I am bold enough to say that this third feature of the Society should be its strongest and best. The State can, if it likes, provide a department to examine and register; the interests of medicine and science, and in an equal degree private commercial interests will not let the scientific side of pharmacy fall into the distance; but neither the State, nor medical and scientific, nor commercial, interest will see to our trade needs and craft interests if we fail through our Society to help ourselves.

I think then any appeal for unity must be based on a trade society thoroughly alive to trade requirements. We hear much of

THE LOCAL FEDERATION SCHEME.

I wish I could feel any hope that it will really help us. I wish, too, that the energy and skill of its organisers had been devoted to getting done through the Society what it seeks to do by its own agency. My point is this, that instead of having alongside the Society a number of subsidiary or complementary organisations, the Society itself should undertake these functions. I would not burden the Council with the P.A.T.A. work, but I cannot see why the Society should not undertake on sound lines chemists' defence work. The Cycling Touring Club does it, and we might do. Perhaps I am dreaming, but I cannot help thinking that when pharmacists are appealed to on behalf of the Society to join and support it, as artisans do their unions, they have a right to ask that it shall adopt more decidedly and thoroughly a Trades Union policy. Then, I think, the appeal for unity might be successful, especially with a good organising secretary to explain and canvass for it.

But, apart from what we can do for ourselves through the Society, there are other ways of improving the outlook. I must safeguard myself here from any impression on your minds that I consider myself outside what I am going to say. I am speaking to myself as well as to you.

Our outlook can be improved by the adoption in all possible ways of modern and up-to-date methods of business. As a trade, we are far too conservative in ideas. "Why do you sell seidnitz powders at a shilling per box?" said a fellow-craftsman to me some years ago. "You know the cutters sell them at 7d. here." I replied, "I cannot afford to sell them at those prices." His reply was, "Keep that tale for somebody else. You know well you can buy wholesale a reliable article at a cost of 5d." He was a Lancashire man and brutally candid. When he had gone I thought over the matter and dropped my price to a little above the cutters, sold more and stopped the grumbling. How many of us are still contending for prices on the ground that "we can't afford," when we ought to say "we don't choose to alter." So in other cases with the adoption of side lines, many profitable paths are closed because to travel them does not consort with the dignity of pharmacy. We do not need to be

pharmacists less, but we need to be smart traders and business men more. Is there no truth think you in the taunt of Mr. Boots, "that the ordinary training of a retail pharmacist does not necessarily make him a good business man on a large scale." Said a cutter to me about eight years ago, "I was a draper and knew nothing of the drug trade, but I saw there was money in it on cash store lines." Do we not want a little more of that spirit? Now for any improvement on these lines we must depend almost entirely on individual effort. But that effort may be stimulated if we got more into touch with each other. This, too, must largely depend on ourselves. It would be of little service to us to have a remodelled and reorganised Society if we do not cultivate association more. One advantage of a society which had the almost entire support of the trade would be that, instead of having purely local associations such as ours, we should have branches of the Society. So we might hope to break down the trade loneliness in which most of us spend our lives. "As iron sharpeneth iron, so doth the face of man his friend," and we may add—his business.

Then if we are ever to win back in any large degree

THOSE WHO ARE SERVING THE COMPANIES,

the terms and conditions of service must be as good and generous as trade will afford. Any new spirit or departure in this line must be the result of individual, or at all events of semi-official, effort. Success depends largely on those having large businesses. It might be worth the while of such individual employers to imitate the companies' bonus system, by which an assistant or manager gets a fixed salary and a commission on profitable sales. Rowland Hill used to say "he did not see why the devil should have all the good tunes." I do not see why the stores should have all the smartest methods. The Society might help us here by undertaking a systematic propaganda amongst qualified men not in business on their own account. It could show a determination to protect the individual title and point out to a man the value of his "trade-birthright." Here again an organising secretary might be useful. But our success with regard to this matter will, after all, not depend so much on the attitude and efforts of a central office as on the spirit and attitude of the whole trade. We hear at times proposals for a code of ethics in pharmacy. No code is needed. What is needed is a feeling of brotherhood, of oneness of aim and interest, of mutual self-sacrifice, of united effort to preserve alike all that is honourable in our tradition and all that belongs to us of right. Give us these things, and the code of ethics will crystallise around them without the aid of a draughtsman.

I have done now. I do not know how far you agree with me. I do not pretend to have shed any fresh light on the "outlook in pharmacy." I feel myself that it is not more hopeless than is the drapers', the grocers', the ironmongers', or, for the matter of that, the lawyers' or the doctors'. I cannot even in this be a pessimist, and yet I am not blind to the keenness of the struggle to live. I have been, and am, in the thick of the fight myself, and have received many a blow. But I have too often received kindnesses at the hands of others; I have too often seen a man hew his way out of the "valley of humble effort" on to the heights of success, to doubt that if we as a trade are true to ourselves as men, true to the public as servants, and true to the State as its instruments, there yet lies before pharmacists an honourable and on the whole a successful though strenuous career.

WHAT ARE THE STATUTORY FUNCTIONS OF THE PHARMACIST.*

BY J. RUTHERFORD HILL.

Some time ago a very eminent authority made the following statement:—"The restrictions of the Pharmacy Acts do not relate to trade; but to nothing more than the professional supply and manipulation of the most potent poisons, as medicine, and to such regulation of the sale of those poisons as was deemed to be expe-

* Read before the Edinburgh Chemists', Assistants', and Apprentices' Association on February 7 (See p. 161).

dient for public safety." If this is correct it defines the statutory functions of the pharmacist. But is it correct? I do not think so. On a former occasion I have said a pharmacist is much more than a pharmacist. Even in a statutory sense, if a pharmacist is to be understood as meaning only a person who dispenses and sells substances for medicinal use, he is more than a pharmacist. What was the genesis of the Pharmacy Acts? They are rooted in the Royal Charter. The Act of 1852 is a real Pharmacy Act and nothing else. It operates solely by the restriction of a title. There is much to be said for the view that it might have been wise, in the interests of real pharmacy, to have adhered to that line of policy. We may even have to go back upon it. But when you come to the 1868 Act the situation is widely different. It is a Poisons Act, intended to restrain and detect crime and accidental poisoning, as well as regulate the practice of pharmacy. On its pharmaceutical side it is rooted in the Charter, but in its poisons side it is rooted in the Arsenic Act of 1851. The Arsenic Act has nothing whatever to do with pharmacy, and deals exclusively with mechanical safeguards. But a reading of the latter along with the 1868 Act shows how closely the policy of the one is built on the policy of the other. The fatal defect of the Arsenic Act is its total disregard of competent knowledge and training on the part of the vendor. This principle is the feature which distinguishes between it and the 1868 Act. There is no mention in the 1868 Act of the purpose for which scheduled poisons are to be used. It imposes an absolute prohibition of the sale by retail of any scheduled substance for any purpose whatsoever except by the hand of a duly qualified registered person. It is therefore evident that it covers not only the practice of pharmacy, but the retail trade in all poisons. This is very well put in the excellent synopsis of the origin and position of the Pharmaceutical Society, which forms the introduction to the Society's Calendar, as follows:—"When the demand arose that certain restrictions should be placed on the sale of poisons, the Council of the Pharmaceutical Society in 1868 succeeded in obtaining a recognition of the important principle that the education and training of the vendor is the only safe foundation for a Poison Bill; and in proving to the satisfaction of the Legislature that a body of men duly educated was in existence, and registered under the Pharmacy Act of 1852." That is to say, the State was in need of a staff of men possessing certain knowledge and experience which would make them safe distributors of poisons to the public. They had been trained with a special view to supplying medicines, but were eminently fitted to fulfil the wider function of supplying all poisons for all purposes, and therefore the wider function was conferred on them. That such is the true state of the case is evident from an examination of the Poison Schedule itself. We have, for instance, oxalic acid (never used medicinally), vermin killers, weed killers, chemicals for photographic purposes, amateur lectures, chloroform to poison a cat or dissolve rubber, potassium cyanide for cleaning plate or for the well-known insect-capturing bottles, arsenic for taxidermic purposes, all scheduled poisons for use as insecticides or as antiseptics, and many others that will occur to anyone. There was a case in Edinburgh where the defence to a charge of selling poison was that they never sold anything as a medicine. If a customer asked for glycerin for chapped hands or sugar of lead for a sore leg they refused to sell it. But the Court refused to recognise such a limitation of the purpose of the Act. Therefore we say the statutory functions of the pharmacist make him more than a pharmacist. But a study of the Charter and the 1852 Act suggests something more even than this. The Charter is granted "for the purpose of advancing chemistry and pharmacy and promoting an uniform system of education of those who should practise the same," and this is repeated in the preamble to the 1852 Act. That is to say, the Charter contemplates not only those who are to practise pharmacy, but also those who are to practise chemistry, and in this connection it is interesting to note that the Society were the first to provide a laboratory course of instruction in practical chemistry. The State had no demand for a staff of men qualified to act as analytical chemists in 1852, or even, for

that matter, in 1868. But there is a very widespread demand for competent persons of that kind now. Does it not appear to be the natural charter right and function of the Society to provide such a staff of men for this State need? We know that the Institute of Chemistry aims at a function of this kind, and perhaps the field can hold two, but it seems not difficult to prove that the Pharmaceutical Society is first in the field and holds a prior title to recognition. It is true the Society has actually done much to provide such a class of men, and many of the most competent have been trained by her efforts, but they pass away from her to other organisations. Should this be so, might we not develop this side of our charter rights, and by a suitable examination grant a certificate that would be recognised as fitting the holder thereof to fill any State appointment as a trained chemist or public analyst. There can be no question that a man who has had the varied experience of a practical pharmacist possesses an immense advantage over a man whose knowledge of chemistry has been obtained exclusively in a science school or college laboratory.

NOTE ON THE DETERMINATION OF IODINE IN IODIDES.*

BY FRANK R. DUDDERIDGE.

The determination of iodine in the official iodides is directed to be performed by titration with decimolar solution of silver nitrate until precipitation ceases in the cases of potassium and sodium iodides, and in the assay of *syrupus ferri iodidi* we are told in addition to use potassium chromate as an indicator after the ferrous has been converted into sodium iodide and excess of sodium carbonate removed by neutralisation. It is usually the custom, I believe, to use the chromate as indicator in each instance, on account of the difficulty experienced in judging the exact moment of complete precipitation owing to the turbidity caused by the presence of the silver iodide formed, but whether this is any real advantage I very much question, as the change of colour is not so sharp as in the case of chlorides or bromides, necessitating an experienced eye to arrive at anything like exact results, and causing much difficulty to students. As soon as an excess of silver has been added the iodide of silver curdles very sharply—much more so than the chloride or bromide—and if the titration be carried on in a white porcelain basin, the liquid being kept well stirred all the time, it will be found that the curdled precipitate *on settling* shows a reddish tint, although no sharp change of colour may have been observed when curdling took place. Therefore the formation of the curd itself in presence of chromate may be taken to represent the termination of the reaction quite as accurately as the appearance of a distinct red, or the absence of turbidity. But in any case, the use of a correct number of C.c. of silver nitrate is not a proof of the purity of the iodide, as a salt containing both moisture and chloride or bromide might be passed as pure if the volumetric test be alone relied on. The liberation of the iodine in the free state, and its subsequent determination by means of thiosulphate would at once suggest itself as the most correct method, and various processes have been devised to effect this by different workers. Cook in 1835 suggested the use of hydrogen peroxide in the presence of acetic acid to liberate the iodine, which is taken up by successive treatments with chloroform in a separator until all has been removed, and washing the chloroform with water to take away any excess of hydrogen peroxide, then titrating with "hypo" in presence of starch paste. Mr. J. S. Hill, to whom I am indebted for most of the practical part of the work involved, has carried out experiments under my supervision to see how results obtained by this process compare with those obtained by the B.P. method. A solution was prepared containing exactly one gram of potassium iodide in 100 C.c. Ten C.c. = 0.1 gram KI were taken and treated as above, but without washing the chloroformic solution of iodine, the result, indicating iodine equal to 0.0997 gram KI or 99.7 per cent. Another 10 C.c.

* Read before the Newcastle and District Chemists' Association, Feb. 14 1900.

were taken and the process repeated, this time washing the chloroform with water. As the washings evidently contained free iodine, they were shaken out with more chloroform, and this latter added to the washed chloroform; the result this time being slightly lower, iodine equivalent to 0.0988 gram KI or 98.8 per cent. being found. Other 10 C.c. were then titrated by the B.P. method in presence of chromate, the result now was high, 0.10003 gram KI, or 100.03 per cent. being indicated by this method. The range officially permitted by the B.P. is between 98.01 and 101.96 per cent. The sample used in these experiments was faintly but distinctly alkaline to litmus, this being allowed by the B.P. characters and tests.

These results show that Cook's process is reliable; it is easily carried out, the chloroform separating rapidly and sharply, without any tendency to emulsification, and the end reaction is clearly marked, this and the elimination of error due to chlorides and bromides giving it an advantage over the B.P. method, whilst for simplicity, ease of application and accuracy, it compares favourably with other methods for liberation of iodine. It was then thought advisable to apply it to the assay of *syrupus ferri iodidi* more particularly as the B.P. process had scarcely appeared before more or less adverse criticisms had been passed upon it and alternative methods suggested. I have noticed that students almost invariably obtain low results in assaying samples of their own preparation, and to determine whether this was due to carelessness in manipulation, either during the preparation of the syrup or in the subsequent assay, I prepared 100 C.c. of the syrup. This was estimated according to the official process, and 2.5 C.c. were found to require 15.2 C.c. of decinormal silver nitrate, instead of from 16 to 16.5 C.c. as officially demanded. Cook's process was then applied, 10 C.c. of the syrup being diluted with water to 100 C.c., and 10 C.c. of the diluted syrup taken for assay, the chloroformic solution of iodine obtained being washed with water, and the washings rinsed out with more chloroform as in the second determination of KI by this method, between 6.25 and 6.3 C.c. of decinormal "hypo" being required to discharge the colour. This for 1 C.c. of the syrup equals 15.7 C.c. for 2.5 C.c. of syrup, and each C.c. of decinormal "hypo" = 0.01537 gram of FeI_2 . These results compare as follows for grams of ferrous iodide in 100 C.c. of syrup:—

Found by B.P. process	9.35 (nearly).
Found by Cook's process	9.655.
B.P. minimum required	9.84.

Ordinary resublimed iodine was used in preparing the syrup. It will be seen from these results that Cook's process is applicable equally to sodium or potassium iodides, or to *syrupus ferri iodidi*, and whilst possessing superior accuracy to the B.P. method, is more easy of application in the case of the syrup.

ACETYLENE MIXTURES.

The following is the substance of the proposed Order in Council prohibiting the admixture of air or oxygen gas, to which reference was made last week:—

Whereas acetylene when in admixture with air or oxygen is specially dangerous to life or property by reason of its explosive properties. Now, therefore, be it ordered and declared as follows:

Acetylene when in admixture with atmospheric air or with oxygen gas in whatever proportion and at whatever pressure and whether or not in admixture with other substances shall be deemed to be an explosive within the meaning of the said Act.

And whereas it is in the judgment of Her Majesty expedient for the public safety that acetylene, when an explosive within the meaning of this Order, shall be prohibited. Now, therefore, be it ordered and prescribed that acetylene declared to be an explosive by this Order shall be prohibited from being manufactured, imported, kept, conveyed or sold.

Provided that nothing in this Order shall apply to acetylene in admixture with air when such admixture takes place only in a burner or contrivance in which the mixture is intended to be burnt.

A TEST FOR PEROXIDES.*

BY FRANK R. DUDDERIDGE.

A characteristic and easily applied reaction for the detection of a peroxide of an alkali or alkali-earth metal, which I have not noticed in any of the ordinary text-books, is the addition of silver nitrate solution to a small portion of the powder in a test tube. In the case of an alkali metal brisk effervescence occurs at once, due to evolution of oxygen—easily recognised by a glowing match-stick—and a black precipitate of metallic silver is at once deposited. With the alkali-earth metals the reaction takes place more slowly, a brown precipitate of silver oxide being first produced, soon followed by evolution of oxygen, the precipitate turning to black metallic silver. The reaction in this latter instance is hastened by the application of heat. The effect produced will no doubt be due to formation of silver oxide in each instance, and its decomposition by the peroxide, similar to its well-known reaction with hydrogen peroxide.

PRACTICAL NOTES AND FORMULÆ.

Trional Emulsion.

Since trional is soluble in fixed almond oil to the extent of 1:20, Pouchet and Brisse-mort suggest an oily emulsion as an agreeable means of administering the drug. Such an emulsion may be made of:—Trional, 1 Gm.; oil of sweet almonds, 20 Gms.; sugar, 8 Gms.; powdered gum acacia, powdered gum tragacanth, of each 20 centigrammes; cherry laurel water, 2 Gms. An enema of the same may be obtained with trional, 0.5 to 1 Gm.; oil of sweet almonds, 10 to 20 Gms.; yolk of one egg; water, 150 Gms.—*Journ. de Pharm. d'Anvers*, 56, 16.

Recipes for Liqueurs.

Liquor Napoleonsis.—Gentian root, 35 Gms.; sweet flag, 35 Gms.; cinnamon bark, 25 Gms.; cloves, 25 Gms.; coriander seeds, 50 Gms.; lemons, 4; alcohol (90 per cent.), 3,000 Gms.; water, 1,500 Gms.; milk, 1,500 Gms.; white sugar, 1,000 Gms. Digest for six days, filter.
Strawberry Claret Cup.—Two litres of ripe strawberries are placed in a punch bowl and sprinkled with half a kilo of finely-powdered sugar; three bottles Moselle wine and two bottles of Bordeaux wine are poured over the mixture, which is then allowed to stand for several hours in ice. The mixture is stirred just before serving.
Walnut Liqueur.—Green walnuts, 500 Gms.; cognac, 2½ litres; and cloves, 4 Gms., are digested for several weeks; the mixture is then filtered and a syrup prepared from sugar, 500 Gms.; water, 1,000 Gms., is added. A very good syrup may be obtained by using honey instead of sugar. Another formula is:—Green walnuts, 18 in number; cloves, 20 Gms.; cinnamon bark, 20 Gms.; sweet flag, 20 Gms.; orange peel, 20 Gms.; vanilla bean, 1; sugar, 500 Gms.; alcohol (90 per cent.), 1 litre; water, 500 Gms.—*Pharm. Post*, 32, 566.

Brilliantine.

Glycerin, 10; lime juice, 10; dilute alcohol or eau de Cologne, 80.—*Pharm. Post*, 32, 721.

Indian Cream.

White wax, 3, is melted with spermaceti, 2, on the water bath, and olive oil, 20, added. This is digested with alkinet root, 20, till deep red, and while warm a little lavender oil and tincture of ambergris is added and stirred till cold.—*Pharm. Post*, 32, 721.

Label Varnish.

Sandarac, 53; Mastic, 20; Spike lavender oil, 7; Venice turpentine, 4; Ether, 6; Alcohol, 40.—*Pharm. Post*, 32, 721.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Companies Bill Revived.

After the Lord Chancellor, Mr. Ritchie. The Companies Act Amendment Bill of 1899 is revived as the Companies Acts Amendment Bill of 1900, and introduced into the House of Commons in the identical condition in which it left the House of Lords last year, except for "a small verbal amendment, which legislation since the Bill was before the House of Lords had rendered necessary." That statement implies, among other things, that the President of the Board of Trade has been so little impressed by the lengthy epistle addressed to him by the President of the Pharmaceutical Society that he has not thought it worth while to alter the text of the measure before introducing it. Whether he will be disposed to do so if any degree of pressure can be put upon him by pharmacists and such influential friends as yet cleave to them remains to be seen: the outlook, however, is none too promising, and perhaps the most that can be done will be to get the pharmacy clause expunged from the Bill. It may be possible to convert that clause into a satisfactory and workable amendment of the Pharmacy Acts, but, in my opinion, the chances are in favour of no such conversion. Indeed, I fear that the House of Commons will be as little disposed to suppress company trading in pharmacy entirely as the Manx House of Keys has proved to be.

Vigorous Action Needed.

But that is no reason why we should sit quietly with folded hands, waiting for what Providence may choose to send us. As the status of an individual is largely based upon his opinion of his own importance, so is the social and political position of a class in great measure dependent on the impression produced by it in the public mind. That is to say, if pharmacists as a class are prepared to allow themselves to become the victims of circumstances, they may as well cease from troubling and let the wicked, *i.e.*, the limited companies, be at rest in the assurance that they hold a position which cannot be turned. But I take it that the vast majority of the pharmacists of Great Britain, to say nothing of Ireland, do not mean to acknowledge themselves beaten before defeat has actually come, any more than General Buller has done. The pity of it is, however, that—owing to the lack of agreement as to what should be attempted—opportunity after opportunity has been missed, and to-day we are apparently as far off having a clear and unprejudiced statement of our position placed before the Government as ever we were. The medical profession has been fairly successful in securing a proper official appreciation of what the public safety needs, so far as it is concerned, but poor pharmacy appears unable to overcome the prejudices which weigh against it on account of its peculiar association with trade. Where personal services alone enter into consideration, as in the case of medicine, surgery, dentistry, and midwifery, our rulers are able to grasp the seemingly obvious fact that some measure of restriction is imperatively called for in the public interest; as soon, however, as the price is in question of articles which call for skilled service in their proper distribution, the monopoly bogie is resuscitated and worked for all it is worth in the attempt to secure for its wire-pullers advantages to which they are entitled.

Division of the Qualifying Examination.

Is the proposed division of the qualifying examination really within, or even approaching, the sphere of practical politics, or is it merely serving as a subject of conversation for our leaders? The discussion at the Council meeting last week was very interesting of course, but many of the speeches expressed what I can

only regard as pious opinions rather than intentions on the part of the speakers to effect a radical change in the system of examination. The essential thing, it seems to me, is to recognise what is actually required in the matter. The plea that the examination and regulations should be altered because assistants are scarce savours too much of a desire to obtain, assistants of lower calibre at a cheaper rate, but such a notion cannot be entertained for a moment. Pharmacists who wish to be relieved of any portion of the serious cares of their business must be prepared to leave as good men as themselves in charge, and that being the case it is quite out of the question to seek to lower the standard of examination or to reduce the value of the qualification in any way. If pharmacy is to survive its present difficulties the value of the personal qualification must be increased, not lowered, and the individual who is not prepared to pay a proper price for the services of a duly qualified assistant must even be content to do his responsible work himself, in spite of any personal inconvenience that may be caused. The only sufficient ground for dividing the examination should be that the existing arrangements do not enable the examiners to form a proper estimate of a candidate's fitness to undertake duties which involve the well-being of the public. It need cause no strain on the candidate to have to study half-a-dozen different subjects at once but both he and his examiners may be at a disadvantage when the attempt is made to examine him satisfactorily in those six subjects in a single day or less. If it be proved that such a disadvantage really exists I would advocate division of the qualifying examination at the earliest possible moment, but I am distinctly averse to humouring any desire to obtain assistants with a lower qualification or at a cheaper rate.

The Registrar's Report.

The statistical report compiled annually by the Registrar of the Pharmaceutical Society is always an interesting production, including as it does full particulars regarding the strength of the Pharmaceutical Society and of the number of chemists on the Register, together with an analysis of the examinations held during the past year. The subscribing members of the Society at the end of 1899 numbered 5,820, a record figure, I believe. But there were 15,595 persons registered as chemists and druggists at that time, so that the Society included only about three-eighths of those whom it is fairly entitled to represent in their entirety. Nevertheless, it must be remembered that the position is a distinct advance upon that of the previous year, when the Society included only three-tenths of the registered chemists of Great Britain in its ranks. What the relative proportions of members and non-members will be when next year's report is presented by the Registrar will probably depend largely upon what action is taken by the Council of the Pharmaceutical Society or what happens in Parliament during the present session. Indeed, there is only too good reason to believe that, unless some agreement is shortly arrived at by the Council and decided action taken thereon, the Society will certainly lose the support of several who have become members simply with the view of adding to the strength of the force behind the executive body. With regard to the examination results of the past year there is not much I can say, except to express regret that the percentage of rejections in the qualifying examination appears to be increasing. The percentage for England and Wales has increased from 69.53 to 71.67, but that for Scotland has decreased from 64.99 to 63.91; for the whole of Great Britain there is an increase of 1.5 per cent. in the rejections for the year, a slight increase, but yet, I think, a distinctly regrettable one. A remedy may be found in division of the examination, but that, I fear, cannot be more than a partial one. More systematic study is required and better preparation generally; no amount of division or subdivision of the examination can help candidates to pass in subjects with which they are not properly conversant.

POLITICAL GOSSIP.

MOST PHARMACISTS will rejoice at Sir Michael Foster's elevation to M.P.-ship, and will join in congratulating him, as well as the House of Commons and the London University. His election was never apparently once in doubt during the whole week of election, and he beat his Radical competitor, Dr. Collins, by a handsome majority of over 400, on a poll of 2,820. Although Sir Michael has been represented in the public Press as a sort of political nondescript—unsanctified by the blessings of any party of the State—it may pretty safely be assumed that he will mostly support the Government with his vote like the staunchest party man of them all. It is, however, wholly immaterial, from a pharmaceutical point of view, whether he sits with Ministers or on the Opposition benches, but it is of some interest to know that he is, on his own declaration, going to the House primarily as a representative of "science, learning, and education." In that capacity he may do worse than commence his parliamentary career by examining clauses 2 and 3 of Mr. Ritchie's Companies Bill; for the representative of the graduates of a University who have won their degrees by laborious effort and after stringent examination may be expected to have no favourable bias towards the filching of personal titles by impersonal corporations.

THE COMPANIES BILL was introduced into the House of Commons on the 12th instant by Mr. Ritchie with the briefest possible statement by way of explaining the essential provisions of the measure, and none at all as to Government intentions. The Bill contains, as Mr. Ritchie hinted it would, the two clauses relating to pharmacy and medicine which the Select Committee of the House of Lords inserted, without comment and apparently without consideration, in last year's Bill. The reproduction is not absolutely identical, as will be seen on comparing the clause printed at page 157 of the current issue with that given at page 131 last week; a "such" being replaced by "the," and "nor" being substituted for an "and," but this verbal amendment is more a matter of taste than moment, and has probably been dictated by a praiseworthy desire to remedy the Lord Chancellor's faulty grammar. As the matter stands, then, Mr. Ritchie has followed Lord Halsbury's lead in ignoring the President's representations on behalf of pharmacy, and has administered snub number two to the Pharmaceutical Council. This action should not be without significance to those who fondly persuade themselves that it is possible to induce, or if need be to force, the Government to accept the "total prohibition" theory of Companies Acts amendment. The medicine clause is unchanged, and the veterinary surgeons have not yet been admitted within the privileged circle which hedges the divinity of surgeons, dentists, and midwives.

IN ITS COMMERCIAL CLAUSES the Bill has only had one alteration made since it left the upper House, and that is in the "winding-up" provisions; a tardy recognition being now accorded to the Preferential Payments in Bankruptcy Act—which passed in 1897 and placed the employees of bankrupt companies in a preferential position in respect to salary due. Thursday, 15th, was formally fixed for the second reading of the Companies Bill, but it was not taken then, and, so far as our information goes, the Minister in charge does not propose to proceed with it at present. He has the highly controversial Railway Couplings Bill to pilot as well as the prickly measure to restore commercial purity, and the Government has already secured first call on parliamentary time up to Easter for the discussion on and voting of supplies. Besides these considerations, there will be others, not so obvious perhaps to the public eye, urged upon Mr. Ritchie in the course of a few days from various sources—some, it may be, from Irish pharmacists, who will certainly not be content with the present casting of clause 2. Speedy progress, therefore, is not to be expected.

LIGHT COMEDY was furnished by Mr. MacNeill on Tuesday, when he asked the President of the Board of Trade, with the gravity of

the professional humourist, whether there were any objections to the insertion in the Government Companies Bill of a clause prohibiting the union of the offices of Minister of the Crown and company director. Mr. Ritchie's laconic "Yes, Sir," afforded the House immense amusement. Later on the member for South Donegal returned to the charge by asking the Speaker whether Mr. Ritchie had not been guilty of an abuse of the procedure of the House in taking advantage of the "ten-minute Rule" to introduce a measure of such first-rate importance as the Companies Bill. The Speaker, however, declined to express a definite opinion on the point raised, simply confining himself to pointing out that it did not rest with the Speaker to decide what Bills properly came within the purview of the Rule, and that he could not from the table of the Board of Trade judge as to the public importance of the measure. Mr. McNeill did not appear satisfied, and assayed a little blarney on the Leader of the House, to whom he appealed as one who never broke a pledge, even to Ireland, but he was cut short by the Speaker, to the evident relief of Mr. Balfour. The little episode was brought to a fitting termination by the correct Mr. D. A. Thomas, of judge-snubbing fame, who gently reproved the Speaker by remarking that the importance of the Bill in question was evidenced by its leading position in the Queen's Speech.

LETTERS TO THE EDITOR.

Company Legislation.

The time has arrived for pharmacists to unite in one determined effort to remedy the flaw which exists in the Pharmacy Act of 1868. Many and various have been the plans suggested for rectifying the evil, and the diversity of opinion which exists has made it difficult for anyone to formulate a plan that will meet with general approval; if we are to succeed this diversity must be exchanged for unity. In discussing the question of company pharmacy and legislation thereon, I have always advocated that pharmacy should not be looked upon as a profession only, but that the commercial aspect of it should also be kept in view; otherwise, legislation might become vexatious, and hinder genuine business development. While keeping this thought in view, and after carefully considering the matter in every phase that has been presented to me, I have deliberately come to the conclusion that the best course for us, as pharmacists, to adopt is to strenuously oppose the Lord Chancellor's clause in the Companies Bill, and as strenuously strive to get pharmacy treated in the same way as medicine and dentistry are dealt with in that measure. I have not yet seen a clause that has been drafted with a view to regulating company pharmacy that has been both just and effective, and I believe it is impossible to formulate a workable clause; that framed by the Lord Chancellor would prove both unjust and ineffective, for, in the first place, it would confer the title of chemist on those who had never earned it; if John Smith were to pass the Minor examination and then request that his qualification should pass to Thomas Brown, who could not pass the Minor, his request would be indignantly refused, for vicarious qualification is twin brother to personation, and we know that personation is a crime punishable with severe penalties under the British law, and to legalise it would be unjust. Then, secondly, the clause would be ineffective, for it does not define what is meant by a business being "*bonâ-fide* conducted by a manager, etc." Does it mean that the qualified manager is to run the drug department with as much freedom as if it were his own business? If so, what provision is made for enforcing this? What authority is to supervise the company? The clause does not provide an answer to this question, and is, therefore, ineffective, for if it become law it will leave the qualified manager under the thumb of the unqualified directors; he will be their puppet and must do their bidding, whether it be in accordance with his professional knowledge or not. The expression "*bonâ-fide* conduct the business" is a loose term which may be interpreted according to the fancy of the individual, and is worthless in an Act of Parliament.

What we need is a simple clause that will be just and effective, and will appeal to the common sense of the man in the street, and we should get such a clause by placing pharmacy on the same footing as medicine and dentistry in the Bill. In applying the word "effective" to such a clause I do not mean that it would stop company pharmacy, but it would give legal enforcement to the principle of the Pharmacy Acts which have been framed for the public welfare. To put the matter in a nutshell: "Instead of trimming the Pharmacy Acts to suit limited companies, it would compel companies to trim themselves so as to suit the Pharmacy Acts." And when the matter is looked at broadly, that is a common-sense view to take. In conclusion, let me appeal to all my fellow pharmacists to face this question fairly and see if we cannot agree on a clause, then stand shoulder to shoulder and carry it through. I do not say adopt the view I have just expressed; personally, I am prepared to back up any clause that will be just and effective and that comes within the range of practical politics. I believe the above suggestions meet these three requirements, but I do not say I will support these and no others. The Council of the Pharmaceutical Society should be in a better position than myself to judge on this matter; if they bring forth a workable clause they will have my support.

Nottingham, February 13, 1900.

WILLIAM GILL.

A Divided Minor.

The question of a division of the "Minor" is one which calls for immediate attention, in view of the increased percentage of failures, as the difficulties of obtaining qualified assistants are becoming urgent. Pharmacy offers many hardships and few recompenses to young men, and apprentices are not to be had, although premiums are nominal, and unless something is done to encourage young men, business will soon have to be conducted on different lines. The causes for failure of so many candidates may be briefly divided into three classes, viz.:—(1) Deficiency of knowledge. (2) The tendency of examiners to require a classical rather than a practical knowledge of subject. (3) Personal deficiencies caused by the strain of keeping up to examination pitch in so many subjects.

I am not in favour of a lower standard for the examination, but I do contend that to do justice to the present examination more time is required. Of the above three reasons for failure the first is very often due to students thinking that attendance at lectures will ensure success at the examination without much further effort on their part. There is an art in passing examinations, but it is founded on knowledge and ability to answer questions, and men who are desirous of success would do well to remember this, then we should have fewer of the illogical excuses for failure:—"I knew what the examiner wanted to know, but I couldn't answer him."

The second reason for failure is one which would seem to call for further inquiry, but we are assured by members of the Board of Examiners that the candidates are all submitted to a fair examination. There must be some truth in the statements of successful and rejected candidates, and at times the consensus of opinion is unfavourable to individual examiners. In botany many subjects give rise to questions on which examiners have their own opinions, and it is not reasonable that such should be included in the examination when the scope is already so wide. In chemistry there is such a vast field for examination that it is no wonder some students fail to get an adequate grip of the whole subject which will stand the test of a few minutes' *viva voce* examination unless the examination is conducted on very broad lines. The practical and theoretical chemistry examinations are not excessively severe; on the other hand, there is a tendency to leniency at times, because in the limited time it is impossible to deal with the subject fairly. In addition, the professional examiners cannot, or do not, give due consideration to the pharmaceutical applications of chemistry. Perhaps they consider that branch of chemistry should be dealt with by the examiner in pharmacy.

The third reason is the one I consider the chief factor in causing

so many failures. Candidates must be examined as they are found to exist, for it will take an eternity to cultivate ideal candidates, and I think there are no examiners but will admit the severe strain of the examination upon some men. How can this be remedied? The Council has to decide, and possibly will, when the new regulations come into force. A division of the examination seems inevitable, and present conditions would favour an examination before the final qualifying one. An examination in chemistry (practical and theoretical) and botany, for which students would be eligible at the age of twenty, and the final examination at the age of twenty-one, would divide the work suitably. The examination in chemistry and botany might be named the "Intermediate," and would certainly make students take some interest in the subjects they have to learn, and particularly the ones to be learnt "out of the shop."

The Intermediate and Final examinations might be conveniently arranged as follows:—Intermediate: First day, practical chemistry, 6 to 10 p.m.; second day, theoretical chemistry, 6 to 8 p.m.; botany, 8 to 10 p.m. Final: First day, practical pharmacy and dispensing, materia medica, and pharmacy; second day, practical chemistry, botany, and prescription-reading. The question of a written, instead of a *viva voce*, examination will commend itself to some examiners. The "Intermediate" would be very acceptable to the majority of students if held in the evening, and, although it would be a new departure, there is no reason why the examiners should not be able to attend in the evening. It is unquestionable that teaching interests would be affected, but that ought to be a secondary consideration. If, however, the Society have to get fresh powers from the Privy Council, the question of whether the Society ought to be at one and the same time a teaching and examining body is sure to crop up, and any fresh legislation will, unfortunately, savour of "self-seeking," but it will be better for the reformation to begin within the "house" than to have it forced by outsiders.

London, February 10, 1900.

C. EDWARD SAGE.

Company Trading and the Practice of Pharmacy.

Mr. Brown's letter in your last issue is very practical and pointed—the manner in which the work of the individual pharmacist, however capable, and however conscientious he may be in studying the interests of the medical profession and of the public, is treated with utter contempt by both, has long been painfully apparent to me. This attitude is, in my opinion, not only due to the unscrupulous way in which proprietary and quack preparations are pushed and advocated by their originators, but is to a very great extent encouraged by members of our own body, who foster and even assiduously cultivate the sale of such in the most suicidal manner. When I regard the way in which many conduct their business I can scarcely feel surprised that the public have been brought to look upon the chemist or pharmacist as a mere agent for the supply of other people's proprietary goods, and to place him in the same category with their other tradesmen. Many of us, I fear, give them but little reason to think otherwise.

Personally, I have always endeavoured to conduct my business as a pharmacist, and not as a mere agent; but the difficulties and discouragements are very great, and the rewards extremely scanty. Still, one can but persevere in the endeavour to do all in one's power to bring about a better understanding of our position and capabilities, and to make our customers feel that their true interests lie rather with educated and responsible pharmacists than with those who are dragging pharmacy down to a sordid trade level. It is particularly discouraging to find so little appreciation from the average medical practitioner, who seems to regard the pharmacist with mixed feelings of dislike, prejudice, and mistrust. One can only hope that this very unsatisfactory state of things may be gradually overcome and better relations established, but I fear it will be a slow process.

Enfield, February 14, 1900.

F. GOLDBY.

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LONDON: SATURDAY, FEBRUARY 17, 1900.

THE NEW COMPANIES BILL.

A BILL to amend the Companies Acts—"prepared and brought in by Mr. RITCHIE, Mr. ATTORNEY-GENERAL, and Mr. SOLICITOR-GENERAL"—was introduced and read a first time in the House of Commons on Monday. In introducing it the PRESIDENT OF THE BOARD OF TRADE said the Bill last year passed through the House of Lords, and he had thought it right to introduce it in the House of Commons with a small verbal amendment, which legislation since the Bill was first before the House of Lords had rendered necessary. The legislation referred to is understood to be that relating to preferential payments in the case of bankrupt companies. As it happens, however, two verbal amendments also occur in the clause dealing with the application of the Pharmacy Act to companies. The modified clause reads as follows:—

No company may carry on the business and use the description of a pharmaceutical chemist or chemist and druggist unless *the* business is bonâ fide conducted by a manager or assistant being a duly registered pharmaceutical chemist or chemist and druggist, as the case may require, *nor* unless the name of the person so qualified is conspicuously posted in the shop or other place in which the business is carried on, but, subject to this provision, anything which would be an offence under section fifteen of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.

The two words in italics did not appear in the corresponding clause of last year's Bill, "the" replacing "such" and "nor" appearing in place of "and." The Bill is now down for second reading, but it is not probable that it will be proceeded with at present. Meanwhile it still remains for those responsible for the conduct of pharmaceutical affairs to decide on what lines the company trading problem shall be attacked. What can be done must be effected when the Bill comes up for second reading or during the committee stage. But in either case, a general agreement must first be arrived at, either with the view of opposing the objectionable clause—with or without the suggestion of an alternative—or, on the other hand, with the object of

of effecting such modification in the clause as may commend itself to the chief parties concerned in the matter.

SECRET REMEDIES IN GERMANY.

THOUGH uniform regulation of medical affairs for the whole of the German Empire is contemplated in the future, nothing has yet been done in that direction except in regard to the conduct of the examination of candidates for qualification as practitioners of medicine and of pharmacy. In some respects the want of uniform legislation for the whole country has been made up for by the issue of ordinances by the several governments of the federated States, as, for instance, in regard to regulation of the sale of poisons for technical purposes, and the supply of potent remedies for medicinal purposes. The sale of secret remedies, on the contrary, has not hitherto been made the subject of a uniform regulation; but an ordinance having that object has now been sanctioned by the Federal Council and will shortly be published by each government. The subject has long been under consideration, and has excited much interest in medical and pharmaceutical quarters. About two years ago there was an intention of regulating the sale of secret remedies in a somewhat drastic manner, but the plan proposed was rejected by a committee of experts. Pharmacists were especially opposed to that plan, because the regulations contemplated would have applied only to them, and also because no definition was given of the term "secret remedy." In a memorial addressed to the Federal Council the Apotheker Verein asked that the Imperial Sanitary Board should interpret the term "secret remedy" in every instance.

In the new ordinance several amendments have been introduced, and it is generally received by pharmacists with satisfaction. It provides that the respective governments of each State shall name in a special list those articles which are to be treated as coming within the designation of "secret remedies," and it is understood that this list shall be agreed upon by a resolution of the Federal Council in order to make the regulation uniform for the whole country. The Imperial Sanitary Board will of course be consulted in deciding upon the preparations to be included in this list. The regulations are not to apply to any substances or preparations mentioned in the Arzneibuch, or German Pharmacopœia, when offered for sale under the names given to them in that work; neither are they to apply to substances or preparations that are generally recognised as remedies by medical science and practice, or to substances and preparations offered solely for purposes of disinfection, as cosmetics, or as articles of food and condiments. Public advertising of secret remedies is to be altogether prohibited. All bottles and receptacles are to bear the name of the maker of the preparation, the name of the retailer, and the price of the article. No kind of recommendations or certificates may be attached to the bottles, etc. Secret remedies containing poisons or patent medicinal substances are not to be supplied in any instance except by prescription of a doctor, and the same regulation is to apply to any preparations the contents of which are not known to the pharmacist selling them. Lastly, secret remedies which are of a nature to be injurious to health or a means of defrauding the public are not to be offered for sale.

ANNOTATIONS.

THE B.P.C. MEETING IN LONDON may now be regarded as an event of the immediate future, only five months remaining in which to complete the arrangements. As a necessary preliminary to drawing up the programme for the last week in July, the Hon. Secretary, Mr. William Warren, acting on the instructions of the Executive Committee, is inviting pharmacists in the London district who have not already sent in their names to subscribe to the Entertainment Fund. There has been a liberal response to a circular letter inviting subscriptions, and it is proposed to publish the first list of subscriptions before the end of February. All persons who have not yet sent in their names and are desirous that they should appear in that list should communicate promptly with Mr. Warren, 24, Russell Street, Covent Garden, W.C. Subscriptions from individuals must not exceed two guineas each; those of firms are limited to five guineas, but smaller amounts may be subscribed in either case. Cheques should be made payable to the Hon. Treasurer, Mr. J. H. Mathews.

THE APRIL MINOR EXAMINATION has been arranged to commence, both in London and Edinburgh, on or about March 27. In all probability the oral portion of the examination will be concluded in Edinburgh during the week ending April 7, but in London it is not expected that the practical work can be completed before Easter, in which case the meeting of the whole Board to conduct the oral part of the examination will not take place till April 17. The Major dates are not yet definitely fixed, but will be announced in these columns as soon as they are known. Provision has this time to be made for the Pereira Medal competition, which, it will be remembered, was formerly held after the July meetings of the Boards, but has been transferred to April to meet the altered conditions arising from a reorganisation of the advanced course of instruction in the School of Pharmacy. The special examiners to conduct this examination are Professor Balfour, Dr. L. Dobbin, and Mr. Boa, who were appointed for that purpose at the last meeting of the Council, and it is hoped that a respectable number of members of the Society who have passed the Major examination will compete for the prizes offered by the Council. Those desirous of ascertaining the scope of examination and the conditions of competition should refer to the Society's Calendar for 1900.

AROMATIC SPIRIT OF AMMONIA has so frequently formed the subject of investigation that it might be thought to have been exhausted. That such is the case, however, is disproved by Mr. Edmund White's paper, which appears at page 144 *et seq.* It will be noticed that, in examining his materials prior to dealing with the spirit itself, Mr. White found that certain factors given in the British Pharmacopœia for strong solution of ammonia are incompatible, it being impossible to obtain a solution containing 32.5 per cent. by weight of ammonia, which shall also be of specific gravity 0.891, and *vice versa*. Lunge and Wiernik's table gives the strength of a solution of ammonia, s.g. 0.891, as 31.4 per cent., and Mr. White's results accord closely with their figures, which appear on the whole more trustworthy than those of Carius. As regards ammonium carbonate, Mr. White has not recently met with a commercial sample which complies with the official requirements, his results in that respect according with those recorded by Squire. Turning to the test for total alkalinity of aromatic spirit of ammonia, it is stated that, in cases of deficiency due to the ammonium carbonate, the total alkalinity may be sufficiently raised by the addition of a little strong solution of ammonia. Such addition will not appreciably affect the alcoholic strength or specific gravity of the product; in no case is it necessary to add more ammonium carbonate, especially as any addition of that kind would tend to raise the specific gravity beyond the official limit. The reaction

upon which Thresh's barium chloride test is based has been found to be unsuitable for the purpose, and it is stated that the due proportion of carbonate can be assured by using the correct weight of the commercial salt; no deficiency occurs, since ammonium bicarbonate produces slightly more normal carbonate than an equal weight of a freshly-sublimed specimen composed of carbamate and acid carbonate.

THE ANNUAL DINNER OF THE SCHOOL OF PHARMACY will be held on Wednesday next, February 21, in the Caledonian Salon of the Holborn Restaurant, at 7 p.m., and all past students and well-wishers of the School of Pharmacy are again reminded of that fact. The tickets are five shillings each, and the Hon. Secretaries intimate that they will be greatly obliged if all who intend to be present will notify that fact on or before Monday, February 19, in order that they may be enabled to complete the necessary arrangements. All communications should be addressed to the Hon. Secretaries, School of Pharmacy Dinner Committee, 17, Bloomsbury Square, W.C.

AN EVENING MEETING of the Society will take place at 36, York Place, Edinburgh, on Wednesday next, the 21st instant, at 8.30 p.m. precisely. The chair will be occupied by Mr. Peter Boa, and two papers will be read on that occasion. The first consists of a note dealing with "The Detection of Sulphates in Presence of Thiosulphates, which has been kindly promised by Dr. Leonard Dobbin, F.R.S.E., of Edinburgh University, one of the Society's Teacher Examiners in Chemistry under the scheme introduced by the Council in 1894. The other paper will be by Mr. J. R. Hill—the Assistant-Secretary in Edinburgh—and deals with Strychnine Hydrochloride and Potassium Arsenate.

AN EXCISE OVERSIGHT does not afford efficient protection to persons who have not paid Customs dues on spirits, as a firm of "manufacturing chemists" at Liverpool has realised on being summoned by the Inland Revenue authorities for harbouring goods which had not paid such dues. The defendants were alleged to have shipped to Australia some cases of perfumery upon which they obtained the usual allowance or "drawback" from the Customs. The goods were returned to London, and thence shipped by coasting steamer to the defendants at Liverpool. No duty had been paid at London. Defendants said there was no secrecy about the matter, the cases being plainly labelled as containing perfumes. A Customs official who gave evidence as to the passing of the invoice containing a statement of the goods said it did not occur to him that perfumes contained spirit. Ultimately, the magistrate said that the affair seemed to be the result of an oversight. It was obviously done without any attempt at concealment, and the summons would be adjourned for a fortnight in order that an arrangement might be made as to the amount of duty to be paid by the defendants.

THE TAXATION OF "STORES" is the basis of a scheme for protecting small traders in Germany, where, in recent years, huge trading establishments have become numerous, with the result that some small traders, having only a limited capital at command, have been compelled to give up business. A Government measure has, therefore, been presented to the Reichstag, with the object of protecting that class of small traders by making the carrying on of "universal stores" a costly matter. The Bill divides the various articles of trade into four groups:—(1) Eatables, drinkables, tobacco, and drugs; (2) drapery and clothing; (3) house furnishing; (4) gold, silver, stationery, objects of art, instruments, and weapons. Any concern engaging in trade in two or more of those groups of articles is a "universal store" within the meaning of the Bill. The tax begins to be levied on concerns with a turnover of £25,000, and the

annual tax which such a firm would pay is £375; a business with a turnover of £40,000 would pay £625, one with a turnover of £60,000 would be taxed to the amount of £1,100, and so on. The Bill does not touch huge concerns trading in one group of articles, no matter how great their turnover.

THE FOOD PRESERVATIVES COMMITTEE proceeds on its uneventful way, and is accumulating evidence at an appalling rate, among the most interesting recorded of late being that of Dr. Grünbaum, lecturer on chemical physiology at University College, Liverpool, who said the general opinion in Germany and Austria was against the use of preservatives. In Germany, it appears, there is definite statutory prohibition of the use of salicylic acid in wine, and there are municipal by-laws regulating the application of preservatives to foods. Instances have been brought before the German Law Courts in which boric acid has been found in milk, and in the majority of cases convictions have been obtained. One of the favourite preservatives used in Germany is, apparently, sodium sulphite, which is added to minced meat, and as that is largely used in Germany as the food of invalids, the authorities are specially keen in guarding against its contamination. In Switzerland there is a direct prohibition of the importation of meat which has borax or boric acid added to it as a preservative. It seems to Dr. Grünbaum that preservatives should be forbidden on general grounds, because, so far as is at present known, what is injurious to bacteria is also injurious to the cells of higher developed organisms; and, although in the latter case they are capable of replacement, nevertheless it does not seem to him that a highly developed organism should be called upon to replace cells which have been destroyed by disinfectants. He considers that the putrefactive organisms which are attacked by preservatives are of a lower vitality than the spore-bearing pathogenic organisms.

THE SALE OF POISONS for horticultural purposes continues to occupy attention in the gardening papers, and a correspondent of the *Gardeners' Chronicle* thinks it is quite evident a new enactment is required. He acknowledges that it was entirely in the interest of the public that the Pharmacy Act of 1868 was passed, but he suggests that the whole question of the sale of poisons ought to form the subject of Parliamentary inquiry. The suggestion is not an unreasonable one, but it is not likely to be acted on during the existence of the present Parliament. It is argued by the writer in question that the chief danger to the public consists in unqualified persons keeping poisons in bulk and selling them in small quantities, and that the restrictions imposed by the Pharmacy Act were not intended to interfere with the sale, in sealed packages, of poisonous weed killers, etc., which were not known in their present form in 1868. It is asserted that chemists now interfere with the sale of those articles in what they term public interest. "But they have not proved that there has been any danger to the public in seedsmen selling poisons for garden use; neither have they proved that the public would have any extra security were those poisons to be bought from chemists only. Horticultural poisons are made up in sealed packages, and it little matters whether these packages cross a seedsman's or a chemist's counter—the danger to the public is when they are afterwards opened and carelessly left about a place. There would be a real danger if seedsmen kept these horticultural poisons loose as they keep onion-seed, and sold them to anybody in small quantities. But they are kept only in the packages, as they are sent out by the manufacturing chemists, and as a matter of fact, which every seedsman can speak to, these poisons are only asked for by gardeners or other persons qualified to use them." The facts may be exactly as stated in the passage quoted, but the law must be obeyed, and it is the statutory duty of the Pharmaceutical Society to do its utmost to enforce that law. Chemists, as individuals, have no voice in the matter, and are far from attempting to interfere with other people's business to anything like the extent that those other people profess to know theirs.

PROCEEDINGS UNDER THE PHARMACY ACTS.

ILLEGAL SALE OF LAUDANUM.

Pharmaceutical Society of Great Britain v. Stirling.

An adjourned diet in the complaint of the Pharmaceutical Society v. David Stirling, assistant in the shop of Dr. Robert Davidson, 255, Main Street, Shettleston, was held before Sheriff Boyd at the Sheriff Court House, Glasgow, on Wednesday, February 14. Mr. R. L. Orr, advocate, instructed by Messrs. P. Morison and Son, S.S.C., Edinburgh, and Messrs. Martin and Barrie, solicitors, Glasgow, appeared for the prosecutor; and Mr. John C. Brock, writer, Glasgow, for the accused.—Mr. Brock raised a number of objections to relevancy, which were repelled.—Accused pleaded not guilty.—For the complainer Mr. J. Rutherford Hill and Mr. Joseph Tait proved that accused, not being registered under the Pharmacy Acts, unlawfully sold a quantity of opium in a bottle of laudanum on December 2 last.—Dr. Robert Davidson gave evidence for the defence, and some further objections by Mr. Brock having been repelled, the Sheriff said: "I think the case is very plain. David Stirling, the respondent in this case, is clearly not a pharmaceutical chemist, or a chemist and druggist, within the meaning of the Pharmacy Act, 1868. It is clear and not even disputed that in the shop of Dr. Robert Davidson, 255, Main Street, Shettleston, the respondent sold to Joseph Tait a bottle containing twopennyworth of laudanum, which laudanum contained opium, which is one of the scheduled poisons, and I accordingly find him guilty, and make the penalty three pounds, with two guineas of expenses."

ENGLISH NEWS.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.—A meeting of the above Association was held on Wednesday, 7th inst., Mr. F. Maitland (President) in the chair, supported by Messrs. J. D. Turney, E. Turney, J. Cocks, W. H. Woods, H. P. Hearder, W. H. Austin, and several medical men of the Three Towns. Mr. C. G. Moor, M.A., F.I.C., F.C.S., City Analyst of Exeter, delivered a very interesting lecture on "Bacteriology," illustrated by a fine collection of lantern slides and cultures, which were shown by Mr. Turney. Mr. Moor, in the course of his address, showed a photograph of cultures on gelatin, on dishes exposed in Oxford Street and at Wandsworth Common, and explained that if a dish were exposed in a room in which there had been dancing there would be found a very large number of organisms. On one exposed on the top of St. Paul's there would not be nearly as many, while it would not be surprising to find none at all on one exposed at sea. Slides showing bubonic and cholera organisms were also exhibited, and with regard to the latter disease the lecturer explained that it was not one natural or endemic in this country, but was imported by emigrants. Owing to the excellent quarantine regulations there were but few cases, and those were soon stamped out. It was generally found that when a case of cholera was landed at a particular port it would give rise to three or four more, and there would probably be three or four more the following year, showing how readily it would spread. A peculiarity of the organisms of Asiatic cholera was that they would swim about like small fish. Diphtheria organisms were most interesting from a bacteriological point of view, because in cases under observation the bacteriologist was frequently able to give information which would be of service to the medical practitioner. The organism of influenza was extremely small, and the bacillus was very difficult to get and to keep alive when it was obtained. Dealing with the phthisis culture, the lecturer remarked that, so far from being incurable, the disease was one which was eminently curable. A far greater number suffered from the disease, without knowing it, than died from it. Taken in time with necessary precautions, such as change of climate, rest from work, and careful clothing, the disease was eminently curable. In conclusion, the lecturer showed slides

of cultures of the bacilli of typhoid.—On the motion of Mr. J. Davy Turney, seconded by Mr. Woods, and supported by the President, a hearty vote of thanks was passed to Mr. Moor.

BRITISH PHARMACEUTICAL CONFERENCE.—A meeting of the Executive Committee was held at 17, Bloomsbury Square, on Wednesday, February 7. Present:—Mr. E. M. Holmes (President), in the chair; Mr. J. C. Umney (Treasurer), Messrs. Atkinson, Bird, Bowen, Collier and Druce; Messrs. Warren and Cracknell (Hon. Local Secretaries), Messrs. Naylor and Ransom (Hon. General Secretaries), and Mr. Nightingale (Assistant Secretary). Letters expressing regret at not being able to be present were received from Messrs. Atkins, Harrington, Martin, Moss, Payne, Peck and Davy Turney. The minutes of the previous meeting were read and confirmed.—The President announced that on behalf of the Executive Committee he had written to Mrs. Stanford, expressing heartfelt sympathy with her in her recent bereavement, the high esteem in which the late Mr. Stanford, a former President of the Conference, was held by all members, and the sincere loss which the Conference has suffered by his death.—On the motion of Mr. J. C. Umney, seconded by Mr. Bowen, the action of the President was confirmed. The Secretaries were requested to send a letter of condolence to the relatives of the late Mr. T. M. Wilkinson, of Dunedin, formerly Honorary Colonial Secretary for New Zealand. The subject of the best methods of increasing the membership was discussed, and the following suggestions were adopted:—The local corresponding secretaries are to be supplied with forms of invitation, and to be requested to make personal application to likely candidates. The President and Treasurer undertook to write personal letters to all local and divisional secretaries of the Pharmaceutical Society of Great Britain who are not at present members of the Conference. It was also decided that letters should be written to the principals of the schools of pharmacy throughout the country, asking them to invite their students to support the Conference after passing their examinations. Some discussion also took place with reference to the delegates who are appointed to attend the annual meeting of Conference, and it was considered that their position should receive fuller recognition than has hitherto been the case. It was also considered desirable that a meeting of delegates and corresponding local secretaries should be held during the next annual gathering in London, at which the interests of the Conference could be discussed. It was decided that in future the meetings of the Executive should be held at 3 p.m. instead of 4.30, as hitherto. Eleven gentlemen having been duly nominated, were elected to membership.

SALE OF CAMPHORATED OIL: AN APPEAL CASE.—On Wednesday, February 7, in the Queen's Bench Division of the High Court, before Mr. Justice Channell and Mr. Justice Bucknill, sitting as a Divisional Court, the case of *Beardsley v. Walton*, which raised an interesting question with regard to the compounding of camphorated oil, was heard, and was referred to briefly last week.—Mr. Radcliffe (with Mr. Montagu Lush) said he appeared for the appellants in this case upon a case stated by the magistrates sitting at a petty sessions at Warminster, in Wiltshire, on November 2, 1899. The case stated set out that on October 21, 1899, an information was laid before one of H.M.'s justices for the county of Wilts by the appellant Frank Beardsley, an inspector under the Food and Drugs Act, against the respondents, Messrs. Walton and Co., Limited, grocers, etc., of Maiden Bradley, Wilts., charging them with unlawfully selling to the appellant camphorated oil, which was "not of the nature, substance, and quality demanded by the purchaser," the said oil only containing eight parts per cent. by weight of camphor, or less than half the quantity of camphor proper to camphorated oil, as described in the British Pharmacopœia, which should contain 21 per cent. by weight of camphor. The proceedings were taken under Section 6 of the Sale of Food and Drugs Act, 1875:—

No person shall sell to any drug which is no prejudice of the purchaser any article of food or nature, substance, and quality of the article

demanded by such purchaser under a penalty not exceeding £20, provided that an offence shall not be deemed to have been committed in the following cases:—Where any matter or ingredient not injurious to health has been added to the food or drug because the same is required for the production or preparation thereof as an article of commerce in a state fit for carriage or consumption, and not fraudulently to increase the bulk weight or measure of the food or drug, or conceal the inferior quality thereof; where the drug or food is a proprietary medicine or the subject of a patent in force; where the food or drug is compounded as in this Act mentioned; where the food or drug is unavoidably mixed with some extraneous matter in the process of collection or preparation.

—Section 7 enacted that:—

No person should sell any compound article of food or compounded drug which was not composed of ingredients in accordance with the demands of the purchaser under a penalty not exceeding £20.

—The case was heard at a petty sessions at Warminster, and after evidence the respondent submitted that as camphorated oil was a compounded drug proceedings could only be taken under Section 7 of the Act, and that no offence had been or could be committed under Section 6. The appellant, in reply, said it was open to him to proceed under either section, that camphorated oil clearly was a drug under the Act, that Section 7 was primarily intended to apply to physicians' preparations, that the penalty was the same under both sections, and that all the prosecution had to do was to prove that the sale would be to the prejudice of the purchaser, and that an offence had been committed under Section 6, under which he had elected to proceed. The magistrates were of opinion that camphorated oil was a compounded drug, that the summons could only be issued under Section 7, and that the respondent's contention was correct in law, and they therefore dismissed the information. If the Court should be of opinion that the magistrates' interpretation of the law was correct, then the order of dismissal was to stand; but if the Court was of the contrary opinion, then the dismissal would be annulled and the case remitted to the magistrates for further hearing.—Mr. Bruce Williams, for the respondents, submitted that the two sections created two totally distinct offences, and the offence charged in connection with the drug, which the magistrates had found as a fact was a compound drug, was an offence only under Section 7, and by Sub-section 3 of Section 6 was excluded altogether.—Mr. Justice Channell asked what difference did it make?—Mr. B. Williams said the words "to the prejudice of the purchaser" had been inserted in Section 6 so that a man should not be convicted for having sold a better article than asked for. The words, however, were omitted from Section 7, and he thought that distinction was intended by the Legislature. He contended the magistrates were right. They decided that the summons should have been taken out under Section 7, and the offence charged was not applicable to the Section 6 under which the charge was made.—After further argument, Mr. Justice Channell said what the magistrates had found was this: "We are unanimously of opinion that camphorated oil is a compounded drug, that consequently a summons can only be issued under Section 7." It was the word "consequently" he had a difficulty in following. If they had said camphorated oil was a drug compounded as in this Act mentioned, then "consequently" possibly would follow; but they had not found that, for the simple reason there was nothing in the Act to that effect. He thought the effect of the sections was that nothing shall be an offence under Section 6 in reference to compound drugs, unless it was also an offence under Section 7, which more specifically defined that offence. If that were so, then clearly the Drug Company (the defendants) came within it. Consequently the appeal must be allowed with costs, and the case remitted for further consideration.—Mr. Justice Bucknill concurred.

A TRADE MARK CASE.—On Saturday, February 10, application was made to Mr. Justice Stirling in the Chancery Division of the High Court of Justice, by the Hillside Chemical Company for the removal from the register of a trade mark, No. 161,543, belonging to W. H. Ashton, for medicated oil. The trade mark consisted of the word "Terraline." The applicants, who carry on business in medicines, including a proprietary medicine called "Terraline," ap-

plied in November last to register the word Terraline, and were met with the objection that the word was already registered. Every possible inquiry had been made of the principal vendors of drugs about Mr. Ashton, but no one had heard of him or his medicated oil; in fact, he seemed to have disappeared off the face of the earth. Letters addressed to him in America, where he was supposed to reside, had been returned through the dead-letter office. Mr. Sebastian appeared for the applicants. His Lordship ordered the mark to be expunged from the register.

SALE OF CALCINED MAGNESIA AND MILK OF SULPHUR.—At Southwark Police-court, on February 8, Charlotte Stowell, described as the widow of a doctor, St. George's Circus, was summoned for selling milk of sulphur and calcined magnesia to the prejudice of the purchaser.—The sample of milk of sulphur was certified by Dr. Muter to contain 45 parts of precipitated sulphur and 55 parts of calcium sulphate, instead of being composed of pure precipitated sulphur, while the "calcined" magnesia consisted entirely of magnesium carbonate, instead of magnesium oxide, as required by the B.P., 1898.—Fined £1 and 12s. 6d. costs in each case.

BORIC ACID IN BUTTER.—On Tuesday, February 6, at Oxford, Henry Cleaver, Major Solloway, and Alfred Maycock, grocers and provision dealers, of Oxford, were each fined £1 10s. 6d., including costs, for selling butter adulterated with boric acid to the extent of 1 to 1.2 per cent., which was considered by the public analyst (Mr. Fisher) to be an improper and excessive amount.

COPPER IN PEAS.—At Spelthorne (Middlesex) Sessions, held at Sunbury on Monday, February 5, Messrs. Holland and Bennett, grocers, Sunbury, were summoned for having sold green peas not of the nature, substance, and quality demanded; also on a second summons for having sold green peas adulterated with copper sulphate in a manner likely to be injurious to health, the analyst certifying that in his opinion the peas contained copper equal to 2.3 grains of copper sulphate per pound.—Dr. Dwight Morris having given evidence as to the injurious effects of copper sulphate on the human system, defendants were fined 20s. on the first summons, and were ordered to pay the court fees 8s., doctor's fee £1 1s., analyst's fee 10s. 6d. On the second summons they would have to pay the costs of the court.—John Williams, grocer, High Street, Feltham, was summoned for a similar offence, and was ordered to pay the same fine and costs as in the previous case.

SALE OF SPIRIT OF NITRE.—Thomas A. Kershaw, manager of No. 2 branch of the Clayton Co-operative Society, was fined 5s. and costs, at the West Riding Police Court, on January 25, for selling sweet spirit of nitre not of the nature, substance, and quality demanded by the purchaser.—The defendant stated that it had been in stock about two years, and must have deteriorated by the constant removal of the cork.

ADULTERATED MILK OF SULPHUR.—George Frith, grocer, Clayton Heights, sold milk of sulphur that did not conform to official requirements, and at the West Riding Police Court on January 25 was ordered to pay 5s. and costs for the offence.—He stated that it was his intention in future to insist on a written guarantee of purity from the wholesale people.—The Chairman thought that was a wise decision, and recommended it to shopkeepers in general when buying drugs.

OVERDOSE OF ANTIFEBRIN.—An inquest was held at Ulverston, on Friday, February 9, with respect to the death of Jonathan Brewer (9), who died suddenly.—According to the evidence, the boy complained of headache, and a headache powder was given to him, death occurring next day.—Dr. Campbell Brown (county

analyst) stated that he had made an analysis, and was of opinion that death was due to an overdose of antifebrin. The jury returned a verdict in accordance with the evidence, and stated that no blame attached to the parents.

PRUSSIC ACID POISONING.—A case of poisoning involving a certain amount of mystery has been investigated by the Sheffield City Coroner. It appears that early on Friday morning, January 19, a man named Beeston rushed into the Brightside Police Station and reported that he had found his wife, Edith Beeston, aged 32, dead in bed. He stated that he was employed on the night shift at Messrs. Brown and Co.'s works, and he had consequently been away from home since 5 o'clock the previous evening. An empty bottle, which had contained poison—prussic acid—was found on a table close to the woman's bedside, but there was no indication as to where the poison had been purchased. The subsequent inquest was adjourned until Friday, January 26, in order that the bottle might be traced, and on that date Detective Flint stated that by means of an old label he found that the bottle was originally purchased from Messrs. Hirst, Brooke and Hirst, of Leeds. It was not suggested, however, that they had supplied the poison. He had been to chemists' shops all over the town, but had not been able to trace the bottle.—The husband gave evidence, and was closely questioned as to his habit of taking medicine and of causing his wife to take medicine prepared by himself, it being suggested that they had not lived happily together. He denied all knowledge of the bottle in question.—The inquest was again adjourned, and on February 9 Detective Flint told the jury that he had not been able to trace the shop from which the bottle had been obtained, and he believed it would be impossible to do so.—Further evidence having been given as to the husband's practice of mixing medicine for his wife, the Coroner advised the jury to bring in a verdict that "Deceased died from prussic acid poisoning, but by whom administered, or for what purpose, there is not sufficient evidence to show."—A verdict to that effect was accordingly returned.

SCOTTISH NEWS.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—At a meeting held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Wednesday, February 7, Mr. Fraser McDiarmid, President, in the chair, Miss Flora C. Madgshon contributed a "Note on Murcia Lemons," which is printed on page 148. Miss Madgshon expressed her indebtedness for the commercial information contained in the note to the courtesy of Messrs. J. Lindsay and Son, fruit importers. The next paper was by Mr. Harry Smith, on "Serums." The author gave a sketch of the life-history of bacteria, and explained the principles of serumtherapy and the process by which immunising serums and antitoxins are obtained by inoculation of a horse free from any infectious disease. He also described the method by which the antitoxic value of the serum was tested before being sent out from the manufactory, and the precautions adopted to ensure its continued activity. In describing the various serums and antitoxins he mentioned that the Yeomanry about to proceed to South Africa had been inoculated with enteric fever antitoxin. A third paper was by Mr. J. Rutherford Hill, on "The Statutory Functions of the Pharmacist," and is printed on page 151. The reading of the papers was followed by a discussion, and, on the motion of the Chairman, votes of thanks were awarded to the authors.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION.—This Association held its second "At Home" for the season in the Masonic Halls, 100, West Regent Street, on Friday evening, 9th inst. Mr. J. P. Gilmour (President) acted as

chairman, and, notwithstanding the Arctic severity of the weather, there was a good muster of members and their friends. An unusually inviting programme of songs, recitations, and dances was presented with unbroken success, and the merry-making was prolonged until after 1 a.m. The following ladies and gentlemen contributed to the evening's entertainment—viz., Misses Hannah, Lynn, Williams, and Barr, and Messrs. Taylor, McNish, Leckie, and McGowan. In the unexpected absence of the Association's honorary pianist, Mr. Kennedy, the Misses Hannah and Lynn played the dance music and accompaniments with ability and resource. When making the intimations during the interval, the Chairman announced that the gratifying success of the social evenings had induced the committee to arrange for a final festival on a big scale in March.

TROOPER ALEXANDER RENNIE, of Bethune's Horse, now on active service in South Africa, is a member of the Pharmaceutical Society, and prior to the outbreak of hostilities was in business on his own account in Johannesburg. He is a native of Aberdeenshire, and served his apprenticeship with Messrs. Davidson and Kay, chemists, Aberdeen, afterwards acting as an assistant in the West-end of London. He went to South Africa in 1894 as manager of a large business in Johannesburg, subsequently commencing business for himself.

THE SALE OF FOOD AND DRUGS ACT, 1900.—According to the *Lancet*, circulars similar to those issued some months ago by the Board of Agriculture in London have been issued by the Local Government Board in Edinburgh to the local authorities of burghs in Scotland. It is pointed out that by Section 23 of the Act now in force all the powers and duties vested in or imposed upon the Secretary for Scotland in relation to the Sale of Food and Drugs Act are transferred to the Local Government Board in Edinburgh. The circulars contain much the same useful information as those which were issued by the Board of Agriculture in London, and which were dealt with in an annotation in the *Lancet* of November 18 (p. 1389). The better control over the manufacture and sale of margarine is the subject of an attached circular. The chief points to be noticed by the authorities who are entrusted with the carrying out of the purpose of the Act are as follows:—The power of the Board, whether in Scotland or England, of securing the execution and enforcement of the Act, the definition of food, the provision of more stringent fines, the enforcement of the Act where negligence is evident, and the fact that it is imperative on every local authority now to appoint a public analyst without reference to a central authority.

IRISH NEWS.

CHEMISTS' AND DRUGGISTS' SOCIETY OF IRELAND (NORTHERN BRANCH).—The annual meeting and reunion of this Society was held on Friday, February 2, in the minor hall of the Y.M.C.A., Belfast. The attendance was large and representative. In the unavoidable absence of the President, Sir James Haslett, M.P., Mr. Wm. Jameson (Vice-President) occupied the chair.—The Chairman extended a cordial welcome to those present, and expressed his gratification at seeing such a large number of their country friends.—The annual report of the Committee was read by the Honorary Secretary, Mr. Rankin, and complimented the members on the progress and prosperity enjoyed by the Society during the year. The Committee recommended members of the trade to affiliate with the Council, with the view of securing, in addition to Mr. Jameson, further representation on the Pharmaceutical Council. The Honorary Treasurer's statement was submitted by Mr. W. J. Gibson, and was of a highly satisfactory character.—The Chairman, in moving the adoption of the reports, dealt at length with the various matters referred to.—The reports were unanimously adopted.—The election

of officers and committee for the ensuing twelve months resulted as follows:—PRESIDENT: Sir James Haslett, M.P. VICE-PRESIDENTS: Thomas M'Mullan, William Jameson, William Doig, John Watson, Samuel Clotworthy. HON. TREASURER: Samuel Gibson, 71 and 73, King Street, Belfast. HON. SECRETARY: W. J. Rankin, 27, Newington Street, Belfast. HON. SOLICITOR: Robert Diamond, 46, Donegall Street. COMMITTEE: Samuel Acheson, Belfast; Henry Backhouse, Dundalk; James Brown, Belfast; John McConkey, Belfast; John Frackleton, Belfast; Robert Cambridge, Carrickfergus; A. R. Hogg, Belfast; Thos. Campbell, Belfast; W. J. Gibson, Belfast; Thomas Gillespie, Banbridge; William Lyttle, Belfast; Samuel Hill, Belfast; John M'Clements, Newtownards; James Gillespie, Lurgan; Samuel M'Dowell, Belfast; Thomas W. Reynolds, Dungannon; James Richardson, Belfast; John H. Shaw, Belfast; Samuel Suffern, Belfast; Jacob Walsh, Belfast; J. D. Carse, Belfast. An interesting programme of music and reading, and a cinematograph display, the latter under the direction of Mr. A. R. Hogg, R.D. of Messrs. Lizars, occupied the remainder of the evening, which was brought to a close by the usual vote of thanks to all who had contributed to the enjoyment of those present.

DUBLIN CHEMISTS' FEDERATION.—A general meeting of the Dublin Chemists' Federation was held (by permission of the Pharmaceutical Society) at 67, Lower Mount Street, on Friday evening, January 26. There was a fair attendance of supporters, although the chairman (Dr. Walsh) took occasion to point out that the attendance was far from satisfactory, and that the chemists of Dublin would be working for their own interests in more heartily supporting the work of the Federation. Several important matters were brought before the meeting, amongst others the Defence and Insurance scheme of the P.A.T.A., and it was the unanimous opinion of those present that the scheme was worthy of all support. A resolution was also passed repudiating the views recently expressed in the *Medical Press* that chemists could not be trusted to compound prescriptions containing minute doses of potent drugs, and that consequently the medical profession had to rely on factory-made tablets and pills. The Secretary was directed to forward the resolution to the *Medical Press*. The former office-bearers were re-elected. Mr. F. J. Jackson (Marshall's Pharmacy) and Dr. McWalter were added to the committee. Mr. W. Vincent Johnston was elected a member of the Federation.

PHARMACEUTICAL SCHOOL OF CHEMISTRY.—The class for theoretical chemistry and physics at 67, Lower Mount Street, Dublin, is now open, the inaugural lecture having been delivered on Thursday evening, the 1st instant, by Professor Binks, late "Young" Scholar of Anderson's College, Glasgow.

MEDICINE CONTRACTS.—The Local Government Board has requested the Castleblaney Guardians to warn the medicine contractors formally that their services would be dispensed with if they again supplied inferior drugs. On the report of the analyst that the drugs were of an inferior quality, they should be returned and fresh ones obtained in lieu thereof.

A DISPENSER EXPLAINS.—At the last weekly meeting of the Guardians of the Cork Union a letter was read from Mr. Lee, dispensary officer at the North Dispensary, Cork, in reference to the case of a patient named Eugene O'Sullivan, who was poisoned by drinking a liniment supplied from the dispensary. He stated that the liniment was labelled "Caution—for external use only," and that if the patient did not read the "caution" label it is not likely that a "poison" label would have averted the unfortunate result. In future, however, he would be most careful to attach a "poison" label to all medicines for external use. In consideration of the high character of Mr. Lee, who for years has been a most careful and efficient officer, the Guardians deemed his explanation entirely satisfactory.

PHARMACEUTICAL SOCIETY.

Evening Meeting.

The third evening meeting of the session in London was held in the Pharmaceutical Society's house, 17, Bloomsbury Square, W.C., on Tuesday, February 13. The PRESIDENT, Mr. W. Martindale, took the chair at 8 o'clock, when a paper was read by Mr. EDMUND WHITE, B.Sc., on:—

AROMATIC SPIRIT OF AMMONIA.

The full text of the paper will be found at page 144 *et seq.* In opening the discussion on the paper,

The PRESIDENT said they had heard a very interesting paper by Mr. White. The subject of sal volatile had been a fertile one for amateur analysts to experiment upon ever since he could remember. Thirty-five years ago a number of specimens of sal volatile were obtained from various pharmacists of good repute, and many of them were condemned as not being up to the proper standard. It was a matter open to debate whether they were or were not as good specimens of sal volatile as those shown by the process of the London Pharmacopœia. The process then used was different to the one now employed. Ammonium carbonate and ammonium chloride was mixed with a certain quantity of alcohol, and the aromatics, cloves, cinnamon, and fresh orange peel were added. That indefinite process gave a very uncertain result, and the consequence was that the preparation of sal volatile was an art that got into very few hands. It contained, in addition to a certain amount of ammonium carbonate in the neutral condition, a quantity of free ammonia gas. When the Pharmacopœia of 1867 was produced the process was altered. Professor Redwood and other authorities revised the process, and seeing that the object was to obtain as large an amount of normal carbonate without being caustic in the liquid preparations, that mixture was obtained by reversing the proportions of ammonium carbonate and strong solution of ammonia that were now ordered by the Pharmacopœia. Instead of 4 oz. of ammonium carbonate and 8 oz. of strong solution of ammonia, they were ordered to use 8 oz. of ammonium carbonate and 4 oz. of strong solution of ammonia, to which were added the lemon, nutmeg and a certain quantity of water, and the mixture was then distilled. In that distillation there was always a large loss of carbonic acid, but that was not taken into consideration by the amateur analysts at that time. He remembered that about 1871 the matter was taken up by an analyst, who reported on specimens obtained at various pharmacists' in London, and the result showed that even by that crude process of 1867 they were very deficient, both in the amount of ammonia gas that could be obtained from them—the amount that was capable of being utilised by the acid—as well as in the amount of carbonic acid to be obtained from them. He conducted some experiments himself, and showed that using those proportions, 8 oz. of ammonium carbonate and 4 oz. of strong solution of ammonia, which nearly produced a normal carbonate of ammonia solution, when that was mixed with the required amount of alcohol it produced a magma which contained a quantity of crystals. It was not a clear solution. It was not possible that the amount of ammonia that was theoretically given by the formula could be in solution in alcohol. To free the volatile oils from the resinous matter they were apt to show by keeping, especially oil of lemons, and oil of nutmegs to a certain extent, Dr. Thresh said it was better to distil the oil and add that to the solution obtained by dissolving the carbonate of ammonia by the aid of a strong solution of ammonia in as little water as possible, and then mix them together. Although that purified the sal volatile from the resinous matter present in the essential oils, which tended to darken the colour, it was objected that the carbonate of ammonia then in commerce and the solution of ammonia were not sufficiently pure to give a good-flavoured sal volatile by distilling in the way intended by the Pharmacopœia process of 1867. Theoretically, that process did not work badly on a small scale; but on a large scale the ammonia salts were apt to get up in the worm of the still and

block the tube and render it impossible to carry out the process. Since Dr. Thresh read his paper in 1883 the purity of the carbonate of ammonia had very much improved, and the strong solution of ammonia was also much purer than it had been up to that period. Therefore, the process in the Pharmacopœia he thought now gave fairly good results. In some respects the present process was a little easier than the previous one. Mr. White had told them that if it were deficient in the amount of ammonia it was easy to remedy that by adding strong solution of ammonia to the sal volatile. In his very interesting paper he had not given any of the results tested by the lead process.

Mr. UMNEY said that they were all glad to have the opportunity of listening to so excellent a pharmacist as Mr. White, more especially on a really pharmaceutical subject. The ventilation of vexed questions of that kind would be of very considerable assistance to those who might have to compile the next Pharmacopœia. In the 1885 Pharmacopœia the specific gravity was recorded as 0.886, but he remembered that after correspondence between the late Mr. Conroy and Dr. Thresh it was altered to 0.896. He had made many experiments which showed that if the volume of sal volatile were adjusted to one gallon the specific gravity was at least 0.899, whilst if the volume were left without making up it was about 158 ozs., and the specific gravity 0.896. They imagined that when the Pharmacopœia, 1898, was issued that it was in every respect perfect. Mr. White had shown, however, that the monograph was fallacious in certain respects, and he could confirm two of the points to which he had referred. In the first place he had also ascertained that liquid ammonia sp. gr. 0.891 had not the true ammonia strength required by the British Pharmacopœia, and it was necessary to substitute liquid ammonia of specific gravity 0.880, and in making sal volatile, using powdered ammonium carbonate, it had been their custom to make due allowance, using 4 lbs. instead of 3½ lbs., making a difference of 13 or 14 per cent., so as to bring it on the right side. Mr. Martindale had referred to the darkening of the sal volatile, and attributed it to the resinous matter in the essential oils used; but he was inclined to think it was due to traces of aldehyde, which formed aldehyde-ammonia compounds. He congratulated Mr. White on his very able paper, which they would be able to follow better when they saw it in print.

Mr. MACEWAN said he should regret to see Dr. Thresh's test given up, as it was exceedingly convenient for the ordinary pharmacist; and he thought Mr. White had given them a point in his paper upon which they might retain it. He showed that by using the Pharmacopœia quantity of the spirit, with the prescribed amount of barium chloride solution, and, after filtration, adding a little ammonium carbonate, the filtrate remained clear; but with 1 C.c. more of the spirit, distinct milkiness was produced when the carbonate was added. Why not make a slight alteration to take advantage of that? Nine out of ten ordinary pharmacists had not sufficient mercury for the nitrometer test, and they had not a nitrometer. It was desirable to retain these simple methods in order to encourage them to test their preparations. He thought the paper one of great value, but if Mr. White attempted to reckon up the vapour tension in the gasometric test, he was afraid he would never get through it, because the tension of the essential oils would very much complicate the reckoning.

Mr. BIRD said most of them had been struck with the uncertainty of the present barium chloride test. Sometimes it gave a response, and at other times, under apparently similar conditions, it refused to give an immediate indication. Of course it was possible, by adding a little more ammonium carbonate or strong solution of ammonia, to make any spirit answer the Pharmacopœia requirements in the matter; but the light which Mr. White had thrown on the subject came quite as a surprise to most of them. They had never suspected the accuracy of the test. With regard to the darkening of the colour which Mr. Umney mentioned as being generally due to other substances than the resins contained in the essential oils, he could not agree with him as to that. He thought sal volatile prepared by dissolving the ammo-

nium salt and strong solution of ammonia in a mixture of spirit and water, rather than in the last separately collected portion of distillate, kept much whiter than that prepared according to the strict letter of the Pharmacopœia process. They were all indebted to Mr. White for having brought this important subject forward.

Mr. HOLMES expressed his regret at seeing so few of the leaders of pharmacy present to hear Mr. White's valuable and interesting paper. There had been a few years ago complaints of the scarcity of papers on practical pharmacy, and it was unfortunate that when a good one was read, which must have cost its author a great deal of time and trouble, only one member of Council and one examiner and none of the professors were present. Possibly the very inclement weather and the prevailing epidemic accounted for it. Twenty-five years ago the reader of a paper of this kind would have been encouraged by the presence of all the professors and their demonstrators, many of the members of Council, and some of the examiners. It was also to be regretted that the editor of the Pharmacopœia was not present. It was, however, a good sign that so many of the rising generation were present, and he hoped that Mr. White would feel encouraged by the attentive reception they accorded his paper, and be willing to give them another paper on a future occasion.

Mr. WILSON said he felt sure it was more the very bad weather than any lack of interest in the subject which accounted for the attendance not being larger. Referring to Mr. MacEwan's remarks, he said he thought it was rather going out of the way to propose to simplify tests merely to save trouble when there were tests which were really accurate, and which no one who would take the trouble would have any difficulty in applying.

The PRESIDENT moved a cordial vote of thanks to Mr. White for his able and exhaustive paper, which was carried by acclamation.

Mr. WHITE acknowledged the vote of thanks and commented briefly on the remarks of those who had taken part in the discussion.

RECENT DONATIONS TO THE MUSEUM.

Mr. HOLMES then drew attention to some recent donations to the Museum, which were exhibited on the table. One consisted of a series of caffeine and some of its salts—viz., citrate, hydrobromide, hydrochloride, oxalate, and salicylate, which were presented by the manufacturer, Mr. Geo. Whiffen, who had also added an instructive series of the cheap forms of tea from which the alkaloid was prepared. These consisted of tea fluff, tea dust, denatured tea, and the sweepings of the warehouses. Attention had already been directed to the commercial sources of caffeine in the *Pharmaceutical Journal* [4], 9, p. 495. Another exhibit consisted of specimens of dried English aconite root, in two forms, from Miss A. H. Squire, of St. Neot's. This lady found that the root was not easily dried unless sliced, and the usual practice was therefore to slice it longitudinally before drying. The quality of the root was easily observed in this form of the root, although the whole root might possibly be more convenient for students to examine its structure. It had been stated that there was some difficulty in obtaining English-grown root, but he had been assured by Miss Squire that there would be no difficulty whatever in supplying the wholesale trade at 1s. per lb. It was simply a matter of price. A third exhibit consisted of specimens illustrating the application of betulin and its pyro-derivatives in pharmacy and in the arts. These were presented by Mr. J. Wheeler, of Ilfracombe, who had already shown by the application of the natural mucilage present in the seaweed *Laminaria saccharina*, as an emulsifier containing iodine, for cod liver oil, and by the application of cleanly preparations of wood tar as insecticides, how a country pharmacist may turn to account his scientific education. Mr. Wheeler had sent specimens of plaster and of lint and of boric acid powder filmed with pyro-betulin by his patented processes. These preparations had been experimented with by medical men, and had been shown to possess very marked antiseptic advantages, whilst having an agreeable odour recalling that of Russia leather. Mr. Wheeler had also patented the applica-

tion of pyro-betulin for the purpose of forming ornamental patterns on glass, which bore resemblance to those made with ground glass, over which they possessed certain advantages.

Donations to the Library and Museum.

At a meeting of the Library, Museum, School, and House Committee, on Wednesday, February 14, the Librarian and Curator presented the following reports of donations:—

TO THE LIBRARY (LONDON).

Street Brothers, London:—Street's Newspaper Directory, 1900.
T. B. Browne, Limited, London:—The Advertisers' A.B.C., 1900.
F. Manson Bailey, F.L.S., Brisbane:—Contributions to the Flora of Queensland, etc., five pamphlets.
Koloniaal Museum, Haarlem:—Gids voor de Bezoekers, 1900.
Université libre de Bruxelles:—Rapport sur l'année académique, 1898-99.
Ecole supérieure de pharmacie de Paris:—Thèses par MM. G. Baudran A. Jaboin, L. Feltz.
Mr. W. Harvey, London:—Pharmacopœia of the City of London Hospital for Diseases of the Chest, Victoria Park, 1900.

TO THE MUSEUM.

Mr. Geo. Whiffen, Battersea:—Specimen of Caffeine and the following salts, Citrate, Hydrobromide, Hydrochloride, Oxalate, and Salicylate. Also specimens of Tea Fluff, Denatured Tea, Tea Dust, and Tea sweepings.
The African Lakes Corporation, Ltd., Glasgow:—Specimen of *Strophanthus* with flowers, leaves, and fruit.
Messrs. Hearon, Squire, and Francis:—Specimen of B.P. Asafetida in the tear; genuine *Pareira brava*; and flat Bolivian Calisaya Bark.
Messrs. Wright, Layman, and Umney:—Specimen of genuine *Pareira brava*
Dr. E. Ormerod, Boulia, Queensland:—Specimen of Pituri.

TO THE MUSEUM (EDINBURGH).

Miss F. C. Madgshon, Edinburgh:—Bark of *Melaleuca leucadendron*.
Messrs. Duncan, Flockhart and Co. (per Dr. Geo. Murray, Edinburgh).—Seeds of *Cassia absus* and *Cassia auriculata*.

PHARMACEUTICAL SOCIETY OF IRELAND.

Meeting of the Council.

On Wednesday, February 7, the monthly meeting of the Council was held at the Society's House, 67, Lower Mount Street, Dublin, the PRESIDENT, Mr. George D. Beggs, in the chair.

The PRESIDENT, who took the chair for the first time since his election, thanked the Council for electing him, and expressed regret at Mr. Downes' retirement.

A letter from Mr. Robert J. Downes, the late President, acknowledged the receipt of the resolution passed at the last meeting of the Council in reference to his retirement from office, and he thanked the members of the Council for the terms in which they had referred to his services. He hoped to be able after a while to resume his labours as a member of the Council.

A letter from the Secretary of the Congested Districts Board of Ireland stated that one of the industries which that Board encouraged was bee-keeping; and in the working of the hives on the modern system it was necessary, for the purpose of subduing the bees, to use a solution of Calvert's No. 5 carbolic acid. That particular form of the acid could be had of very few chemists or druggists in the Congested Districts. The Board would therefore be much obliged if the Council would be good enough to obtain authority for them to supply bottles of the acid along with the appliances to accompany the hives. The bottles would be supplied at cost prices and unopened.

The Registrar was directed to reply that it was not in the power of the Council to comply with the request.

Reports from the examiners showed that at the last Preliminary examination twenty-four candidates presented themselves, of whom eighteen passed; that at the last License examination sixteen candidates presented and six passed; that at the Registered Druggists' examination, held in Dublin, four candidates presented, and all passed; and that at the examination for Pharmaceutical Chemists' Assistants three candidates offered themselves, of whom two passed.

Dr. WALSH directed attention to the fact that the *Medical Press and Circular* had made some observations to the effect that pharmaceutical chemists were incapable of making up prescriptions con-

taining minute doses of potent drugs. The *Pharmaceutical Journal* very creditably took the matter up, and then the *Medical Press* published a further article on the subject. It was headed "Tabloids v. Prescriptions," and was as follows:—

The *Pharmaceutical Journal* in its last issue charges us with having "impudently asserted that compressed tablets afford facilities for the administration in minute doses of the very active alkaloids which the practitioner prudently hesitates to order in a prescription." We did say so, and we adhere to the statement, and call the general practitioner as our witness. We never had the remotest intention to belittle the skill of the pharmacist, but we should like to see the general practitioner who would venture to hand to a patient from the country a prescription for half-a-dozen pills, containing each of them, say, a thirtieth of a grain of strychnia, or phosphorus, or strophanthin, or cocaine, or atropine. Our contention is simply that such drugs as these cannot be compounded even by the most capable and conscientious chemist without the risk that the entire dose will be concentrated in one or two pills, and we are convinced that the Editor of the *Pharmaceutical Journal* knows this perfectly well. The tabloid makers can grind a drachm or an ounce of strychnia into a multitude of tabloids, but the individual dispenser cannot be certain of effecting the same subdivision with safety for half-a-dozen pills, no matter how hard he tries.

Dr. Walsh said he had mentioned the matter that day to a past President of the College of Physicians, who said the statement was ridiculous, and that if he wanted a dose containing a potent drug to be accurately made up he would far rather send it to one of the Dublin pharmacies that he had confidence in than have recourse to some of those tabloids, made wholesale, the making up of which he knew was attended with far greater risk. The statement against which they protested had been made without a shred of evidence to support it. There was not a day in any of the three or four large cities in Ireland—to say nothing of the rest of the United Kingdom—on which hundreds of such prescriptions were not made up, and how was it that they had never heard of such doses injuring anyone? It was a case of setting the wholesale dealer against the retailer, but he maintained that a careful pharmacist, working with a small quantity of the drug, was more to be relied on than the girls who were usually employed by the wholesale makers to carry out the details of their work.

The PRESIDENT said his experience was that the medical practitioner much preferred to get his prescription made by a chemist whom he knew, rather than to depend on the manufactured tabloids or tablets that are now flooding the market. He hoped some means might be found of disseminating the views of the Council so that medical men might read them.

Mr. WELLS thought the Council owed it to its licentiates; to the medical profession, who had ably supported the pharmacæutists of the country; and to the public, to refute the statements that had been published in the *Medical Press*. If the writer of the article had looked about him in Dublin he would have found many eminent medical men who preferred to trust the pharmacæutists to deriving medicines from other sources, and who did not seek to degrade the pharmaceutical profession by saying that its members were not able to make up prescriptions. There was no difficulty in subdividing things, and when prescriptions were made up by the pharmacist the patient and the physician were sure to get fresh drugs, which could not be said of the ready-made pills. It was a much greater difficulty accurately to subdivide active remedies where large masses were dealt with.

After further discussion, it was decided to send an official letter and a copy of the report of the discussion to the *Medical Press*.

Evening Meeting.

At Dublin, on Monday, February 12, the usual fortnightly meeting for the discussion of scientific and practical subjects was held at 67, Lower Mount Street, Mr. P. K. LLY, M.C.P.S.I., in the chair.

Mr. J. SMITH read some

NOTES ON BOTANY AND MATERIA MEDICA.

He said the technical terms used in botany were great stumbling-blocks to the beginner. That was not to be wondered at, as the

foreign words used in descriptive botany were quite out of keeping with the words used in any of the other sciences. It was a great pity that the study of botany should be rendered difficult by an indefinite multiplication of Greek and Latin words when their English equivalents answered the purpose equally well. To interest the student in plant life the English equivalent of foreign words should be used, then he would by degrees master the technical terms generally; so long as the description of drugs appeared in the Pharmacopœia in technical language it was necessary to know the meaning of the words occurring in the B.P., although that did not by any means exhaust the vocabulary. There was such a thing as pharmaceutical botany just as there was pharmaceutical chemistry, and to be able to study *materia medica* intelligently it was absolutely necessary that pharmacists should know a good deal of botany and be able to recognise plants used in the cure of disease by their descriptions.

MANCHESTER PHARMACEUTICAL ASSOCIATION.

At a meeting of this Association, held at the Victoria Hotel, on Wednesday, February 14, the PRESIDENT, Mr. G. S. Woolley in the chair, a paper was read by Mr. JOHN TAYLOR, of Bolton, on

THE OUTLOOK IN PHARMACY,

and is printed in full at page 148.

Mr. JOHNSTONE said he did not agree with much of what Mr. Taylor had said. At the same time they had to be practical in every-day life, and much of what he had said in regard to the trading part of the business was essential. It would be necessary for them to stick to the question of personal qualification in the future, but how it was to be managed he did not know. Whether it would be a hindrance to what had been presented in regard to the qualified directorate and the qualified men he could not say, but there was one thing he should like to say, that was that the success of a business lay very much in personal effort, and when they found a man attending to the business and giving personal effort there was a living. Chemists were too much inclined to look to the Government to help them, rather than putting their shoulders to the wheel. He urged also that they should make friends of their customers, and act as friends to them, and thereby secure public appreciation. Another matter was *esprit de corps*. If they could impress upon their young men that it was wrong to take a situation under a company carrying on business in an irregular manner, they would have a considerable advantage, and that would gradually widen and extend.

Mr. HARRY KEMP spoke of the attitude of the Society in regard to personal qualification in reference to the Pharmacy Bill. In this connection, he took it that they had all seen that the President of the Society had within the last two months communicated with Mr. Ritchie concerning the Companies Bill. Either Mr. Martindale had acted on his own initiative or he had acted at the instigation of his committee, but he failed to get an answer as to which it was, and he thought they as pharmacists, and especially as members of the Association, should have an answer to that question. The reason why they in particular should have an answer was that they would remember the Council of that Society in November met and discussed the proposals sent by the Federation. The Council of the Manchester Association took its stand, and passed a resolution embodying a petition to the Council of the Pharmaceutical Society, and to that no less than 189 signatures of qualified chemists were added in two days as representing their opinion. That opinion, it seemed to him, had been set aside, and he thought it was necessary that they should have an explanation of the reason why the Council or its President had written a letter to Mr. Ritchie without embodying the strong point which was urged by that Association.

Further discussion followed, and a vote of thanks was passed to Mr. Taylor for his paper.

NORTH STAFFORDSHIRE CHEMISTS' AND DRUGGISTS' ASSOCIATION.

At a meeting of this Association, held at the Roebuck Hotel, Stoke-on-Trent, on Thursday, February 8, the chair was taken, in the unavoidable absence through illness of the President, Mr. Averill, by Mr. T. C. CORNWELL.

Mr. JOHN SMITH, of Liverpool, President of the Federation of Local Pharmaceutical Associations, delivered an address on

Present Pharmaceutical Politics.

Speaking of the Federation, he said he held very strong views as to its capabilities and possibilities. As an organisation it was representative of practically all the pharmaceutical associations in the country. Prior to the formation of the Federation, local associations had been working separately without any connection with other similar bodies, and there had thus been a considerable waste of power. Mr. Thompson, of Birmingham, conceived the idea of the Federation with the object of bringing the associations together to enable them to form a body which would focus the opinions of the associations and concentrate their forces. The Federation had no connection whatever with the Pharmaceutical Society, though each local association was composed chiefly of men connected with the Pharmaceutical Society. The local associations could do very little without the Pharmaceutical Society. They might hold their meetings and discuss matters; but they could not initiate legislation; they could not exercise any influence on any of the Government departments; in fact, no local association had any power whatever outside the Pharmaceutical Society. He thought, therefore, that the local associations should work along with the local secretaries of the Pharmaceutical Society. With regard to the election of the Council of the Pharmaceutical Society, his own view, up to within the last few months, was that the Federation of Pharmaceutical Associations would make a mistake in interfering with the election of members of the Council. But it was quite possible that circumstances might alter cases. The Council was their representative body, and if the members of Council did not do what they ought, then it might possibly be the duty of the Federation to use some sort of pressure in the matter. After speaking of the representative character of the Federation, and of the necessity for funds to cover working expenses, Mr. Smith said there was a great future for the Federation, and he thought it was capable of very extensive developments. Proceeding, Mr. Smith said the question which they were all interested in at the present time was

THE COMPANY TRADING QUESTION.

At the present time there appeared to be a deadlock. There had been a difference of opinion in the Pharmaceutical Council as to what position should be taken up in the matter. There had been resolutions passed by a large number of associations in the country, and the President—Mr. Martindale—had recently written a letter to Mr. Ritchie, the President of the Board of Trade, in which he related the history of this pharmaceutical question, and had crystallised the opinions of the Council in these words:—

That inasmuch as a limited liability company could not be examined and registered in accordance with the provisions of the Pharmacy Acts, it should be unlawful for any such company to assume or use any title implying registration under those Acts, and that it is not desirable, in the public interests, that any person not registered under the Pharmacy Acts should be permitted to exercise any control over the retailing, dispensing, or compounding of poisons.

That was all very well if it had been a little more definite. There was that one word "control," which was subject to many different meanings or applications. Everything depended upon

what significance was given to the word "control." Mr. Glyn-Jones had taken up the view of the *Chemist and Druggist*, that it would be sufficient to have the directors qualified, and there had been other suggestions put before them. The question would be submitted to the Houses of Parliament in the Companies Bill, and it was for chemists to consider what steps they would take in regard to the matter. Were they willing to accept that clause of the Lord Chancellor's as a solution of the difficulty? If not, what should they do or what proposals had they to submit in opposition to it? Well, they had the choice of three different proposals as far as he could see. One was simple opposition to the proposals of the Lord Chancellor, but if they opposed without offering alternative proposals they would simply be placed out of court, because there was an admitted evil to be remedied. The alternative of Mr. Glyn-Jones and the *Chemist and Druggist* was that qualified directors would be sufficient. The third plan was the Scotch proposal that each shop should be subjected to certain regulations, and that any company should be allowed to carry on the business of a chemist and druggist, provided it had the name of the manager fixed over the shop door, showing that it was in his name and that the business was carried on for the company. His own view was that it was not desirable that which was simply a money-making concern should have any control over the business of dispensing medicines and selling poisons. He thought that no unregistered person should have any control over dispensing, and if the President's letter to Mr. Ritchie was to be taken in that sense he would agree with it; that no unregistered person, no company of persons who were not registered, should in any way exercise any control over the dispensing of medicines. The Council was divided, however, and many of the members did not know where they stood. It became necessary to consider, therefore, what was the duty of the Federation at the present time. Any action taken must be through the Council, but the members of Council were not agreed. He thought the first duty of the Federation was to recognise the fact that if anything was to be done it must be done with some show of unanimity. One of those present at the meeting had spoken to him about "An Ordinary Pharmacist" who had been writing in the *Pharmaceutical Journal*. He was certainly a man who had a very wide knowledge of pharmaceutical affairs, and from the time he commenced writing, about three months ago, he had been an out-and-out supporter of the idea of not recognising companies in any form whatever; but even he seemed to think it might be necessary to effect some compromise. It would perhaps be sufficient to show in the House of Commons and the House of Lords the difficulties that at present exist in the pharmacy law, if they were to publish reasons for an amended Pharmacy Act. He would like to mention some of them. In the first place, where a company of unregistered persons, through a qualified individual, sold poison, the company could not be got at. That was the only instance he knew in common law where the employer was not responsible for the actions of his servant. Another point was raised by the recent decision in a weed-killer case, where the defendant, in his opinion, most distinctly kept open for the sale of poison. There was also the question of penalties. In England there was a stated penalty of five pounds for each offence under Section 15, but in Scotland the judges had power to reduce the amount, and the Pharmacy Act in Scotland was practically a dead letter. Another matter for consideration was the

DISPENSING OF MEDICINES IN DOCTORS' SURGERIES.

Restrictions were imposed upon registered chemists as to the compounding of poisons and the selling of them, and yet medical men could employ their grooms, housemaids, or anybody else to dispense their medicines—any unqualified person, but they were outside the Pharmacy Act. The Pharmacy Act expressly excused medical men and veterinary surgeons, but they certainly ought, in the public interest, to be included. Any establishment where medicines were compounded or dispensed ought to be regulated

by the Pharmacy Act. He certainly thought that if the public interest required, the dispensing in chemists' shops should only be done by qualified men. The public interest certainly required that that should be so in doctors' surgeries. After speaking of the question of titles, Mr. Smith said he thought he had said sufficient to show that there were a great many things that wanted altering in the Pharmacy Law, and that they could only be met in

A NEW PHARMACY BILL.

As far as he could see, the line upon which they would have to work was to actively work the Parliamentary representatives. He had mentioned something which appeared in the *Pharmaceutical Journal* about the possibility of some compromise being arrived at, and they might say that perhaps some compromise would be necessary. He strongly objected to any compromise which would allow companies to do that which individuals could not do, but he thought a basis for a new Pharmacy Act could be found more on the lines of the Irish Pharmacy Act as it is now. He thought there ought to be a rearrangement of examinations, for one thing. There ought to be a systematic course of study; and then as to the mixing and compounding of poisons he was prepared to go with the majority simply because he represented the Federation, and the Federation must go with the majority, whatever his personal opinions might be. If the majority of the local associations said that they were in favour of one set of notions, it would be his duty to endeavour as far as he possibly could to carry out the wishes of the majority of the associations. But personally he thought the solution was to be found in a compromise which should provide that the dispensing of poisons and other medicines should be absolutely restricted to properly-qualified individuals, and there should be some guarantee that such work was done by qualified individuals in every establishment. He thought they must insist as far as they possibly could upon the mixing of poisons and the dispensing of medicines by qualified persons, and by persons who had a reputation to lose. A company had no body or soul or anything else, but an individual had a reputation at stake. If active work were done in nearly every Parliamentary constituency, then something might be done to show that the feeling was very strong in the pharmaceutical community against the solution of the problem proposed by the Lord Chancellor. In going before Parliament, however, they must take up a strong position, and, in opposing the proposals of the Lord Chancellor, be prepared to give an undertaking to deal with the whole question at an early date.

In the discussion which followed, the views expressed by Mr. Smith were generally supported, and a vote of thanks to him, proposed by Mr. CORNWELL and seconded by Mr. POOLE, closed the proceedings.

CHEMISTS' ASSISTANTS' ASSOCIATION.

There was but a poor attendance at 73, Newman Street, W., on Thursday, February 8, doubtless owing to the fact that many of the members had the previous evening assisted in making the Junior Pharmacy Ball the success it was, and were recuperating. In the absence of the President, the chair was taken by the VICE-PRESIDENT, Mr. H. Hymans.

The HON. SECRETARY, Mr. J. EVANS, having read the minutes, which were confirmed, Mr. H. A. MARTIN communicated a paper on

QUININE.

In his introductory remarks, he said that whilst looking up the subject of quinine, he found the history connected with the barks so full of interest that he thought to all pharmacists it would be equally as interesting as to himself, hence he intended to give a brief summary. The paper, which will be printed next week, was supplemented by a number of very fine specimens of succirubra, calisaya, and officinalis barks, and the barks obtained by the processes of mossing, coppicing, and shaving. In concluding his paper, Mr.

Martin expressed his thanks to Messrs. Willows, Francis, Butler, and Thompson for specimens lent.

Mr. HYMANS, having voiced the pleasure experienced by those present in listening to the paper, referred to artificial quinine, and remarked that it was a curious thing that up to the present chemists have not been able to synthesise it except as quinidine. With regard to the usefulness of quinine, he supposed to Imperial England it was invaluable, as only by its use was colonisation possible in some parts of the world, especially on the West Coast of Africa. The question of doses was an important one, and it was curious to note how in different countries the dose varied. He believed that in West Africa ten to twelve grains of quinine sulphate was a usual dose. The absorption of water by quinine was a point of interest, as it frequently happened that on turning into the scale what had been bought as 100 oz., only 97 oz. or 98 oz. would be found, the deficiency being due to loss of water. He then referred to the fluctuation in the price of quinine, and remarked that there seemed to be a great deal of gambling done in it.

Mr. A. LATREILLE, in proposing a vote of thanks to Mr. Martin, said mention was made in the paper of oleate of quinine. He should like to know if the author had any experience of the use of quinine in hair lotions. Personally, he was rather dubious about its efficacy.

Several other members having spoken as to the merits of the paper and of cinchona alkaloids, Mr. MARTIN replied, and in answer to Mr. Latreille, said he was of opinion that in hair washes and lotions quinine was decidedly useful as a tonic.

A hearty vote of thanks was then accorded to Mr. Martin by acclamation, and the meeting terminated.

CHEMICAL SOCIETY.

At a meeting held on Thursday, February 1, Professor THORPE, F.R.S., President, in the chair, a paper on

THE CHLORINE DERIVATIVES OF PYRIDINE

was read by W. J. SELL, M.A., and F. W. DOOTSON, M.A., dealing with the constitution of citrazinic acid, and the formation of *aa'*-dichloropyridine and *aa'*-di-iodoisonicotinic acid.

Although it was already known with little doubt that the hydroxyl groups present in citrazinic acid occupy the *aa'* positions relative to the nitrogen atom, the authors thought it desirable to obtain the confirmatory evidence offered by the experiments undertaken. By the action of phosphorus pentachloride on the diamide of β -oxyglutaric acid an amino-tetrachloropyridine was obtained, in which the nitrogen atoms must be adjacent. By acting on citrazinic acid with phosphorus pentachloride a dichloroisonicotinic acid is formed, which exchanges one of the chlorine atoms for an amido group by treatment with ammonia, and on treating this product with phosphorus pentachloride the carboxyl group goes out, an amino-tetrachloropyridine being formed, which is identical with that obtained by the first method. This shows the position of one of the hydroxyl groups.

Then it was shown that the two hydroxyl groups occupy similar positions in the molecule relative to the nitrogen atom. The amino-chloroisonicotinic acid being treated with nitrous acid gave up the amino group in exchange for hydroxyl. This substance by treatment with aqueous ammonia exchanged the chlorine atom for an amino group giving an amino-hydroxyisonicotinic acid, which was converted by phosphorus pentachloride into the same amino-tetrachloropyridine obtained when dealing with the first hydroxyl group. Di-iodoisonicotinic acid is produced as an intermediate compound in the reduction by hydrogen iodide of dichloroisonicotinic acid to isonicotinic acid. The production of *aa'*-dichloropyridine by heating the silver salt of the corresponding dichloroisonicotinic acid in a stream of carbon dioxide was also described.

Dr. RUHEMANN rose to point out that the work of Behrmann and Hoffmann, as well as the knowledge respecting the carboxylic acids of dihydroxypyridine had already proved conclusively the constitution of citrazinic acid.

In reply to this observation Mr. SELL expressed the opinion that it was important to have the evidence of experiments in which the yield was almost theoretical, while the work of other authors had left something like 80 per cent. of the products of reaction unidentified.

A paper by S. Ruhemann and H. E. Stapleton on

THE FORMATION OF HETEROCYCLIC COMPOUNDS

was next read.

This work is the continuation of a research upon the interaction of organic bases and ethereal salts of acids of the acetylene series, the present paper dealing chiefly with products derived from ethyl phenyl propiolate. With benzamidine it gives, in addition to the benzal phenyl glyoxalidone, described in a former paper, a second compound, namely, diphenylpyrimidone. The peculiar interest attached to this reaction is that the substituted amide first formed condenses a part in one way and the remainder in another at the same time. In the first case the first atom of the chain becomes joined to the sixth, forming a ring of six links, and in the second the first atom becomes joined to the fifth, forming a ring of five links. The compounds formed with urea, thiourea and guanidine were also described. The ethyl salt of acetylene dicarboxylic acid interacts with *o*-phenylenediamine, giving ethyl quinoxalidone acetate, which is hydrolysed with loss of carbon dioxide to form methylquinoxalidone. Ethyl malonate and the ethyl salt of acetylenedicarboxylic acid react to form ethyl propenetetra carboxylate; by the action of ammonia on this substance there is produced the ethyl salt of *aa'*-dihydroxypyridine- β -dicarboxylic acid, which on being hydrolysed with hydrochloric acid loses the β -carboxyl group and gives citrazinic acid.

A paper by William Jackson Pope and Stanley J. Peachey, on

THE SPACE CONFIGURATION OF QUADRIVALENT SULPHUR DERIVATIVES,

was then read by Mr. POPE.

The materials chosen for the work were methyl-ethyl-thetine-dextro-camphorsulphonate and dextro-*a*-bromocamphorsulphonate. Hitherto attempts to obtain salts of asymmetric thetines and sulphonium compounds with optically active acids have always yielded uncrystallisable products, but the authors were able to obtain microscopic prisms of the methylethylthetine dextro-camphorsulphonate by crystallisation from alcohol diluted with ether. The dextro-*a*-bromocamphorsulphonate crystallised also in silky white needles. It was found that the molecular rotatory powers of these salts in dilute aqueous solutions corresponded with the rotatory powers of the optically active acid ions; hence the basic thetine group possesses no optical activity. There is no resolution of the asymmetric thetine into optically active components, since it was possible to isolate more than one-half of the thetine bromide as the pure optically active sulphonate, and it was considered extremely improbable that the both salts should be partially racemic, containing a dextro- and *l*ævo-thetine radicle; and the conclusion must follow that if sulphur exists as a quadrivalent element in these salts, the four atoms attached directly to the sulphur atom lie in the same plane with it, and that quadrivalent sulphur cannot yield enantiomorphous configurations.

A paper by Mr. O. Forster was also read, on

NITRO-CAMPHANE.

This paper described the properties of nitro-camphane and some of its derivatives. By the action of potassium hypobromite on camphoroxime the product obtained is a bromo-nitro-camphane, although it gives Liebermann's reaction for nitroso-compounds. Nitro-camphane is obtained from this bromo-derivative by reduc-

tion with alcoholic potash. Pseudo-nitro-camphane is obtained by acidifying a solution of nitro-camphane in potash; it is distinguished from nitro-camphane by its melting point and behaviour towards ferric chloride. It is transformed into the normal modification either in the solid or dissolved state, the presence of alkalis or piperidine and the influence of sunlight accelerating the change. Chloro-nitro-camphane is produced by the action of sodium hypochlorite on camphoroxime; iodo-nitro-camphane is formed as a precipitate when iodine dissolved in potassium iodide is added to nitro-camphane dissolved in potash. All these substances give the Liebermann reaction. Hydroxylamino-camphane is obtained when nitro-camphane is reduced with aluminium amalgam. It reduces ferric chloride, ammoniacal silver nitrate, and Fehling's solutions rapidly in a cold solution.

Several papers were then taken as read.

Obituary.

ATKINSON.—On February 2, Joseph Atkinson, Chemist and Druggist, Tynemouth. Aged 56.

BATES.—On January 19, William Isaac Bates, Chemist and Druggist, Macclesfield. Aged 77.

HESLOP.—On February 7, John Heslop, Chemist and Druggist late of Hornsea, Hull. Aged 53. Mr. Heslop belonged to an old Holderness family, and practised in Hornsea as a chemist and druggist until 1892, when owing to ill-health he retired, the business being taken over by Mr. Charles Morrow, M.P.S. He took an active interest in local affairs, was a member of the old Local Board, and retained his seat on its conversion to the Urban District Council until illness compelled him to retire. He was also connected with the Parish Church, being the Vicar's Churchwarden from 1870 up to the time of his death, and was treasurer of the Church Expenses Fund from 1881 until 1899.

OGLE.—On February 3, William Henry Ogle, Chemist and Druggist, Cheltenham. Aged 80.

PERKS.—On February 1, at Inkberrow, Worcester, Alfred Perks, Pharmaceutical Chemist, Birmingham. Aged 32. Mr. Perks who had been a member of the Pharmaceutical Society since 1890, went to Birmingham in 1884 as an assistant to Mr. H. T. Done, and subsequently married his daughter. He succeeded in qualifying as a pharmaceutical chemist in the space of two years, although engaged in business during that time. As a student he was very painstaking and on one occasion was awarded the first prize in analytical chemistry in the competitions organised by a contemporary. He took a business at Beeston, Notts., but had to give it up a few years later on account of his health, having developed signs of consumption.

REDMAN.—On February 9, Henry Redman, Chemist and Druggist, Tuxford, Notts. Aged 77.

SONLEY.—On February 3, Walter Sonley, Chemist and Druggist, Ilkeston. Aged 31. Mr. Sonley had been connected with the Pharmaceutical Society for several years, formerly as an Associate, and latterly as a member.

Publications Received.

TERPENELESS ESSENTIAL OILS. By ERNEST J. PARRY, B.Sc., F.I.C., F.C.S. (Lond.). Pp. 20. Pirna, Germany: Heinrich Haense 1900. From W. Poppelreuter, Manchester.

TRANSLATIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND, Vol. XVII. Edited by JOHN B. STORY, M.B., F.R.C.S., pp. xl. + 683. Dublin:—Fannin and Co., Limited, 41, Grafton Street. 1899, From the Editor.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Balsamum Peruvianum.

BALSAM OF PERU is the product of *Myroxylon pereiræ*, Klotzsch (N.O. Leguminosæ), a tree which grows in various parts of Central America, particularly in the forests of San Salvador, on the so-called "balsam coast." It is a thick resinous liquid, which owes its name to the fact that it was originally exported by way of Peru. It is now shipped from Acajutla and Belize, *viâ* New York and Hamburg. The bark of the young twigs contain schizogenous secretion ducts, but those are soon thrown off, and no fresh ones are formed. The balsam, therefore, is probably not a normal secretion, but a pathological product, the formation of which is caused by beating the bark and stimulated by subsequent scorching with torches. The exuding balsam is absorbed by cotton rags inserted beneath the loosened bark, and afterwards separated by boiling the saturated pads with water and straining, or by allowing the balsam to deposit by standing. The drug possesses stimulant and disinfectant properties, and is usually dispensed in the form of an emulsion with mucilage, or with sugar, yolk of egg, and water. It is also used externally as a parasiticide. The dose of the balsam is from 5 to 15 minims.

CHARACTERS.—Balsam of Peru is a viscid liquid of s.g. 1.137 to 1.150, which appears nearly black in bulk, but in thin layers is seen to be transparent and of a deep orange-brown or reddish-brown colour. It consists of about 60 per cent. or more of an oily fluid portion (cinnamein)—chiefly benzyl benzoate with a little benzyl cinnamate and about 30 per cent. of dark resinous matter—an alcohol (peru-resinotannol) combined with cinnamic acid and a little benzoic acid; traces of vanillin and free cinnamic acid are also present. Those constituents give the balsam a fragrant, agreeable odour and an acrid taste, a burning sensation being left in the throat after swallowing the drug. It is practically insoluble in water, which only dissolves a little of the cinnamic acid present and traces of benzoic acid, but it is soluble in all proportions in chloroform. Mixed with an equal volume of 90 per cent. alcohol a clear solution is formed, but when the alcohol is added in the proportion of more than 3 to 1 of balsam the mixture becomes turbid. The cause of the turbidity does not appear to have been explained.

TESTS.—The absence of copaiba and resins is indicated by the production of a permanently soft mixture on triturating 10 drops of the balsam with 0.4 Gm. of lime; on warming the same mixture until all volatile matter is driven off and charring commences a fatty odour will be perceived if castor oil or other fixed oil be present. If ethylic alcohol has been added to the balsam, the specific gravity will be affected, and on shaking the drug with an equal bulk of water a diminution in volume will be caused by the water removing the alcohol. On treating the balsam with three times its volume of carbon bisulphide, about forty per cent. of resin should separate, and the clear supernatant liquid should be of a pale brown colour with only a slight fluorescence, thus indicating the absence of gurjun oil; if the latter be present a violet coloration will be produced on adding one drop of a freshly-prepared and cooled mixture of nitric and sulphuric acids to 20 drops of the liquid, but a similar colour is occasionally yielded by genuine balsams. As a quantitative test, 5 Gms. of balsam of Peru should yield from 2.85 to 3 Gms. of aromatic, oily residue, after shaking with 5 C.c. of sodium hydroxide solution (s.g. 1.16) to remove resin, then washing with three successive quantities (15 C.c. each) of purified ether to separate the cinnamein and other aromatic bodies. After separation and evaporation of the ether, the residue should be cautiously dried until the loss in weight in two weighings,

at five minutes' interval, does not exceed 1 Cgm. The oily residue should require from 11.9 to 12.8 C.c. of normal volumetric alcoholic solution of potassium hydroxide to decompose the esters of cinnamic and benzoic acids (benzyl cinnamate and benzoate) present, 20 C.c. of the volumetric solution being added to the residue, together with 40 C.c. of 90 per cent. alcohol, and saponification effected by heating the whole under a reflux condenser for one hour, after which the amount of uncombined alkali can be determined by titration with volumetric solution of sulphuric acid.

NOTES.—The distinctive characters of balsam of Peru are its odour, taste, and specific gravity. The last-mentioned is lowered by the addition of alcohol, fixed oils, turpentine, copaiba, etc. The lime test and other qualitative tests are unsatisfactory; thus, it is found that absolutely pure balsam of Peru becomes quite hard on keeping, whether lime be added or not, but that the addition of a little liquid paraffin results in the production of a permanently soft mass. Balsam which does not harden, therefore, even after lime has been added, is probably not pure. The quantitative determination of the resin and aromatic constituents affords more information, both regarding probable adulteration and the actual value of the drug. The term "cinnamein" is applied in the B.P. monograph to the oily mixture of benzyl benzoate and cinnamate, and not to the latter only. The term "balsam," it may be noted, is properly limited to oleo-resinous substances containing cinnamic or benzoic acid.

Balsamum Tolutanum.

BALSAM OF TOLU is obtained from the trunk of *Myroxylon toluifera*, H. B. and K. (N.O. Leguminosæ), a native of New Granada. The drug derives its name from Tolu, a small town near Cartagena, and is exported chiefly from Savanilla and other Colombian ports, *viâ* New York. As in the case of *M. pereiræ*, the twigs of *M. toluifera* contain schizogenous secretion ducts, which are soon thrown off and not replaced; the bark of the trunk contains no secretory tissue, and the balsam is probably formed by the transformation of part of the young wood or bark tissue, as a result of incisions made in the tree. From those incisions the balsam flows, and is collected in gourds, which are subsequently emptied into skin bags or tins, the shape of which is taken by the soft, tenacious, yellowish-brown, resinous mass. The balsam possesses stimulant, disinfectant, and expectorant properties; it is used for preparing Tinctura Benzoini Composita, Syrupus Tolutanus, Tinctura Tolutana, and, indirectly, Mistura Ammoniaci, Trochiscus Acidi Carbolici, Trochiscus Morphinae, and Trochiscus Morphinae et Ipecacuanhæ. The dose of balsam of Tolu is from 5 to 15 grains.

CHARACTERS.—Balsam of Tolu, though a soft and tenacious solid when first imported, gradually hardens on keeping to a brownish, brittle, and easily powdered mass (s.g. 1.230 to 1.258), the brittleness being more pronounced in cold weather. When warmed, however, the hardened balsam readily softens. In thin films it appears transparent and of a yellowish-brown colour; if a small piece be warmed and pressed between two glass slides, so that a very thin film is obtained, numerous colourless crystals of cinnamic acid and some vegetable debris can be seen, imbedded in a transparent mass, on examining the specimen with a lens or microscope. The balsam is soluble in its own bulk of 90 per cent. alcohol or glacial acetic acid, in half as much chloroform, and in three times its bulk of benzene, but it is insoluble in petroleum spirit, and nearly so in carbon bisulphide, yielding cinnamic acid principally to the last-named solvent. The balsam contains as much as 12 to 15 per cent. of free cinnamic acid, as well as about 7.5 per cent. of an acid, aromatic, oily liquid (cinnamein), consisting principally of benzyl benzoate, with a little benzyl cinnamate and 0.5 per cent. of vanillin. The resinous portion of the drug, amounting to about 80 per cent., yields on saponification an alcohol—tolu-resinotannol—and cinnamic acid, together with a little benzoic acid. The aromatic constituents of

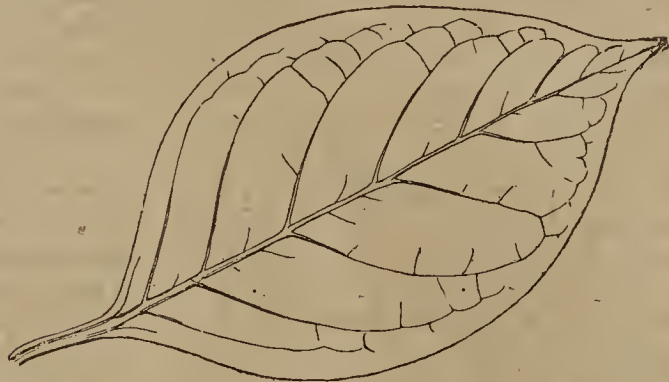
the balsam impart to it an agreeably fragrant odour, which is especially marked when the drug is warmed; the taste is also somewhat aromatic and slightly acid.

TESTS.—The alcoholic solution of balsam of tolu has an acid reaction, owing to the presence of cinnamic and benzoic acids. If 5 Gms. of the balsam be gently warmed with two successive portions of 25 and 10 C.c. of carbon bisulphide, and the mixed solutions evaporated, the crystalline residue of benzoates and cinnamates left should require not less than one-third of its weight of potassium hydroxide for its saponification.

NOTES.—The distinctive characters of balsam of Tolu are its odour, taste, and slight solubility in carbon bisulphide. The solubility test is particularly important, as the balsam may be adulterated with resinous substances soluble in carbon bisulphide; such substances will leave a resinous instead of a crystalline residue, and require less potassium hydroxide to effect complete saponification. The balsam is more liable to adulteration than balsam of Peru; among the substances which have been employed as adulterants are exhausted balsam of Tolu and dried Canada turpentine or "balsam," as it is usually, but incorrectly, termed.

Belladonnæ Folia.

BELLADONNA LEAVES of the British Pharmacopœia include the fresh leaves and branches of the deadly nightshade, *Atropa belladonna*, Linn. (Solanaceæ), a tall branching herb with a perennial root, which is widely distributed over Central and Southern Europe, and cultivated for medicinal purposes in the South of England and Germany. The leaves must be collected when the plant is in flower, as they are then richest in alkaloid. Belladonna possesses anodyne, mydriatic, and local anæsthetic properties; the fresh leaves and branches are used to prepare Atropine, Extractum Belladonnæ Viride, and Succus Belladonnæ.

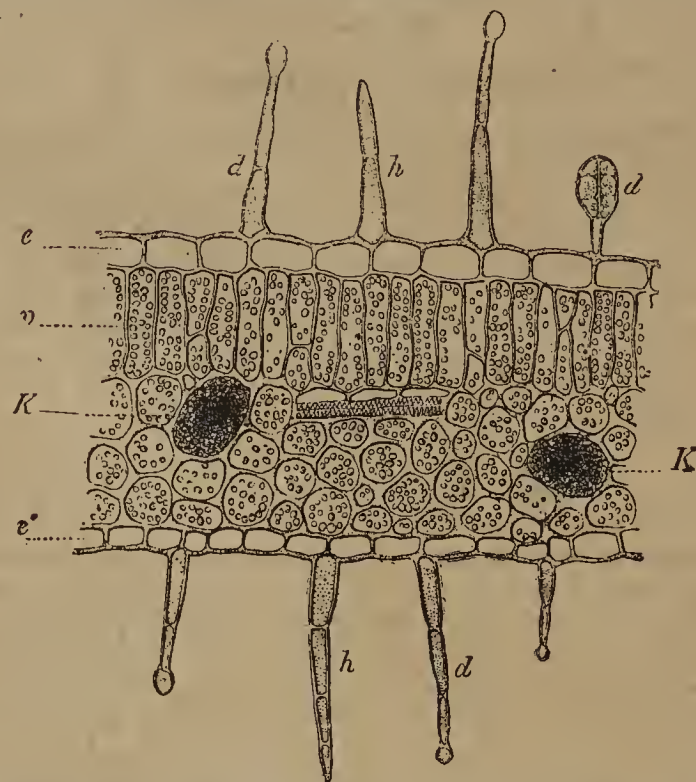


BELLADONNÆ FOLIA.—Upper leaf, half natural size, showing outline and venation.

CHARACTERS.—Belladonna leaves have short stalks, and are alternate below, but the upper leaves are in unequal pairs. In shape the leaves are broadly ovate, varying from oval-lanceolate to ovate-lanceolate, acute at the apex, entire at the margin, and tapering at the base into a slightly winged petiole. They vary in length from 8 to 20 Cm., and appear quite free from hairs (glabrous) as a rule, though a few hairs may usually be found near the midrib, while on the pedicel and calyx of the flowers and on the upper portion of the stem hairs occur in abundance. The midrib of the leaf is prominent below, but depressed on the upper surface, and a transverse section of the leaf, when examined under the microscope, exhibits bi-collateral bundles in the midrib, *i.e.*, strands of bast occur both above and below the wood. The lateral veins leave the midrib at an angle of about 45° to 60°. The fresh leaves are somewhat fleshy, and the mesophyll contains numerous very minute sandy crystals of calcium oxalate; when the leaf is dried, the shrinkage of the tissue causes the cells filled with the crystals to appear as whitish prominences when examined with a lens. The corolla of the flower is gamopetalous (the petals cohering laterally), bell-shaped, and of a dingy purple colour.

NOTES.—The distinctive characters of belladonna leaves are their arrangement in unequal pairs on the upper part of the stems, their

glabrous surface, and the presence of bright points on the upper surface of dried leaves. Carefully dried leaves should be of a pale greyish-green hue rather than brownish, also very thin and brittle. Dried stramonium leaves become curled and twisted as they dry,



BELLADONNÆ FOLIA.—Showing (e) upper, (e') lower epidermis, (h) hairs, (d) glandular hairs and stalked septate glands, (k) cells filled with sandy crystals, (p) palisade cells. After Vogl.

their lateral veins make a more acute angle with the midrib than those of belladonna, and they have a characteristic disagreeable odour. Foxglove and henbane leaves are both hairy. The chief constituents of belladonna leaves are the alkaloids hyoscyamine and atropine; the proportion of total alkaloid present in the dried leaves varies from 0.3 to 0.7 per cent., the greater proportion being hyoscyamine. Belladonnine and other alkaloids of less importance are also present, together with a fluorescent principle - β -methyl-æsculetin or chrysotropic acid, which is also found in gelsemium root.

NEW REMEDIES.

PARAFORM FOR WARTS.—Unna finds that paraformaldehyde suspended in collodion forms a useful application for cauterising small soft warts and excrescences of the skin. The application employed consists of paraform, 2; castor oil, 1; collodion, 40. Mix. Similar results have been obtained independently by Meuse (See *P.J.* [4], 9, 623).

CHELIDONINE SULPHATE IN CANCER.—N. Ivanow records a case of gastric cancer, in which daily doses of 10 to 15 centigrammes of chelidone sulphate had a markedly beneficial action, pain being relieved, the appetite increased, and vomiting controlled. It was prescribed as follows:—Chelidone sulphate, 60 centigrammes; bitter almond water, 5 Gms.; distilled water, 60 Gms.; syrup, 2 Gm. A tablespoonful and a half to be taken twice daily.—*Now. Rem.*, 15, 538, after *Klin. Therap. Woch.*

BROMOFORM WATER.—A. Mathieu and A. Richaud consider bromoform water worthy of a more extended use, since it is valuable in relieving intestinal pains and vomiting, particularly in tuberculous cases. In these, too, it has the advantage of easing the fits of coughing. By thorough agitation in a large vessel bromoform will slowly dissolve in water to the extent of 3 to 3.5: 1,000, and may be employed in the same manner and for the same purposes as chloroform water.—*Bull. de Pharm. de Sud-Ouest*, 22, 136.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

R. H. Adie and T. B. Wood determine **VOLUMETRIC DETERMINATION OF POTASSIUM.** potassium volumetrically by precipitating it as cobaltinitrite—usually represented as $K_6Co_2(NO_2)_{12} \cdot 3H_2O$ —and titrating with a standard solution of potassium permanganate in acid solution. The authors' experiments appear to show that there are three, instead of two, nitrite groups for each atom of potassium, and that the precipitate obtained is an acid salt. Other bases being removed as far as possible, by means of sodium carbonate, the solution is then concentrated if at all weak, acidified with acetic acid, and excess of sodium cobaltinitrite solution added. After the mixture has been allowed to stand for twenty-four hours, the precipitate is collected on a Gooch filter, washed several times with 10 per cent. acetic acid and, finally, once with water. The asbestos filter and the precipitate are then transferred to a beaker and boiled with a dilute solution of soda, filtered; and made up to 100 C.c. Of the finished solution take 20 C.c., acidify with dilute sulphuric acid and rapidly titrate with the permanganate solution; then take a second fraction of 20 C.c., add the amount just found of permanganate solution, acidify, and again determine the end point. In one experiment, the volumes required were 16.3 and 16.4 C.c. respectively. The end of the reaction is more easily obtained if the permanganate be added to the nitrite solution in excess and the excess determined by potassium iodide and thiosulphate solution. The formula indicated for the precipitated salt is $K_2HCo(NO_2)_6$.—*Proc. Chem. Soc.*, **16**, 17.

E. Debuchy employs the following formulae in the preparation of antiseptic gauzes: **ANTISEPTIC GAUZES.** —**CARBOLIC ACID GAUZE:** Phenol, 255; alcohol (90 per cent.), 1,500; glycerin, 20; purified gauze, 1,000. This gauze will contain 20 per cent. of phenol; it keeps supple and fresh provided it be stored in air-tight boxes. **IODOFORM GAUZE:** Purified gauze, 2,500; glycerin, 50; ether, 3,000; iodoform, 283 or 637, according as a 10 or 20 per cent. gauze is required. Ether alone is found to give better results as a menstruum than the mixture of ether and alcohol generally used, since the drying is more rapid, and, therefore, the time of exposure to the air reduced to a minimum. The gauze should be dried in a dark place and stored in air-tight boxes.—*Jo rn. de Pharm.*, [6], **11**, 1.

In many diseases of the nervous system degeneration of the nervous tissues takes place. On the degenerated side of the spinal cord in simple hemiplegia (apoplexy, etc.) the following changes are found:—(1) A breaking up of phosphorised fat; (2) the amount of lecithin is diminished; (3) the amount of fat present is in excess; (4) the amount of extractives soluble in ether is increased; (5) the proteid residue diminishes in amount *pari passu* with the increase of extractives; (6) the phosphorus in the residue diminishes at a still greater rate than the residue itself; (7) the percentage of phosphorus in the half cord as a whole is diminished; (8) the ether extract has an appearance of butter instead of being crystalline. In general paralysis of the insane the amount of water in the cerebral hemispheres is increased, while the phosphorus undergoes an actual diminution, corresponding closely to the wasting of the hemispheres.—*Archives of Neurology*, London County Council, Mott and Barratt, p. 346, and Barratt, p. 270.

NON-BRITISH GRASSES IN THE CHANNEL ISLANDS.

C. R. P. Andrews exhibited at the last meeting of the Linnean Society two non-British grasses which he had found last year in the Channel Islands—*Phala is minor*, Retz., from sandy shores and fields in Guernsey and Alderney, and *Milium scabrum*, Merl., from the cliffs of Guernsey. He maintained that they were both native plants, as the former is indigenous on the west coast of France and on the north coast as far as Cherbourg and Barfleur, while the latter is a native of West France as far north as Vendée, and reappears on the coast of the Netherlands. He suggested that the former had been passed over owing to its resemblance to *P. canariensis*; the latter owing to its inconspicuous habit, its early flowering, and the fact that it grows on the lower slopes of the cliffs in an unfrequented part of the island.

ALKAPTONURIA.

A curious condition of the urine is occasionally met with known as alkaptonuria. Its chief interest is that the urine contains a reducing body which may be mistaken for sugar. The urine, when first passed, is normal in colour, but afterwards becomes deep brown; it reduces Fehling's solution and ammoniacal silver nitrate, but not bismuth; it has no rotatory power and does not ferment. The anomaly in the majority of instances dates from early childhood; it may last for life, and sometimes occurs in families; on the other hand it may be quite a temporary feature. Various substances have been isolated from the urine—pyrocatechin, uroleucic acid, and homogentisinic acid. It would seem that the main characters of the urine in alkaptonuria are due to the last-named substance, homogentisinic acid. This is hydroquinone-acetic acid with the formula $C_8H_8O_4$. It may be separated from the urine by two methods: the first (Wolkow and Baumann) is acidification with dilute sulphuric acid, repeated extraction with ether, distillation of the ether, solution of the syrupy residue in water, and addition to the boiling solution of a concentrated solution of basic lead acetate. A simpler method (Garrod's) is to heat the urine to boiling, add five or six grammes of solid lead acetate to every 100 C.c., and filter off the bulky precipitate. By either method the resultant fluid on standing deposits acicular or prismatic crystals of lead homogentisinic acid.—Garrod, *Medico-Chir. Trans.*, 1899, vol. 82, pt. iii., p. 367.

ASYLUM DYSENTERY.

A disease of a dysenteric nature is of common occurrence, and causes considerable mortality among the inmates of asylums, but is rarely seen elsewhere. It is characterised by ulceration of the colon or large bowel with dysenteric symptoms more or less acute. In seven out of eight cases examined, Durham has isolated a hitherto undescribed micrococcus. The organism is extremely minute, stains with the ordinary staining solutions, and also by Gram's method, though not very well by the latter. It has been isolated from the blood, spleen, liver, kidney, and bile. So far it has been cultivated only in broth, and sub-cultures from the original cultures have not been obtained. As the organism did not grow on solid media, plate cultures could not be made use of to obtain pure cultures, and the following method was adopted. Small Berkefeld filters were fitted into a large rubber cork, provided with a single perforation, into the lower end of which a short piece of glass tube was fitted; sufficient cotton wool was next wound round the latter to fix on a test-tube with some firmness. Several such were sterilised in the autoclave. The rubber cork was then inserted into an ordinary conical filtration flask, the tube and test-tube being thus inside the latter. On exhausting, the fluid passed through the filter and collected in the test-tube. The coccus was so minute that it passed through the pores of the Berkefeld, whereas other organisms did not. The method may be of use in other cases.—*Archives of Neurology*, London County Council, I, p. 403.

SUGGESTED STANDARDS OF PURITY FOR FOODS AND DRUGS.

BY C. G. MOOR, M.A., F.I.C.

Under the Sale of Foods and Drugs Acts the public analysts throughout the country have to examine such drugs as may be submitted to them by the inspectors appointed under the Acts. It is well known that there is at present no legalised standard by which either foods or drugs can be judged, and, though it would no doubt be a great convenience to public analysts if there were official standards by which their work was regulated, the adoption of such legalised standards would not be without certain disadvantages. The fact remains that every public analyst appointed under the Sale of Foods and Drugs Acts is liable to have submitted to him by the inspector acting for the local authority a sample of almost any food or drug which is sold, and he is by law required to analyse this and state his opinion on the same. A section of the Sale of Foods and Drugs Acts compels him also to perform the same duty for any private purchaser who may choose to buy an article within the district for which that analyst is appointed, and who chooses to submit the said article for analysis and to pay the statutory fee.

The obligation on the analyst to examine and report on the sample is clear. We will next consider what means he possesses of executing the work that he is bound to carry out. There are no fixed standards of purity fixed by law in the case of any foods or drugs whatever except in the case of spirits, where it is defined by Act of Parliament that the strength of brandy, rum and whisky shall not be less than that which is indicated by 25 degrees below proof, and in the case of gin, which may be 35 degrees below proof. In the case of one or two other articles a standard having almost the force of law has been arrived at by common consent or because it is known to be that which has been adopted by the authorities of Inland Revenue, who are the referees under the Foods and Drugs Acts. Apart from these standards there are none that are legally fixed, with the exception of the Pharmacopœia, but that work has not been specified as a standard under the Sale of Food and Drugs Acts, and therefore is not a legal standard for the purposes of those Acts. The Pharmacopœia was issued long before the Foods and Drugs Acts were thought of, and would require considerable alteration and additions before it could be adopted as a general legal standard. The Pharmacopœia, however, is accepted by magistrates as evidence, and hence the limits laid down in that work have, in many cases, been accepted as standards under the Foods and Drugs Acts. Many of the tests laid down in that work will be found on examination to require further details to bring them within the limit of actual practical utility.

These further details have at present to be filled in by each analyst according to his experience, and may, therefore, be interpreted in many varying ways. Directions are also given in the Pharmacopœia for the preparation of many articles, but no tests are suggested for the finished preparations. Yet these finished preparations may frequently be submitted for analysis. It becomes necessary, therefore, for each analyst to endeavour to supplement the official directions or tests as his experience directs so as to arrive at some standard by which he can judge of the interpretation of the data yielded by his analysis. To do this with any approach to correctness it will in most cases be necessary that he shall have had experience, not merely of the sample that is before him, but of other samples, some, at least, of which are of known sources, or, in the case of preparations, made by reliable people. Knowing the results yielded by drugs or preparations which conform to the Pharmacopœia directions, he can then decide whether, in his opinion, the sample submitted fulfils the Pharmacopœia requirements if that is the question he has to answer. This latter consideration opens up a much wider question—namely, how far are articles in everyday use to be judged by the stricter standard applicable to those articles intended to be used for dispensing? It appears to me that

in this case, as in most others, a broad view must be taken, for if the question is pushed to either of the two extremes the situation becomes impossible.

To state the case briefly, it appears to me that when a purchaser desires an article corresponding to the requirements of the Pharmacopœia he should ask for it as answering the B.P. requirements. It may be objected that ignorant persons will not readily be brought to do this, but that they, nevertheless, deserve protection. A very little inquiry, however, on the part of the vendor, if he is an honest man, should enable him to supply the purchaser with what that purchaser actually wants by eliciting for what purpose the article is required. For example, supposing a person entered a chemist's shop and asked to be supplied with beeswax, and on inquiry it is found that the beeswax is intended for polishing or for the waxing of thread, it is clear that the purchaser does not wish for a medicinal beeswax, nor, indeed, does he really wish for beeswax at all, but for a mixture of beeswax and paraffin, which is sold at a cheaper rate. The proper course to pursue under such circumstances is for the vendor to say, "I think that what you want is not the pure beeswax used in medicine, but a mixture of beeswax and turpentine, which is cheaper, and commonly used for the purpose you mention." Then if the purchaser desires pure beeswax he has the opportunity of saying so and of paying a proper price for that article. If, on the other hand, he requires the cheaper mixture, he has been plainly told what he is getting, and cannot possibly be considered to be prejudiced by his purchase.

In some cases the supplying of the pure article indiscriminately might be to the prejudice of the purchaser, as in such a case as this: If a person who is accustomed to take "Juniper oil," which would probably be "Ol. Juniper Liq." (which appears to be a mixture of a small quantity of "Juniper oil" with turpentine) were to be supplied with pure "Juniper oil, B.P.," and were to take the same quantity as he was accustomed, the consequences might be unpleasant. As in the former imaginary case, it appears to me that the vendor should explain to the purchaser that the article he probably was inquiring for was a mixture of pure "Juniper oil" and turpentine, and that he could have it if that was what he wished for, and that if he supplied it he should label it accordingly. If, on the other hand, he wished for pure "Juniper oil" he could have it, but that the price was naturally higher than that of the mixture. It may be that many retailers will not agree with my views in the above imaginary cases. On the other hand, I feel strongly that any attempt to compel those who sell articles of food or medicine to deal only in the pure and unmixed articles, to the exclusion of all others, can only end in failure. In many cases it is absolutely necessary for the shopkeeper to have more than one quality of an article, because the public demands more than one quality.

The only thing that should be insisted on is that its true nature, substance, and quality should be clearly stated. The Sale of Foods and Drugs Acts permits the sale of mixtures providing the fact is clearly stated on the label. Where, however, an article is marked "pure," the presence of any admixture constitutes adulteration. In the case of drugs it is known that the Pharmacopœia is a standard for those drugs which are used in dispensing, and though it does not apply by law to them when they are not used for dispensing, in the majority of cases the purchaser would expect to get drugs of a quality and purity not less than he would get them if they were dispensed in mixtures. In view of this, and of the general acceptance of the Pharmacopœia as a standard by magistrates all over the country, all pharmacists would do well to see that the drugs they deal in are in accordance with the requirements of the Pharmacopœia. In spite of the deficiencies of the Pharmacopœia, it will be admitted that, generally speaking, the tests prescribed by it are sufficient to exclude most of the substitutions or deficiencies to which drugs and their preparations are subject. Pharmacists will find no difficulty in obtaining from wholesale houses definite guarantees that the articles they order are in accordance with the require-

ments of the Pharmacopœia, and they should always ask for a definite guarantee that this is so. Where there is a reluctance on the part of any wholesale house to give such a guarantee, the cause of such reluctance is probably the fact that the price paid does not admit of an article up to the standard of the Pharmacopœia being supplied.

The adulteration of foods—namely, the adding of water to milk, or the selling of margarine as butter, or of the mixture of coffee and chicory as coffee, does not appear to me to find an exact parallel in the case of drugs. The adulteration of drugs by retailers is, in my opinion, exceedingly unlikely; in fact, the word "adulteration" does not truly convey the meaning intended. Take the case of articles that are liable to natural deterioration; for example, sweet spirit of nitre and lime water, though I do not mean to say that such natural deterioration may not largely be due to carelessness. If a pharmacist is prosecuted under the Foods and Drugs Acts for a deficiency in either of these articles, it is by the public regarded as an offence or form of cheating similar to that indulged in by the milkman who waters his milk. This is an exceedingly unfair view of the case, because the milkman commits a deliberate offence and intends to cheat his customer, whereas I cannot conceive a pharmacist deliberately selling limewater or sweet spirit of nitre which he knew to be deficient in their active principles. The retailer, however, may obtain drugs from the wholesale houses which the analyst, on examination, would pronounce to be adulterated. In a few cases, such as camphorated oil, the article is deliberately compounded not in accordance with the Pharmacopœia, and is probably not invoiced as such. In this case the retailer may have been negligent, so that he does not know what he is selling; or he may be intentionally selling this article because he makes more profit on it than on the Pharmacopœia article. If, however, his customers were sufficiently educated to ask for camphorated oil, B.P., and were willing to pay the price for it, he would certainly stock the higher price article, and derive a profit from so doing. If he sells a mixture as "camphorated oil," that mixture should certainly be prepared in accordance with the Pharmacopœia directions. If he thinks proper to keep another and a cheaper mixture, it appears to me that he is perfectly at liberty to do so, providing he does not allow his customers to be misled into thinking that it is the camphorated oil of the Pharmacopœia. The correct labelling of this and of many other articles would do away with the majority of those cases in which retailers feel themselves oppressed by what they not unnaturally think vexatious prosecutions on the part of public officials. It is in many respects the public that require educating. They do not at present understand that if they insist on paying a low price they are certain not to get the best quality drugs. But the mere fact of labelling articles correctly, which is what I desire to urge, is sufficient to show them that there are two qualities, and then, I think, it will be found that a great many people are sufficiently wise to wish for the better quality, and will be ready to pay the price for it. At present, the public often demands certain articles at such low prices that the retailer is forced to ask the wholesale dealers to supply such-and-such things at prices at which the best qualities cannot be obtained. This leads to inferior qualities being supplied; perhaps, in the case of some drugs, even substitutions of a drug which may not have the same medicinal qualities, and the desired effect not being produced the patient has recourse to secret remedies and patent medicines.

The demand for cheap stuff is very largely at the bottom of the whole difficulty. There are, however, special difficulties which affect each one of the three classes of people most concerned in the administration of the Acts. First, the analysts have not got fixed standards nor definite information to enable them to carry out their duties properly. Retailers suffer from the desire of the public to obtain drugs at the lowest possible price, and have to face the fact of either losing customers or selling the genuine article at an unreasonably small profit. Wholesale houses, on the other hand, being asked by many retailers to supply them at the lowest possible

rates, find it difficult to obtain proper prices for drugs of the best quality, so that while they are obliged to keep stocks of the best qualities, a relatively small proportion of the better qualities are sold, so much so that in some cases they become more curiosities than articles of commerce. Wholesale houses also have their own difficulties; they are often unable to control the method of collection of drugs so that they may contain amounts of mineral or vegetable admixtures which an analyst would consider adulteration, but which is in some cases unavoidable in practice.

With regard to educating the public as to the necessity of paying proper prices for pure drugs, I am, with the consent of my local authority, publishing a circular, which will be freely distributed in the district, and, I hope, subsequently reprinted in the *Pharmaceutical Journal*. Regarding the difficulties of analysts which I mentioned above, I have been engaged for some time past, in the company of two fellow-workers, Mr. Cecil H. Cribb and Mr. Martin Priest, in collecting information as to the average composition of all the foods and drugs likely to be submitted to the public analyst—that is to say, in compiling sets of figures of reliable specimens of all the ordinary foods and drugs. In doing this I have had occasion to ask the assistance of many persons well known in the pharmaceutical world, and it has in every case been most kindly given. The object of these suggested standards, the first instalment of which will be published next month in the *British Food Journal*, is not that of increasing the number of prosecutions under the Sale of Foods and Drugs Acts; my object is to endeavour to obtain correct ideas regarding the composition of pharmaceutical preparations, and within what limits they may reasonably vary, providing the official directions for their preparation have been carried out. To this end I would invite the assistance of all who are engaged in the analysis of drugs, and shall be glad to furnish any person interested with the proof dealing with any article in which he may be interested. I need hardly say that any figures or information that may be given me would be duly acknowledged, and I trust that it will be admitted that the work on which I am engaged will be for their general benefit.

THE MICROSCOPE IN THE SHOP.

BY A PHARMACIST.

To the pharmacist who is so in something more than name the microscope is perhaps the most useful scientific instrument which can find a place in the shop. Too frequently its aid is not requisitioned even by the possessor of one, and the cause is in many cases due to it being kept carefully locked up in its cabinet out of reach of the inquisitive apprentice. If, instead of being so carefully preserved, a moderate-priced instrument were placed under a bell glass, and always had attached to it a double nose-piece, a half-inch and a sixth-inch objectives, its true value would be soon appreciated. The value of it is not the amount of money it costs, but the amount of usefulness which can be got out of it. The amount of information which may be obtained by submitting all doubtful substances, and also many substances of good repute, to the scrutiny of the microscope is astonishing. It will often solve the strangest problems in the most unexpected way. Quite recently several bottles were returned containing liquids and deposits which were said to have formed in each. The said deposits were quite foreign to the original contents of the bottles. A microscopical examination proved the sediments in the different bottles to be absolutely identical in character and certainly of a common origin. This fact led to inquiries, which proved that the sediment had been found in one bottle only, and in some unexplained way had been distributed among the other bottles by a servant. At the dispensing counter the microscope should, and in the hands of resourceful pharmacists does, frequently give good service. To place on a glass slip the deposit which has formed in a mixture and ascertain whether it is amorphous (perhaps mucilaginous) or crystalline is but the work of a few minutes, and information is gained as to chemical incompatibility or the mere precipitation of inert matter of vegetable origin. Although the microscope may fail in some

instances to solve the problem forthwith, yet it very rarely happens that it does not give speedy assistance in indicating the direction whence the final solution will come. On one occasion a parcel of citrate of iron and quinine failed to yield a bright solution with water. The usual causes of cloudiness were investigated without avail. A second lot was obtained from the manufacturers, but it turned out equally bad, and the makers could not give any explanation; they contended that their methods were such as they had always adopted. On submitting the carefully collected deposit to the microscope it was seen to consist of ordinary dust and minute fragments of straw. The manufacturers were then able to trace the source of the trouble to a defect in the partition between the room in which the drug was put into bottles and the contiguous room which was used for packing purposes. Doubts sometimes arise as to the correct dispensing of medicines, and the microscope will be found of great use in helping to determine the composition of mixed powders and pills.

It is so common for the pharmacist to buy his drugs in the form of powder that one would think that the microscope would be indispensable if he is to be, as he ought to be, surety for the drugs he sells. The wholesale druggists of this country are as a class above suspicion, and upon their reputation the retail pharmacist leans with an assurance which is very praiseworthy. There is no necessity to say a word to shake so estimable a confidence in the wholesale dealers, especially as the temptation to adulterate powdered drugs is extremely small. But the retailer ought, in these days of contentious commerce, to be in a position to demonstrate the grounds of his confidence to his customers if need be. In the matter of spices and condiments the druggist is on different ground, and must be content to see the greater part of his trade pass into the hands of the grocer, unless he can compete with him in price or sell a superior article. In order to be master of the situation the pharmacist must be certain of the quality of his goods, and he cannot do better than submit all his ground spices to microscopical examination. Cinnamon is sometimes mixed with starch, of which there should be normally present only a small quantity. Powdered walnut shells and the ground twigs of the cinnamon tree are also used for the same purpose. All these substances would be at once revealed by the microscope. Ground white pepper is not infrequently found mixed with other substances such as foreign starches, ground olive kernels, walnut, almond and hazel-nut shells. Exhausted coriander, fennel and anise fruits are also said to have been used for adulterating pepper. Ground mustard may contain an unusual amount of added starch, and it occasionally happens that such diluted mustard is fortified with cayenne pepper. Cheap arrowroot is not always what it pretends to be. Having a complaint as to the price of arrowroot, and hearing that a neighbouring grocer was selling it at a low price, it was decided to investigate the matter by making a purchase from the said grocer. Accordingly a small quantity of each of his two qualities was obtained. The difference between them was only the difference in the retail price; the arrowroot was adulterated to the extent of between 30 and 40 per cent. of sago meal. In justice to the grocers as a class it should be said that the investigation was then extended and samples obtained from ten other establishments; these samples were all pure and of good quality. Linseed meal may sometimes be found to have an admixture of starch, and at other times, especially when old, it may contain large numbers of a mite (*Tyroglyphus siro*). Powdered cantharides is also found sometimes to harbour mites, as is also saffron, especially when kept in a moist condition in tins. About ten years ago a friend sent a quantity of colourless powder from the bottom of a tin in which he had kept his saffron, of which he used considerable quantities. His suspicions were aroused as to the possibility of having been supplied with an adulterated article. The microscope at once revealed the nature of the powder; it consisted of innumerable mites, their eggs, and the debris of dead ones. Insects are much more common in the stock of the druggist than is generally supposed, and would be much

more generally detected if the handy microscope were brought into use.

Another direction in which the microscope is rarely turned is towards the filtering papers. The nature of the liquids which a pharmacist has to filter is so various that it is of considerable importance to him that he should use filtering paper composed of suitable material. A microscopical examination will reveal such differences in the composition of the filtering papers in the market that he will be tempted to consider the whole question of filtration from another standpoint than that of price—namely, that of efficiency.

Besides the utility of the microscope in the immediate concerns of the shop, which have been merely indicated in the foregoing remarks, there is the wider application to the concerns of the community at large. This is a work the pharmacist is pre-eminently fitted to undertake. No other class of professional men has the same opportunities of acquiring so extensive and varied a knowledge of the minutiae of vegetable and animal substances. Medical men are generally very glad to avail themselves of the opportunity of sending urinary deposits to a skilled microscopist; and a pharmacist may, with a very small expenditure of time and money, soon make himself so proficient as to meet all the demands of his medical friends, and thus earn their gratitude and perhaps something more tangible. In many commercial centres where textile fabrics are handled there is a constant need for assistance in discovering the component parts of fabrics. Merchants are often dependent upon tricks, which have no scientific basis, to guide them in appraising the value of the textiles they handle. Whenever they can obtain demonstrative evidence of the presence or absence of certain fibres in their fabrics, they are quick to appreciate the help. This is a field of usefulness the pharmacist who lives in the proper districts should at once annex to his domain. The characters of cotton, silk, wool and linen, as seen under the microscope, are easily apprehended. Now that lustrous-cellulose, mercerised cotton and weighted silk are so common, the aid a pharmacist can render by the use of his microscope should have a distinct commercial value.

The microscopical examination of articles of food such as coffee, cocoa, flour, and tea can very well be undertaken along with the general work of the pharmacy. In the case of coffee, cocoa, and flour, when the characteristics of the tissues of the genuine materials are mastered, the detection of adulteration is easy, and the substances used for falsification are so few in number that it soon becomes easy to name the adulterants. Where tea is concerned the microscopical examination may entail somewhat more trouble, as in some instances it may be necessary to make sections, and in all cases a careful investigation of the venation is required. There are, however, several works published which will help the microscopist over these difficulties very quickly.

The examination of water has been purposely avoided, because it demands expensive apparatus and a certain amount of technical training outside the ordinary curriculum of the pharmacist. There is no reason why the investigation of deposits in potable waters should not be undertaken by the pharmacist; but unless the bacteriological character of the water is also ascertained, such an investigation is of little value. The phases of microscopy that have been exhibited here are just those which should commend themselves to the pharmacist who is willing, without any extra training or any increase in laboratory equipment, to turn to account the reserves of his scientific knowledge.

ASSAY OF THE OFFICIAL NUX VOMICA PREPARATIONS.

BY F. H. ALCOCK.

A process which was suggested for the assay of certain liquid extracts has been tried with the official preparations of nux vomica and is now offered to workers for trial.

EXTRACT OF NUX VOMICA.—One Gm. of the extract is dissolved in 5 cubic centimetres of water and 10 cubic centimetres of

rectified spirit, using if necessary a little warmth. Generally, solution is nearly complete, what remains being flocculent matter easily separable by passing the liquid through a little cotton moistened with the solvent. Now add 20 cubic centimetres, and, after vigorous shaking and subsequent rest, it will be found that the separation of the ether is very slow; 10 cubic centimetres of diluted sulphuric acid are next added, and agitation and rest follow, when the ethereal layer separates very rapidly, and is removed. A second quantity of 10 cubic centimetres is added and removed after agitation and separation. As the volume of the ethereal layer increases on the second washing, it shows that the spirit is removed with the ether. On evaporation of the ethereal solution, after washing it with a few cubic centimetres of water to remove dissolved acidulated water, which if not removed causes slight charring of the residue as it approaches dryness, the amount of fat, resin, and other substances is obtained. The quantity of these removed from commercial extracts varies greatly, but is relatively large; in the sample experimented with it was 0.27 Gm. The aqueous layer from which the resin has been removed by the ether treatment is always clear and bright, and contains all the alkaloids and very little colouring matter. It is rendered alkaline by ammonia and extracted with chloroform in 10 cubic centimetre quantities, 2 being sufficient. To show this the first washing gave 0.095 Gm. total alkaloids, and the second increased the yield to 0.118 Gm., and the third washing caused no further increase of product. As a rule, the alkaloidal residue is not crystalline, but sometimes it is partially so. The sample with which the bulk of the experiments was made was not made according to the present plan (1898), but it has not been found that with the new preparation any variation is required. The milk sugar does not affect the process in any way.

LIQUID EXTRACT OF NUX VOMICA.—Five cubic centimetres of the liquid extract was taken, 5 cubic centimetres of diluted sulphuric acid, and 20 cubic centimetres of ether, with a subsequent quantity of 10 cubic centimetres of ether. The alkaline aqueous solution was washed with 20 cubic centimetres of chloroform in two equal portions, and the yield of total alkaloid was 0.140 Gm. Half of this quantity was subsequently shown to be strychnine. The ethereal liquid on evaporation gave a residue weighing 0.065 Gm., and did not contain alkaloid.

TINCTURE OF NUX VOMICA.—Ten cubic centimetres of the tincture is mixed with 20 cubic centimetres of ether and 5 cubic centimetres of diluted sulphuric acid, with a subsequent addition of 10 cubic centimetres of the ether. The mixed ethereal liquids on evaporation gave 0.229 Gm. of dried residue, and was free from alkaloid. Diluted hydrochloric acid abstracted from this a little colouring matter, and with nitric acid gave a faint-red colour, and with potassium bichromate and sulphuric acid a deep crimson colour. The aqueous solution after removal of ether was rendered alkaline and extracted with 10 cubic centimetre quantities of chloroform, the first washing removed 0.030 Gm., the second increased the yield to 0.049 Gm., and the third caused no increase, nor was any alkaloid left in the aqueous liquid. Ten cubic centimetres of the same sample of tincture reduced to extract and dealt with according to the B.P. plan yielded 0.0488 Gm. alkaloids. The residue from this tincture was used to ascertain how much was strychnine, and whether so small a quantity was sufficient for the process. It was dissolved in 3 cubic centimetres of diluted sulphuric acid (B.P.) and made to 30 cubic centimetres with water, then 20 cubic centimetres of water containing 0.3 Gm. of potassium ferrocyanide was added, the whole shaken up in a stoppered flask, and subsequently dealt with in the prescribed way, with the result as follows:—Yield of strychnine 0.021 Gm., and of brucine 0.027 Gm., each being actually obtained and not calculated by difference. By this process the strychnine residue is always free from colour, and is crystalline, but invariably becomes coloured on the addition of nitric acid, thus showing the probable presence of a small quantity of brucine. For

such experiments as the above, in which so much volatile immiscible solvent has to be used, a small two-ounce carbonic acid flask has been used to collect the residue in, and the solvent has been regained by distillation process, a miniature Liebig's condenser being kept for the purpose, the heat used being hot water contained in a small beaker, and in which the flask could be comfortably imbedded.

THE OFFICIAL PROCESSES FOR THE ASSAY OF IPECACUANHA, BELLADONNA, AND NUX VOMICA.

BY F. C. J. BIRD.

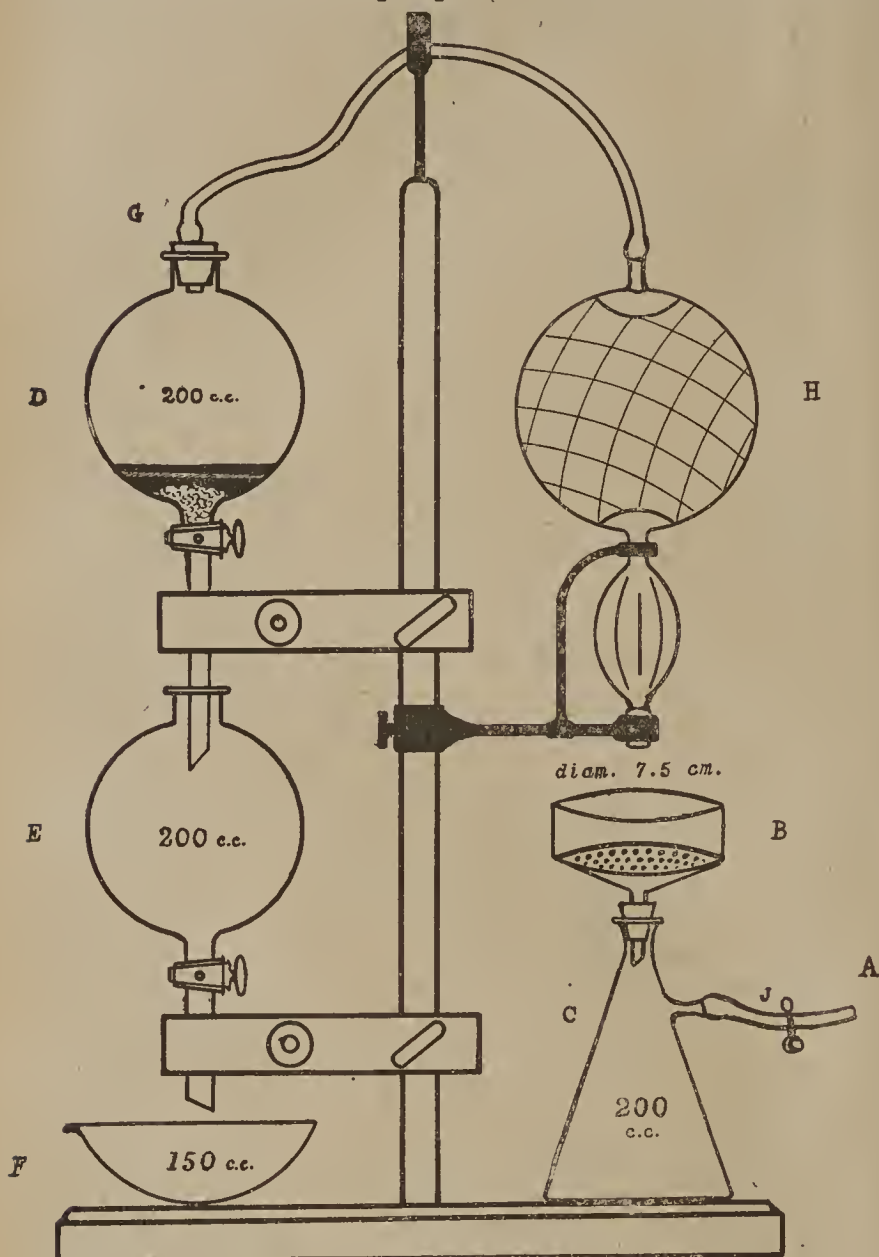
(I.) Ipecacuanha.

LIQUID EXTRACT.—The process given in the British Pharmacopœia for the standardisation of this preparation has almost from its first appearance been subjected to a good deal of criticism, chiefly adverse. The two most forcible objections urged against it have been its tediousness (due to the length of time necessary for the washing of the precipitate, separation of the chloroform, etc.) and its inaccuracy owing to the loss of alkaloid, and the impure condition of the residue finally weighed. The waste of material involved in operating with the quantities given in the Pharmacopœia has also been alluded to, although this can hardly be termed an objection, as it is open to anyone to use what quantity of material they may find convenient, provided concordant figures are arrived at. Several excellent analytical methods have been put forward which claim to be either more expeditious or more accurate than the official process, but as the figures hitherto published show a considerable variation when compared with the same assay by the B.P. method it is a matter of some perplexity to select an alternative process which can be used for standardising ipecacuanha preparations.

Whatever the inaccuracies and imperfections of the Pharmacopœia process, the fact remains that it is the standard by which the liquid extract must be tested and judged. The B.P. is very definite on this point. It distinctly orders the proportion of alkaloid in the liquid extract to be determined and adjusted by the analytical method described in the monograph, and if any other process be selected as a substitute it is absolutely essential that the result obtained by the new process shall bear a constant relation to the result given by the B.P. method, and be capable of accurate translation into the official figures. Any process not fulfilling this condition, however convenient or simple, is not available for the purpose of standardising the liquid extract, for if a certain sample of that preparation be found to yield but 1.8 per cent, alkaloid by the B.P. method surely no adequate defence of such deficiency in strength can be based on the statement that the process employed for its standardisation was more accurate than the official one, and capable of yielding more alkaloid.

Perhaps the tediousness which has generally accompanied the working of the official process appeals most strongly to the busy pharmacist. This, however, has been entirely overcome in the following method of assay, which is the practical result of experience derived from the examination of a large number of samples by the B.P. analytical process. As will be seen, details of manipulation quite in accordance with a close interpretation of the B.P. directions are responsible for the improved celerity of the method, and the results are in close agreement with those obtained by following the official instructions in their strictest sense. Working with 20 C.c. liquid extract, the average time occupied in the actual analysis, exclusive of the drying of the residue, is about one hour, but taking only 10 or 5 C.c., all the operations are performed more quickly and the time is naturally shortened. The quantities given below, refer to the process as it stands in the B.P. If 10 C.c. or 5 C.c. be selected as the starting point, one half or one fourth respectively of the quantities mentioned are employed, and the special apparatus is more conveniently of only half the figured capacity throughout.

Liquid extract of ipecacuanha, 20 C.c.; distilled water, 20 C.c.; acetic acid, *q s.* to faint acid reaction. Evaporate off the alcohol and add distilled water, 20 C.c., liq. plumbi subacete, 10 C.c. Keep the mixture on the water-bath for a few minutes until the magma which at first forms changes to a thin liquid, and the precipitate assumes a finely granular condition. Transfer to filter B, and connect A with a water pump. (In the absence of the latter



APPARATUS FOR THE ASSAY OF IPECACUANHA, BELLADONNA AND NUX VOMICA PREPARATIONS.

exhaustion of the air by forcibly sucking with the mouth at A, retaining the vacuum by the clip C, ensures a very fair rate of filtration.) Wash the nearly dry solid cake remaining on the filter with distilled water, 30 C.c., added in small portions. To the filtrate in C add acid sulph. dil., 25 C.c.; change the filter paper on B; transfer B to another filter flask (see note), and pour upon it the liquid in C, aiding filtration by a vacuum as before. Wash the cake of lead sulphate with distilled water, 15 C.c. To the filtrate in the same flask add chloroform, 5 C.c. ammonia, excess. Cork the flask, agitate vigorously and transfer contents to D (see note).

Connect D with H by the rubber cork G, and, having inflated the pressure-ball H, force the chloroform and a portion of the aqueous liquid in D through the filtering medium shown, into E. Draw off the chloroformic layer, which should be perfectly clear and bright, into the tared glass dish F. Return the aqueous liquid in E and D to the filter-flask, add chloroform, 25 C.c.; and proceed as before. Repeat a third time with chloroform 25 C.c. Finally collect the three chloroformic layers in F. Evaporate and dry the residue below 80° C.

NOTES.—B. Buchner's funnel 7.5 Cm., internal diam., has upright sides, and a flat perforated plate in one piece with the funnel. It carries a moistened filter paper, 7.5 Cm. diam., laid flat on the perforated plate. For the filtration of the acid solution from the lead sulphate, a very close filter paper must be used, or what will generally be found more convenient, a pinch of purified asbestos is rubbed with water and poured on the filter paper first, when the acid liquid passes through bright at once. D is an ordinary separator, prepared in the following manner:—Moisten a plug of cotton wool with chloroform, and place it in the neck of the separator above the tap. Upon this pour a layer of purified sand. Rub a little purified asbestos with a few C.c. of chloroform in a small mortar, and pour into separator and add a thin layer of sand. This filter once prepared will serve for a number of assays of the same drug. It is cleansed after use by rinsing off any deposit without disturbing the compact mass of sand, and then forcing a few C.c.'s of dilute ammonia through, until the liquid passes colourless. Should the chloroformic solution of the alkaloid not come through quite bright, the addition of a little more asbestos saturated with chloroform will overcome the difficulty. The asbestos and sand are purified by successively extracting powdered asbestos and silver-sand with hot hydrochloric acid and ammonia.

The washing of the lead precipitate usually takes less than a quarter of an hour. At the Plymouth Conference meeting, several speakers having complained of the length of time consumed in the washing of this precipitate, I stated that with a filter pump it could be done in a quarter of an hour. This remark was incorrectly reported as referring to the whole process.

The Preliminary Removal of the Alcohol.—To ascertain if the presence of alcohol in a sufficiently diluted condition would affect the yield of alkaloid, the B.P. process was modified as follows, and applied to two samples of liquid extract:—Liquid extract 20 C.c., water 60 C.c., solution of subacetate of lead 10 C.c. Warm for a few minutes on the water-bath, and proceed according to the details for B.P. process already given.

		Per Cent.	
		Weight.	Titration.
Sample No. 1.	Alcohol, not removed	1.955	1.785
	B.P. process	1.95	1.78
Sample No. 2.	Alcohol not removed	2.21	1.49
	B.P. process.....	2.13	1.45

A sufficient number of samples have however not yet been examined to allow of the statement that the removal of the alcohol is unnecessary.

Loss of Alkaloid in the Pharmacopœia method of Assay is chiefly due, as shown by H. Wilson, to retention of alkaloid in the lead precipitate. It is also influenced by the composition of the sample under assay, and by the thoroughness of the washing. The liquid extract of the Pharmacopœia probably contains in solution the alkaloids emetine and cephaeline combined with ipecacuanhic acid and in the free state, the peculiar intense brownish yellow decomposition product resulting from the alteration of the free alkaloid (principally cephaeline) by heat, fat, resin, traces of volatile oil, and sugar. On the evaporation of the alcohol, the fat, resin, and a portion at least of any alkaloid existing in the free state is precipitated, the greater part of the combined alkaloid remaining dissolved. Basic acetate of lead is then added, which throws down the ipecacuanhic acid and leaves the alkaloids in solution. On filtering, the precipitate will consist of the insoluble lead compound together with the substances precipitated by the removal of the alcohol and all the free alkaloid which is not soluble in the volume of liquid present. Paul and Cownley* state that emetine (and presumably cephaeline also) is sparingly soluble in water, sufficient washing ought therefore to remove the whole of the alkaloid from the precipitate. This has already been shown to be the case by W. A. H. Naylor.† But the ease with which this takes place greatly depends on the physical condition of the lead precipitate. When the solution of subacetate of lead is first added to the warm evaporated liquid extract a gelatinous magma is formed highly favourable to the mechanical retention of alkaloid and of the strong mother liquor, and which renders effective washing extremely difficult. If, however, the liquid be diluted somewhat before the addition of the lead

* *P.J.* [3], 25, 691.

† *P.J.* [4], 9, 87.

solution and the whole kept at a gentle heat on the water-bath for four or five minutes, the previously thickened liquid gradually becomes thinner, and the precipitate aggregates to a finely granular condition, very amenable to rapid filtration. Until this occurs filtration should not be attempted. Using Buchner's filter and a vacuum of 8 or 10 in. of mercury, the separation of the mother liquor from the lead precipitate can usually be accomplished in two or three minutes.

It appeared possible that the basic nature of the lead subacetate might account in part for the retention of alkaloid, but experiments made to ascertain this point apparently show that this is not the case. The amount of washing required is naturally largely influenced by the proportion of free alkaloid in the original extract, also if the original extract be not distinctly acid, the presence of the highly coloured decomposition product of the alkaloid resulting from the exposure of its alcoholic solution to heat affects the washing to some extent. This altered alkaloidal substance communicates a very marked fluorescence to alkaline liquids containing it, as pointed out by Paul and Cownley, and it appears to behave very much as the alkaloid itself towards solvents in passing from acid to the alkaline solution; yet it does not possess the power of neutralising acids and precipitating with alkaloidal reagents like an alkaloid, or, at all events, not to the same extent. A liquid extract containing a comparatively large proportion of the evaporated products prepared from lime and ipecacuanha yields a highly coloured alkaloidal residue, possessing a comparatively low titration value.

The analysis of an extract prepared from ipecacuanha root by simple percolation without the use of either heat or lime shows that, on account of the absence of free alkaloid or the brown decomposition product already alluded to, the loss in the lead precipitate is very small, and the alkaloidal residue extremely pale in colour, with a high titration value. For example, a sample of strong percolate from Rio root gave—

	Weight.	Titration.
Percentage of alkaloid retained by lead precipitate	0.02	0.01
Percentage of alkaloid in strong percolate	1.75	1.62

If an allowance in the last figure be made of 0.56 for the titration value lost in the evaporation of the chloroform and drying the residue at 79° C. (see below), the percentage becomes 1.67, being a difference between weight and titration of less than 5 per cent.

For the purpose of the following experiments two samples of B.P. liquid extract of ipecacuanha were selected, A and B. The one (A), from its dark colour and general appearance, evidently contained a considerable proportion of free alkaloid altered by the effect of heat. The other was a typical extract agreeing in general characters with those usually found in a carefully prepared product.

The retention of alkaloid by the lead precipitate being chiefly due to the presence of free alkaloid and possibly to a less extent to mechanical entanglement of the strong mother liquor, the following method* of washing might be expected to reduce the loss considerably. The lead precipitate was removed from the Buchner's filter after the whole of the mother liquor had been sucked through, and an almost dry cake remained, and triturated in a mortar with 30 C.c. of warm water. It was then returned to the filter and a further quantity of 20 C.c. water passed through—making 50 C.c. wash water in all.

In a second experiment sufficient acetic acid was added to the liquid extract before evaporation to give it a very faint acid reaction.

ALKALOID RETAINED BY LEAD PRECIPITATE
Per Cent.

SAMPLE B (20 C.c.).	By Weight.	Titration.
Precipitate washed by trituration as described above..	0.10	0.06
Liquid slightly acidified before addition of lead solutions, 30 C.c. wash water	0.08	0.04

Clearly, therefore, slight acidification of the liquid before addition of the lead subacetate is as effective in preventing loss as the method of washing described. As the B.P. simply directs the

precipitate to be washed, leaving the manner of washing entirely to the discretion of the operator, the faint acidification is quite permissible, as it is only equivalent to the more troublesome process of washing, and cannot, therefore, be called a departure from the official process.

Similarly, sample A (20 C.c.) gave alkaloid retained by lead precipitate—

	Per cent. Weight.	Titration.
Lead precipitate, washed with 30 C.c. water without trituration	0.32	0.18
Acidified before evaporation, 30 C.c. wash water	0.09	0.05

The average loss of alkaloid in the lead precipitate is about 0.08 per cent. (weighed residue), using the above quantity of wash water. This probably, however, is higher than the truth, on account of the difficulty with such a small residue of obtaining the ether-chloroform solution quite free from extraneous matter.

The Chloroformic Solution of the Alkaloids.—In all processes of alkaloidal determination depending on separation by immiscible solvents, it is essential for accurate and concordant results that a perfectly sharp separation and clear solution of the alkaloid be obtained. If allowed to stand sufficiently long, the chloroform will generally separate completely and bright, but when time is an object there is often a temptation to draw the chloroform off before a satisfactory separation has taken place. By the method of manipulation described the separation of the chloroform is absolutely sharp, and occurs immediately—the solution at the same time being perfectly clear and brilliant.

The Alkaloidal Residue.—The mixed chloroformic solutions are directed to be evaporated and dried at a temperature below 80° C. The varnish-like layer of dried total alkaloids retains chloroform with great pertinacity, and as a rule several hours' drying at the prescribed temperature is necessary before the successive weighings cease to differ. This renders the drying process tedious and lengthy. A much quicker plan is to evaporate the mixed chloroformic solution until but 1 or 2 C.c. remain, and then add about 5 C.c. of 0.717 ether, the mixed liquid, by inclining the dish, being allowed to run over the interior and form a thin film on the inner surface. If the dish be kept moving the ether evaporates in a few minutes, and the weight of the residue will now be found to become constant in a very short time.

Continued heating must be avoided in any process dependent on final titration. Paul and Cownley, in studying the action of heat on the alkaloids of ipecacuanha, found that cephaeline was rapidly decomposed when boiled with ethyl alcohol, and probably emetine would be acted upon in the same manner. Solutions of the two alkaloids in chloroform are very sensitive to light, and presumably to heat as well; the darkening in colour of the chloroformic solutions of the alkaloid when evaporated has frequently been remarked. To ascertain if this fact had any bearing on the deficiency in titration value of the B.P. residue pointed out by several observers, a pale alkaloidal residue representing 40 C.c. of liquid extract, which had been dried at a low temperature, was dissolved in 150 C.c. of chloroform, and the solution divided into two equal parts, (a) and (b).

CHLOROFORMIC SOLUTION OF THE ALKALOIDS (75 C.c.)
Per cent. titration.

(a) Evaporated spontaneously in vacuo	2.006
(b) Evaporated in water oven at 79° C.	1.95

This shows a loss of 0.05 per cent. in titration value on an average 2 per cent., result ascribable to alteration of the alkaloid during evaporation of the chloroform and drying below 80° C. till constant in weight.

Impurity of the B.P. Alkaloidal Residue.—The composition of the alkaloidal residue appears to be regulated by the proportion of altered alkaloid in the sample of liquid extract under examination, different samples furnishing residues which vary greatly in the discrepancies exhibited by the gravimetric and volumetric figures. Treatment with lead subacetate, etc., excludes, practically all matter not either alkaloid or of alkaloidal derivation

* This has been referred to by H. J. Henderson, P.J., December 23, 1899, 602.

and the difference between the amount of alkaloid indicated volumetrically and the weight of the residue, as far as the B.P. process is concerned, appears to be made up of alkaloid, which under the influence of the heat employed in the process of manufacture has probably undergone some molecular change not as yet thoroughly understood. In support of this assumption it was found that a liquid extract prepared by percolation, without the use of either lime or heat, yielded an exceedingly pale residue, indicating by weight 2.14 per cent., and by titration 2.06 per cent. of total alkaloid, a difference of less than 4 per cent. Whether the altered alkaloid is entirely without physiological activity is not known, and until this point is settled it seems a little doubtful whether titration alone can accurately determine the medicinal value of a preparation of ipecacuanha. Paul and Cownley have shown that when cephaeline undergoes change by being heated with acetic acid, a larger quantity is required to produce emesis, but, on the other hand, although attention has been called to the serious deterioration in strength on keeping certain samples of liquid extract (presumably containing a very notable proportion of free alkaloid), no cases of corresponding deficiencies in emetic effect have been reported.

The Relation of the Results of the Official Method to Those Given by Other Processes.—The figures hitherto published indicate a very wide variation between the gravimetric determinations of the Pharmacopœial process and the gravimetric and volumetric results of other methods. H. Wilson* obtained figures higher by about 8 per cent., and Farr and Wright† found that Wilson's process gave an excess of from 7 to 16 per cent. W. A. H. Naylor,‡ on the contrary, records one instance in which Wilson's process came out below the B.P. method, the deficiency amounting to about 0.5 per cent. Farr and Wright and W. A. H. Naylor have given examples of results obtained by their respective processes in which the gravimetric figures have been in most cases very much higher and the titration figure generally lower than the corresponding ones by the official method. No constant relation has therefore been shown to exist between the weight of the residues obtained by the several published processes and those of the B.P. method, although there is an exception in the statement by H. J. Henderson§ that Alcock's method yields a residue corresponding very closely in weight with the residue yielded by the B.P. method. The variable composition of the samples of liquid extract used for comparison would prevent any accurate deductions being made from the figures referred to above. Therefore, in order to observe the working of the various processes with the same sample of liquid extract the two extracts A and B were assayed by all the published methods and the results tabulated.

(To be continued).

BACTERIOLOGY FOR PHARMACISTS.

BY C. EDWARD SAGE.

The trite sayings "Small beginnings have big endings" and "Many a mickle makes a muckle" can be most aptly applied to the work of a bacteriologist.

It is difficult to conceive the possibilities which bacteriological research open up, and the wonderful discoveries of this science have astonished even the investigators who have made them. Just as the cultures and products obtained by a bacteriologist are generated from the most minute quantities of matter, so the beginner must commence his studies with small and simple experiments, and wait for experience to lead him to fresh fields of research and new discoveries by means of the material at his disposal.

That pharmacists should possess a knowledge of bacteriology is essential in these advanced days of antiseptics and disinfection.

Medical students are instructed in bacteriology, brewers study it for business purposes, and the professional chemist uses his knowledge of the subject in many ways which benefit mankind.

Although pharmacy students are not taught anything of a definite nature relating to bacteriology, they cannot do less than show an interest in the causes of fermentation and decomposition and the methods which are used to prevent these organic changes in saccharine and vegetable solutions, and even if the medical aspect of bacteriology is beyond their province a knowledge of it should be of some service in business.

A little knowledge is a dangerous thing if wrongly applied, but if the little is only a nucleus for acquiring more, then its utility is obvious.

Now, although it costs a considerable sum to equip a working laboratory in which to deal with scientific investigations relating to diseases and their prevention or cure, yet the apparatus by means of which a student may commence his studies need not cost an extravagant amount.

Pharmacists are peculiarly well fitted for the study of bacteriology, their knowledge of chemistry and botany are useful, and their intimate acquaintance with making solutions and the handling of apparatus is a great help, while habits of neatness and cleanliness are essential.

The apparatus necessary to commence with includes the following:—A good microscope, an incubator, a steriliser, and flasks, test tubes, and sundry oddments such as are always at hand in a pharmacy.

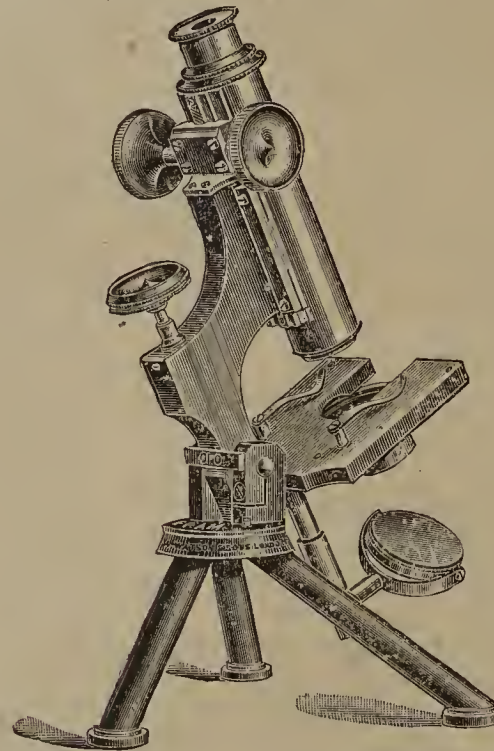


FIG. 1.—WATSON'S "F AM" MICROSCOPE.

The incubator and steriliser can be improvised, and all the other things are inexpensive except the microscope.

The best advice the writer can give regarding the choice of a microscope is summed up briefly as follows:—Find out what you want, then how much you have to spend, then go to a good maker's and tell them the facts of the case. Pharmacists expect customers to come and ask for what they want and trust to them to supply what is right, and ought to be prepared to show an equal trust in their fellow-tradesmen.

It is perfectly possible to conduct many of the experiments without the use of a microscope, but sooner or later the student will be certain to want one, and it is therefore best to have it to start with.

The essential points in selecting one for bacteriological purposes are:—A firm and heavy stand, with a clamp to keep the tube at any angle; a good fine and coarse adjustment; an easily manipulated stage; three objectives, namely, 1 inch 1/6 inch, and 1/12 inch; a sub-stage condenser.

Such an instrument is supplied by Messrs. Watson, High Holborn (Fig. 1), for between £13 and £14, and for a student who can afford it the money would be well spent; a microscope is.

* P.J. [4], 7, 3.

† P.J. [4], 9, 86.

‡ P.J. [4], 9, 88.

§ P.J. [4], 9, 602.

or should be, one of a pharmacist's most prized possessions, and a student should want one continually.

Let it be remembered, however, that it is not necessary to possess a microscope before work is commenced, for there are many other means by which organisms are differentiated. Some grow best in acid media, some in alkaline, some in air, others in absence of air, some in milk, others in broth, on jelly, potatoes, or bread, and the characters they present while growing on these media are often observable to the naked eye, and permit the student to make numerous observations on the organism under examination.

As micro-organisms are omnipresent, some can always be obtained with which to make experiments, but the methods for getting few enough to start with and their subsequent culture require the preparation of vessels and media free from organisms, and means of growing the organisms at a slightly elevated temperature—viz., 36° to 37° C.

To illustrate some of the requirements and methods let us take seven 4 oz. flasks and proceed with some simple experiments, as follows:—

Make a quart of fresh infusion of gentian and let it cool in the pot. Number the flasks, and then into—

No. 1 pour about 3 oz. of the infusion, and put it aside uncovered;

No. 2 pour about 3 oz. of the infusion, then boil it, and put it aside uncovered;

No. 3 pour about 3 oz. of the infusion, boil it, and afterwards plug the neck with cotton wool, and then put aside;

No. 4 pour about 4 oz. of the infusion, then boil it, plug with cotton wool as before, and put aside for twenty-four hours, then bring it just to the boil again on two successive days, removing the plug and re-inserting it each time;

No. 5 pour about 3 oz. of the infusion, add 1 grain of salicylic acid, plug with wool and set aside;

No. 6 pour about 3 oz., and add ʒss. liq. hydrarg. perchlor., plug with wool and set aside;

No. 7 place about 4 oz., and plug with wool, then put it in a warm place where the temperature is about 37° C. or 97° Fht.

Place all the first six flasks in a warm place together where they will be exposed to the same conditions, and the following observations may be made after a few days:—

Flask No. 1.—The contents will soon become cloudy, and probably the surface covered with moulds. The changes will have been brought about by the organisms attached to the particles of dust floating in the air or by organisms already present in the flask when the infusion was placed in it.

Flask No. 2 will remain clear and fresh for longer than No. 1, but the dust in the air will soon contaminate the infusion, and growths will soon appear or cause the infusion to "go wrong."

Flask No. 3 will remain good for several days, but will eventually go cloudy, owing to the development of spores, which were not destroyed by at once boiling the infusion.

Flask No. 4 will keep indefinitely, and if the cotton wool plug is singed the contents of the flask will keep for a very long while, for all the organisms have been killed by repeated boiling.

Flask No. 5 will keep good for some weeks, showing the preservative action of the salicylic acid, but moulds will develop eventually.

Flask No. 6 will probably become turbid, owing to the precipitation of some of the albuminoid matter by the mercury, but the solution will remain free from organisms for a long time, showing the germicidal action of the mercuric chloride

Flask No. 7.—The contents will "go wrong" very quickly, probably in twenty-four hours, due to the rapid development of organisms at the warmer temperature.

These experiments show the presence of organisms in the air, and indicate how they may be killed or kept out of the infusion, also how their growth may be retarded by antiseptics, hastened by

warmth, or prevented by a germicide, and give the student an elementary idea of the nature of the work before him.

To be enabled to examine organisms and grow them rapidly an incubator is necessary, for otherwise the examinations would take too long; and in order to incubate cultivations at a uniform temperature some means must be devised for maintaining the proper degree of warmth. To do this satisfactorily one of Hearson's Incubators is perhaps best, but with a little ingenuity a beginner can easily make a warm cupboard which will answer all his purposes. Before making anything, however, it would be well to make a tour of inspection in the house, for often there is a cupboard warmed by the hot water supply for the bath-room, or a drying cupboard, in which the desired temperature may be maintained without any effort. If no such convenience is at hand the following is a cheap way to improvise an incubator (Fig. 2):—

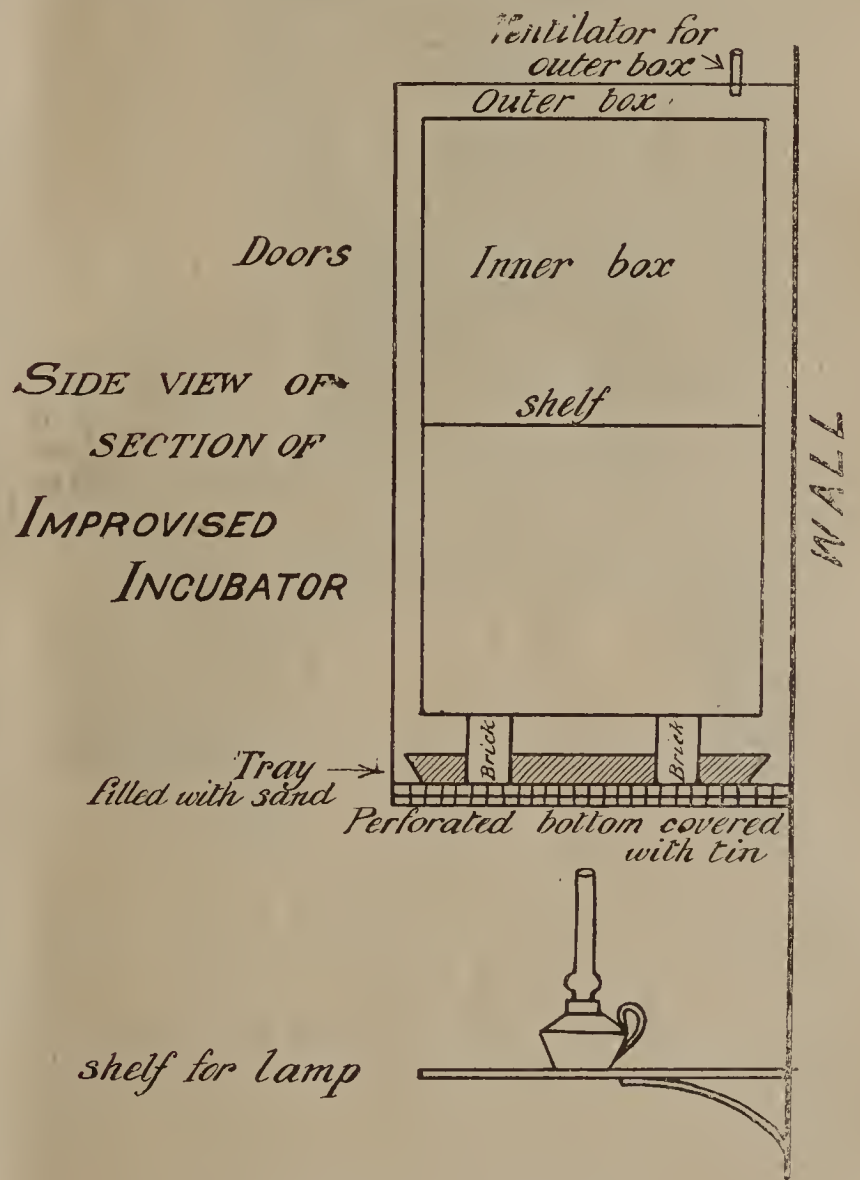


FIG. 2.—AN IMPROVISED INCUBATOR.

Get a stout box with a good hinged lid, and fix it up against a wall like a cupboard. Drill a number of holes in what is then the bottom; cover the outside of the bottom with tin; on the bottom inside place a tin tray, about 2 inches deep, and covered with sand, and in it stand two bricks; on the bricks and inside the box fit another box, with a lid, only a size smaller, leaving an inch or two all round in between the sides; in the top of the outer one drill a small hole for ventilation. On a shelf a little way beneath the whole place a small paraffin lamp; and, having placed a thermometer inside the inner box, notice at what height the wick of the lamp must be kept in order to maintain the temperature at 37° Centigrade. The temperature will not remain constant, but its construction will not allow it to radiate much heat, and its average

temperature may always keep about what is required with a little attention.

So much for an improvised incubator. It is a simple contrivance only, and does not compare with one sold by Messrs. Hearson for £8 8s. ; but when the uses of the simple one are appreciated it will be time to purchase the other.

The Hearson's incubator (Fig. 3), depicted below, is the form most generally used in small laboratories, and is a neat-looking piece of furniture. The temperature is wonderfully constant, even in winter, and, provided the lamp is kept clean, there is no odour from it at all.

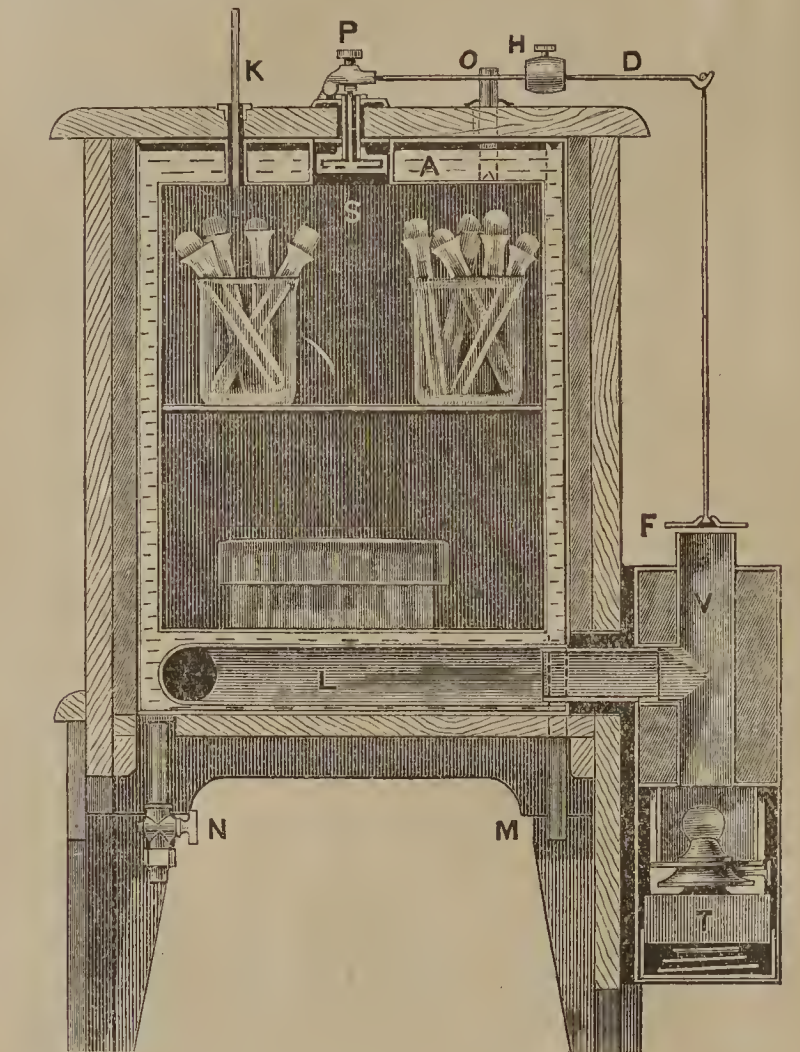


FIG. 3.—HEARSON'S INCUBATOR.

Next for some means of sterilising apparatus for use in the experiments. First of all it is necessary to have something to sterilise with by means of dry heat. All flasks, bottles, and dishes which are to be used must be carefully washed, and although in a laboratory it is best to have a hot air steriliser, yet a student can generally make the kitchen oven answer all his purposes, provided it is quite clean. After the apparatus is washed and drained it can be heated in the oven for an hour at a moderate heat, and that suffices to kill all organisms which may happen to be present.

Sterilisation will be dealt with more fully later on, but some word must be said about a steam steriliser before closing this column.

Culture media such as broth, gelatine, jelly, and agar agar jelly, cannot be safely sterilised in a hot oven, so a steam steriliser must be made or obtained. For economy's sake it is best to let a tinsmith make a vessel (Fig. 4) on the following lines:—

A circular tin vessel, about 12 inches in diameter, and 24 inches deep, with a loosely-fitting cover. At about 8 inches from the bottom is fitted a ledge, on which rests a wire netting shelf.

To use the apparatus it is filled with water to a depth of 6 inches, placed on a tripod, and the water boiled over a gas stove or bunsen burner. Anything to be sterilised is placed on the wire netting in the steam, and allowed to stay there for thirty to sixty

minutes. Test tubes and small tubes and flasks can be stood in small crates on the netting.

The foregoing remarks will give a little insight into the possibilities of interesting and instructive work for students, and subsequently articles under this heading will deal with the following parts of the subject:—Methods of sterilising and working, preparations of culture media, varieties of organisms, how to stain and mount specimens, simple cultivation experiments.

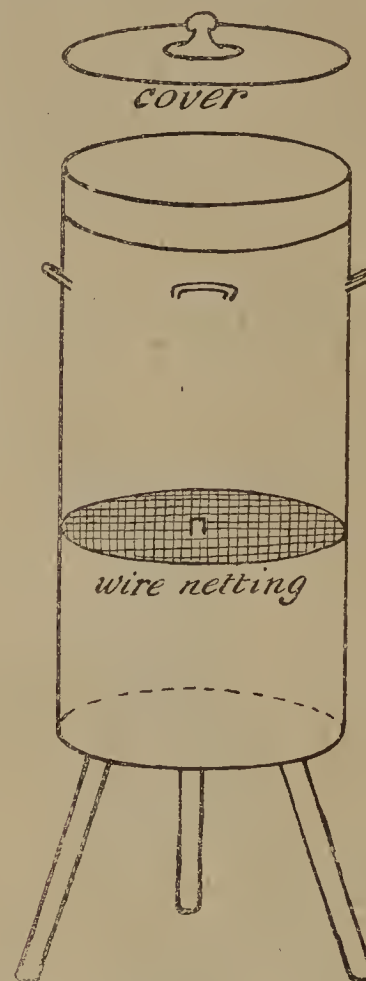


FIG. 4.—A SIMPLE STEAM STERILISER.

BHAMO VISITED BY A PHARMACIST.

BY FREDERIC S. MASON.

Even a drug traveller wants a change sometimes, and more especially after months of wrestling with native buyers in the bazaars. So for Christmas week I went to Bhamo, not with my usual commercial instincts (although fifteen years in the East had made me secretly hope to find business even in this end-of-the-world sort of place), but for rest!

Bhamo has long been the objective centre of the trade filtering through the mountain passes of Western China (Yunnan) to the head waters of the Irrawaddy, that wonderful stream coming from an ill-known source, and fertilising the rich plains stretching nearly one thousand miles from the snow mountains of Western China and the unknown country due north from Rangoon to the sea.

As a stepping-stone to trade with China, much has been, and is still hoped for, by the Indian Government; and to inquire into the possibilities of a trade in drugs was a task I imposed on myself, while resting and seeking health on the Irrawaddy steamboat.

It is useless to give a description of the very fine and interesting scenery of the Irrawaddy, as so many books have been written on the subject of the fascinating country and people of Burma by competent authorities. I shall try, therefore, to confine my observations to points of interest to pharmacists.

As soon as Mandalay is left behind, the golden pagodas—such a constant and almost tiresome feature of lower Burma—become

rarer, and when the second defile beyond Katha is passed, it is only here and there that one bright spire, and, perhaps, a golden shrine of Buddah, shines out amongst a few old mouldy ones, richly decorated with orchids and other parasites. The villages become wretched, and the people are no longer Burmese, with clean bright-coloured silks (for even one's coolie girls, who carry the luggage to the steamer, wear silk as far up as Sagaing).

The Burmans are here replaced by dirty Shans, with wide blue trousers, immense sun hats, which serve as umbrellas, and blouses, who seem to be born tired, and to have never got properly rested by lying (as they do all day) on the floors of their huts, amidst the ancestral slime of generations. This proved to be a foretaste of Bhamo! The town itself and its surroundings are distinctly disappointing, and beyond a white bell-shaped pagoda, and a fine carved Chinese temple, there is nothing whatever to see of interest.

Although there is a large resident, and, at certain seasons, a still larger floating population of Shans and Chinese, the jolly Burman is almost as much a foreigner as the troops stationed here. The great bulk of the population is made up of the Shans, Kachins, Palungs, and Meinthas, or Chinese Shans (Mahomedans), who come here with thousands of mules laden with produce, and take back kerosine, cotton, and other goods of European and American manufacture, but little or no medicines beyond opium for smoking. A good many of these Meinthas—wild, fierce-looking chaps they are—armed with great "dahs," go down to Katha, and from there to work in the ruby and jade mines, and when the Government allows the immense mineral resources of Upper Burma to be opened up by Europeans (which cannot be done at present), they will form a most valuable aid, as they are hardy and industrious, whereas the people from the Shan hills, the Kareens, Kachins, and similar tribes, are without ambition of any kind. As an opening for pharmaceutical enterprise, therefore, I cannot recommend Bhamo as a field for any young enthusiast. There is a civil hospital, in charge of the military surgeon, but no chemist (native or otherwise), although all sorts of medicines, such as Epsom salts, carbonate of soda, and such specialties as santal midy and chlorodyne are sold almost in every shop in the bazaar, and I may add with some satisfaction that I found quite one-third of the pharmaceuticals exposed for sale bearing the name of our firm.

The merchants are mostly Chinese or natives of India, and there is that peculiar smell peculiar to Indian bazaars, combined with that equally peculiar Chinese smell, so that exploration amongst these dirty-holes-in-the-wall is not inviting. I was shown large quantities of orpiment, beeswax, and fine white honey, packed in a sort of paper bag, which fits over the mule's back, and thus travels hundreds of miles over the mountain passes. Considerable trade is done, however, but the big Chinese merchants are in Rangoon—the men here are mostly simply forwarding agents—so that no musk or any articles of value could be found. I took some pains to talk with some of the leading Chinese merchants' agents—my conversation in very poor Urdu being translated into Burmese, and then into the Yunnan dialect of China—in order to learn what could be expected from the security enjoyed for trade under British rule. A boundary commission is now at work, and will probably stretch this as far as possible. I learned that prospects were not very encouraging, the Kachins, Northern Shans, Kareens, and similar tribes were unlike the Burmese, who are splendid buyers, and love every modern luxury and comfort of civilisation. These people, while perhaps not so poor and wretched as the English lower classes living from hand to mouth in the slums of London, have been so long without what we consider the necessaries of life, and seem to live on fresh air, and things of that sort so well, that they continue, without further ambition, to exist by privations, and while it is quite cold (5° C. in the morning), one sees babies and children, up to eight and nine years, quite naked, while the adult Zanpyaws (Eastern Kachins) wear girdles of twisted rattan round the waist only. With such races, generations of mis-

sionaries could hardly make any progress (except with the most degraded, such as the Kareens), as they are Buddhists or Mahomedans, who cannot be converted unless cast off by their own people for crime.

Agam, the people (unlike the Burmese and Indian races) have not developed a civilisation of their own which can be "canalised," as has been done with these higher races of India for the benefit of trade, so that without wants or aspirations beyond a bare existence, little is to be hoped of them for many many years.

With the energetic and hardy Meinthas from Chinese territory something might be done if they could be got to settle in the country, but at present they are simply wandering traders, and many years must pass before they can be educated into buying medicines.

As a holiday jaunt, a more delightful trip cannot be taken, and the wonderful mingling of races in this remote corner of the East is in itself well worth the visit, but as a permanent residence I can understand the military aristocracy of India's dread of it as a station, and their devotion to tennis, polo, and sports, which is so plentiful in the hills.

STUDENT LIFE IN THE QUARTIER LATIN.

AS IT APPEARS TO A PHARMACIST.

The Latin Quarter of Paris! Mysterious to the stranger, loved by the initiated, rarely deserted from October to July by the thousands of students who revel in its delights. Here these young men, representative types of nearly every civilised nation in the world, are perfectly "at home," which means that they are free to do as they like, to come and go as they like, to dress as they like, but always according to respected traditions. With the long hair streaming down over their shoulders, hats of curious shape well back on the head that the front hair may fall in a matted fringe over the forehead, trousers "elephant"—i.e., shaped like piano-legs, the flowing necktie, they reek of picturesque untidiness. They have their clubs, and good ones, too, where the more studious may pass their time in tolerable tranquillity, while for the others the "Quartier" makes the evenings one long enchantment.

From dinner till early morning, the cafés of the "Boul. Mich.," as the Boulevard Saint Michel is familiarly known, are full of members of the medical and art student world and the strangers who come to "look on," while on "Bal Bullier" nights dancing is kept up late, and, of course, everyone comes home with the milk. Nearly all are young men of small, if any, means, and such of them as possess a fair amount of the needful are soon taught how to spend it. Among them are serious youths, for, as a rule, the students study, although the silent onlooker would scarce think them capable of aught but noisy frolicking.

But the painter! In ninety-nine cases out of a hundred his artistic temperament forbids work. The medical student has a definite purpose. He studies for a profession, and hopes some day to establish himself and have a lucrative practice. The case of the painter is settled in advance, is generally hopeless, and he knows it. He loves to wander about, paint-box in hand, a canvas under his arm. He loves to think he is going to be a great artist. In winter he frequents the day and night schools, where he can be warm, where he can have models, dressed and undressed, and where once a week a man of renown will pass a "mauvais quart d'heure" in trying not to tell him what a fool he is.

Then he'll fling palette and paint-brush *au vent*, and, descending his dark and narrow staircase, will hie himself in search of amusement in company with his medical chums. A question often asked is: How do all these students live? Their rooms are barely furnished. A couch serves as a lounge by day and a bed by night; a cheap washhandstand, one or two chairs, some linen, all usually borrowed or hired, make up their little paradise. They get their meals at one of the thousand and one cheap restaurants, where they usually pay cash at first, then pay monthly, then only half

each month, and finally forget to pay at all. But, taken big and large, the student as a rule is honest. The medico is, if anything, a trifle less scrupulous than his chum the art student. The latter idles away his time in his own lazy way, amusing himself by thinking he is looking into the "soul of art," and in postponing his current debts, because otherwise he would have no pocket money. This he must have, or he could not occasionally stand treat to the girl models of his acquaintance; and the nip of absinthe is so necessary to put fresh life and vigour into the jaded palette!

One of the best and most celebrated of these "creameries" is kept by Madame Charlotte, 13, rue de la Grande Chaumière. She has friends all over the world and has saved many a worthy and unworthy student in his days of dire distress. In this short and noisy street she has succeeded in creating a pleasant little restaurant, where rich and poor may safely eat, and where everyone admires her attractive face, the beauty of which is not diminished by her fifty years of toil. Her only child resembles her sufficiently to guarantee his origin. She has brought him up herself and provided him with a good education. Her husband was a quantity to be neglected, for he left her early penniless and with this one child. How many women succeed under such conditions? Now she can show you the fruits of her hard toil, the fruits of a life so honest and upright that the odour of it is simply refreshing—the work of a woman who, after all her trials, can look you in the face and say: "I never did wrong to anyone." And it is she whom the students worship, and call "Mother," 'tis she to whom they flock for counsel and for money, and she freely bestows both, and never by any chance refuses either. She deserves to be thusly styled, for she cares for them all as though they were her own brood. Many a student has had a free meal at her board when he has been penniless. She has even paid their washing, their rent, and for their clothes also. She sometimes gets some of it back, but not always. Frequently these youths come to her, crying: "Oh, Madame Charlotte, you alone can save me, I must have some money, they send me none from home!" And again she lets loose another 500 francs into the everlasting gulf. The student is saved for the time being; her inability to say No! and her generous disposition have helped another waster of time over the stile. The courage of the woman is much to be admired. She has an indomitable will. It is probable that in no country but France are women found who, being of the people and without education, have succeeded, not only in securing a competence, but have developed in themselves a keen desire to do good—for themselves and others. Such a good and merry soul is Madame Charlotte; she keeps a bed or two at the disposal of any sick student of her acquaintance, because "they can be better taken care of here than in hospital, and when they are sick they are so lonesome far away from home," she touchingly remarked.

After the 1900 Exposition is over, she intends to take one short year to wind up her affairs, and will then retire to her native land in Alsace-Lorraine. Paris will then lose another of its notabilities, who, in a humble way, has done much to make its life easier, cheerier, and more lovable. She will not be forgotten for many a day; no one can exactly take her place, and many a struggling young woman, many a penniless student will wish again and again that good old Madame Charlotte were still in the Quartier Latin to dole out her motherly counsel, to strengthen them in their despairing hours, to feed them, keep them and care for them "in sickness and in health."

SODIUM ETHYLATE IN MOLLUSCUM CONTAGIOSUM.—T. F. Raven has found the application of sodium ethylate thoroughly satisfactory in a case of molluscum contagiosum. The ethylate was applied directly to the growths, and was most successful when not covered by any protective plaster.—*B. M. J.*, 1/1900, 16.

NOTE ON THE DETECTION OF SULPHATES IN PRESENCE OF THIOSULPHATES.*

BY LEONARD DOBBIN, PH.D.

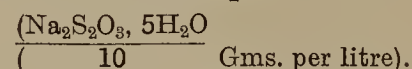
In the determination of sulphuric acid by precipitation and weighing as barium sulphate, it is well known that accurate results cannot be obtained in presence of any considerable quantity of certain salts, on account of the influence which the latter exert in preventing the complete precipitation of the barium sulphate. Nitrates, in particular, are known to produce this effect; and for this reason hydrochloric acid is employed in preference to nitric acid to acidulate the solution to be precipitated, and the precipitation is effected by the addition of barium chloride, rather than of barium nitrate.

The striking effect of the presence of thiosulphates in likewise interfering with the precipitation of barium sulphate is not by any means so well known, and, so far as I have been able to ascertain, it is not referred to in any of the standard text-books of qualitative or quantitative analysis.

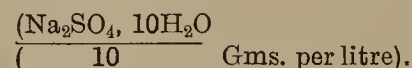
In ordinary qualitative examination for sulphate and sulphite, or either of them, in the known presence of thiosulphate, it is customary to add barium chloride to the dilute neutral solution, to filter off any precipitate that may be formed, and to examine the latter, after thorough washing, for sulphate and sulphite. The filtrate and washings contain the thiosulphate. This method, even when carried out with care, may entirely fail to reveal the presence of sulphate when the latter is only present in small quantity along with a moderate quantity of thiosulphate; because if the thiosulphate preponderate sufficiently, there will not be any barium sulphate precipitated, even after the lapse of a considerable time.

In order to illustrate clearly the risk of error that exists in such a case, the following solutions may be employed:—

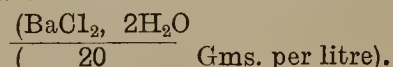
(A) Decinormal Sodium Thiosulphate solution



(B) Sodium Sulphate solution of the same sodium concentration as solution (A)



(C) Decinormal Barium Chloride solution



EXPERIMENT I.—(a) 100 C.c. of A and 4 C.c. of B are mixed in a beaker; (b) 100 C.c. of water and 4 C.c. of B are mixed in another beaker; (c) 1 C.c. of C is then added to the contents of each beaker.

A precipitate of barium sulphate is immediately produced in the solution which contains sulphate alone. In the solution containing thiosulphate and sulphate there is no precipitate, even on standing for some time, although the quantity of sulphate approximates to four per cent. of the total salts present. After prolonged standing, partial precipitation does take place in this solution also.

The solubility of barium sulphate in dilute nitric acid is also remarkably increased by the presence of a moderate quantity of dissolved thiosulphate. To illustrate this, the standard solutions already described may be employed.

EXPERIMENT II.—(a) 10 C.c. of A, 10 C.c. of water, and 1 C.c. of B are mixed in a beaker; (b) 20 C.c. of water and 1 C.c. of B are mixed in another beaker. (Each beaker contains the same quantity of sulphate in the same volume of solution.) (c) A small quantity of C is added to the contents of each beaker, and a precipitate is quickly formed in each. Then 20-30 C.c. of dilute nitric acid (20 per cent.) are added to each, when the precipitate in the beaker containing the thiosulphate slowly but completely dissolves. There

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, February 21, 1900.

is not any perceptible diminution in the quantity of the precipitate in the other beaker. At the temperature at which this experiment was tried (10° C.) the interval between the addition of the nitric acid and the first appearance of a precipitate of sulphur, due to the decomposition of the thiosulphate, was at least two minutes; and the barium sulphate precipitate had entirely disappeared some time before any sulphur was precipitated. It is possible that at a somewhat higher temperature the experiment may not succeed without further dilution to retard the decomposition of the thiosulphate.

I have only been able to find two references to the interference of dissolved thiosulphate with the precipitation of barium sulphate. One is in a paper by Fresenius*, in which the effect of a strong solution (25 per cent.) of sodium thiosulphate is mentioned as preventing its precipitation, and as thereby explaining certain discrepancies observed in a quantitative separation of baryta from lime, which is there under review. Fresenius does not refer there (nor elsewhere, so far as I have been able to ascertain) to the bearing of the matter upon qualitative analysis, nor does he enlarge upon it in any way. The other reference occurs in a paper by Salzer† upon the determination of iodine; and there, also, no remark is made about the bearing upon qualitative analysis.

The detection of a small quantity of sulphate in presence of much thiosulphate nevertheless presents considerable difficulty. One method would be to convert all the thiosulphate into tetrathionate by adding an excess of a solution of iodine in potassium iodide (which must be free from traces of sulphates), and then to add barium chloride (Salzer). But the detection of sulphate could probably be best accomplished by employing the method devised by Grossman‡ for quantitatively determining sulphate in presence of sulphite and thiosulphate. In this method the solution is placed in a suitably-fitted flask, the air is displaced by means of carbonic anhydride, and the liquid is heated. Excess of hydrochloric acid is added, and the liquid is boiled down to one-fourth of its original volume, a current of carbonic anhydride being passed into the flask all the time. The whole of the sulphurous anhydride set free is carried off by the escaping carbonic anhydride and water vapour. The liquid remaining in the flask is filtered from the separated sulphur, and the sulphate remains in the filtrate, where it can be detected and, if desired, quantitatively determined.

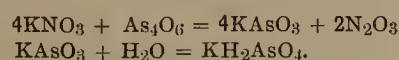
POTASSIUM ARSENATE§.

BY JOHN LOTHIAN.

Of the three potassium salts of orthoarsenic acid, K_3AsO_4 , K_2HAsO_4 , KH_2AsO_4 , the latter, or mono-potassium arsenate, is the only stable one.

There is very little information concerning this salt in English works. It is briefly mentioned in Watts' 'Dictionary of Chemistry.' It is more fully described by Hager ('Handbuch der Pharmaceutischen Praxis') and by Alessandri ('Manuale del Farmacista').

It is most readily prepared by fusing at a low red heat in a porcelain crucible a mixture of equal parts of dry potassium nitrate and arsenious anhydride, when cold dissolving the fused mass in water, evaporating and setting aside to crystallise. The reaction may be represented by the following equations, potassium metarsenate being formed, which, on solution, is converted into mono-potassium arsenate.



The salt crystallises out in dimetric octohedra. The crystals are anhydrous and permanent in air, have an acid reaction, are soluble

in about 5 parts of water and almost insoluble in 90 per cent. alcohol. They contain 63.8 per cent. As_2O_5 .

I examined two samples, one bought and the other prepared by myself. The powdered crystals dried for several hours at 105° C., only lost 0.1 per cent., a trace of interstitial moisture. I determined the As_2O_5 by precipitating as ammoniomagnesium arsenate, washing with ammonia water, igniting to magnesium pyroarsenate in a current of oxygen, and weighing.

The result of two determinations agreed exactly, and on adding the correction for wash water accorded closely with the theoretical requirement. I did not find the method of determination by weighing as ammonio-magnesium arsenate satisfactory, as the precipitate so rapidly absorbs moisture when removed from the drying oven.

The As_2O_5 can also be accurately determined volumetrically by means of uranyl acetate solution. 1 C.c. uranyl acetate solution, standardised to represent 0.005 P_2O_5 , is equivalent to 0.00809 As_2O_5 .

I found the solubility of the salt in water 20.72 grammes in 100 grammes of solution at 15° C.

I made the following observations while preparing monopotassium arsenate from arsenic acid.

When arsenic acid is neutralised by potassium bicarbonate (I used the bicarbonate as purer than the carbonate or hydroxide) the salt K_2HAsO_4 exists in solution. On evaporation, however, crystals of KH_2AsO_4 are deposited, and as the crystallisation proceeds the mother liquor becomes very alkaline. If the mother liquor is now neutralised with more arsenic acid a fresh crop of KH_2AsO_4 crystals is obtained, and the mother liquor again becomes alkaline.

This is explained by the hydrolysis of the K_2HAsO_4 in solution.



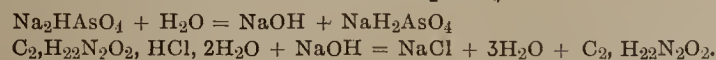
On evaporation the equilibrium is upset by the greater stability of the dissociated molecule KH_2AsO_4 (the salt K_2HAsO_4 does not crystallise), which, although an acid salt, crystallises out in the presence of the alkali.

Similarly, when arsenic acid is neutralised by sodium bicarbonate, the salt Na_2HAsO_4 is formed, and may also be assumed to exist in solution hydrolysed. $Na_2HAsO_4 + H_2O = NaH_2AsO_4 + NaOH$. On evaporation, however, the salt $Na_2HAsO_4 \cdot 7H_2O$, or $12H_2O$, continues to crystallise out, a reassociation of the dissociated molecules taking place, owing to the greater stability of the salt Na_2HAsO_4 .

I consider that the hydrolysis of the sodium arsenate is the correct explanation of the deposition of the strychnine in the liq. sodii arsen. and liq. strychninae hydrochlor. prescription discussed at the two previous meetings. In this case the equilibrium is upset in the opposite direction, the dissociated $NaOH$ being neutralised by the hydrochloric acid of the strychnine hydrochloride, strychnine deposited, and the salt NaH_2AsO_4 left in solution.

I mixed solutions of strychnine hydrochloride and sodium arsenate containing these salts in molecular proportions—that is, in the proportion of 403.7 parts of strychnine hydrochloride to 184.7 parts sodium arsenate anhydrous.

The strychnine, which was very rapidly deposited, was removed from solution by filtration and repeated agitation with chloroform. The solution, on examination, was now found to be acid in reaction and to contain the salts $NaCl$ and NaH_2AsO_4 .



METHYL SALICYLATE AS AN ANTISEPTIC DRESSING.—Gallois has found that the local application of methyl salicylate is a most effectual method of treatment for furunculosis, ulcerated legs, and contused wounds. A few drops of the liquid are applied directly to affected part, which is then covered with a linen bandage and gutta-percha. The first application gives rise to a little discomfort, but subsequent dressings are painless. The only objection to the use of the drug is its powerful odour.—*Bull. gen. de Therap.*, 128, 657.

* *Zeit. Analyt. Chem.*, 30 (1891), 459.

† *Ibid.* 31 (1892), 377.

‡ *Ibid.* 18 (1879), 80.

§ Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, February 21, 1900.

STRYCHNINE HYDROCHLORIDE AND POTASSIUM ARSENATE.*

BY J. RUTHERFORD HILL.

While working at the subject treated in my last communication (*Pharm. Journ.*, page 45) I came across references to the salt KH_2AsO_4 , but the information regarding it was very meagre. Mr. Lothian drew my attention to the fact that the commercial salt was the dihydrogen potassium arsenate. Reasoning from the results obtained with sodium arsenate and the equation showing the result of interaction between it and strychnine hydrochloride in aqueous solution, and observing that potassium arsenate gave an acid solution with water, it occurred to me that it would not cause precipitation of strychnine from liquor strychninæ hydrochloridi. When proceeding to dry the salt, in order to make a 1 per cent. solution, I observed very faint evidence of any water of crystallisation. Half an ounce of liquor potassii arsenatis (1 per cent.) was mixed with half an ounce liq. strychninæ hydrochloridi. A similar mixture was made, substituting a 1 per cent. aqueous solution of strychnine hydrochloride for the official liquor, which contains 25 per cent. of alcohol (90 per cent.). In both cases the solutions were perfectly clear, and have remained so for more than a week. There is not the slightest indication of any precipitate. On washing out the mixture with chloroform it was found that in the case of the purely aqueous mixture 0.3 grain, and in the case of the mixture containing alcohol 0.34 grain, had been dissolved out, using about four separate fluid drachms of chloroform in each case. This was a surprise, as, theoretically, it seemed as if no alkaloid should have been washed out. It was found, however, that by washing out half an ounce of aqueous liquor strychninæ hydrochloridi with a similar quantity of chloroform 0.38 grain had been dissolved out. The above residue was neutral to litmus, soluble in water, gave the reactions for strychnine hydrochloride, and, as is shown by a later experiment, was due to the solubility of strychnine hydrochloride in chloroform. The residue from the mixed solutions of strychnine hydrochloride and potassium arsenate, which, it will be noted, was smaller in quantity, consisted of free alkaloid with a trace of arsenate, indicating that the solution probably contains strychnine arsenate, and that the free alkaloid is obtained by slight decomposition of the arsenate by the chloroform, as is indicated in a later experiment.

It will be seen from the foregoing that the dispensing difficulty dealt with in Mr. Dunlop's note (*Pharm. Journ.* [4], vol. ix., page 604) is entirely obviated by using a solution of potassium arsenate instead of sodium arsenate. It is rather curious that the former salt appears to have received so little attention, at least, in this country. I am told it is used in homœopathic medicine, under the name of kali met., in the form of a dilute solution, but beyond that it does not appear to be used in British medical practice. One object of this note is to suggest that it should be inserted in our Pharmacopœia instead of sodium arsenate. It possesses several advantages. It is always anhydrous, and the necessity for drying and liability to variation on this ground in the case of the sodium salt are avoided. It is very stable. When heated to about 400° C. it undergoes no change beyond fusing into a glassy mass of metarsenate, which yields KH_2AsO_4 again when dissolved in water. Its acid aqueous solution has a much wider range of compatibility than the alkaline solution of the sodium salt. It contains 41.6 per cent. of arsenicum, as compared with 40.23 per cent. in the anhydrous sodium salt. The dose of a 1 per cent. solution would therefore be practically the same. The 1 per cent. of moisture helps the approximation.

It may also be well worth considering whether a liquor potassii arsenatis might not take the place of all the three 1 per cent. arsenical solutions, including the old liquor arsenicalis and the liquor arsenici hydrochloricus. The strongly alkaline and acid characters of the latter respectively are often a disadvantage and apt to be forgotten by prescribers. Liquor arsenicalis is said to

lose arsenic occasionally by precipitation on standing. Both solutions are more difficult to prepare, and more liable to error in process of making, than a liquor potassii arsenatis would be. The presence of compound tincture of lavender in liquor arsenicalis protects by colour and odour against the danger attending the use of a clear water-white arsenical solution. It has often occurred to me that this was a danger attending liquor arsenici hydrochloricus and liquor sodii arsenatis when dispensed alone as drops. For this reason it is suggested that the liquor potassii arsenatis should be coloured and perfumed before being sent out when dispensed alone. Compound tincture of lavender is not available for this purpose because the colouring matter of the red sandal wood is precipitated, being only soluble in an alkaline solution. Tincture of cochineal may be used instead. It has about eight times the tinctorial power of compound tincture of lavender. An imitation of liquor arsenicalis can therefore be made by adding to tinct. cocci, B.P., the same proportion of ol. lavand. (45m to ʒxx.) and ol. rosmarini (5m to ʒxx.) as is contained in tinct. lavand. co. Of this tincture add ʒ8 minims to each pint of liquor potassii arsenatis, or about 2 minims to each ounce. Some may think double this quantity not too much. A very pretty coloured liquor can be made by adding 5 minims of a 1 per cent. solution of fuchsin to each pint of liquor and perfuming with ol. lavand. The quantity of volatile oil in both these liquors is considerably less than in liquor arsenicalis, and this is an advantage, patients sometimes complaining of nausea, caused by the presence of the volatile oils in the present liquor.

This suggestion raises an important point as to the relative toxicity or therapeutic value of the arsenious and arsenic compounds. On this point I am indebted to Professor Stockman, of Glasgow, for the following references. The comparatively mild action of arsenates as compared with arsenites and arsenious anhydride is noted by Garrod in his 'Essentials of Materia Medica.' The matter is also very fully treated by Ringer and Sainsbury (*British Medical Journal*, 1882, vol. ii.), and also by Jones (*British Medical Journal*, 1885, vol. ii., page 99). It seemed probable that the reducing action of arsenious anhydride might materially modify the therapeutic action, but Husemann (*Deutsche medicinische Wochenschrift*, 1892) says oxidation of arsenites to arsenates in the body has never been demonstrated. He also says that the amount of arsenicum in arsenic and arsenious oxides is as 2 to 3 (6 to 7 is more correct), and that the relative toxicity in mammals is as ½ to 1. The whole tendency of the evidence seems to be that arsenious and arsenic compounds do not differ specifically, but only in degree, in therapeutic action, and that the arsenic in the "ous" condition is about twice as active as in the "ic" condition. Why arsenates are only about half as poisonous as arsenites has never, apparently, been explained. They are constantly prescribed indifferently in the same maladies, and if the above is correct the substitution of liquor potassii arsenatis for liquor arsenicalis and liquor arsenici hydrochloricus involves nothing more than an adjustment of dosage to secure identical results. But this latter point is obviously more in the department of the pharmacologist than the pharmacist. There can be no objection to its taking the place of liquor sodii arsenatis. The solution need not be coloured, when dispensed in a mixture with other ingredients. Should the salt receive official recognition, the following, based on Mr. Lothian's results, would be suitable as

CHARACTERS AND TESTS.

In colourless dimetric octohedral crystals, anhydrous, permanent in air, soluble in 5 parts of water, and yielding an acid solution; almost insoluble in alcohol (90 per cent.). A solution of 1 gramme of potassium arsenate, with 1 of glacial acetic acid, in 50 C.c. of water, should require 2.10 grammes of lead acetate for complete precipitation. The powdered crystals should not lose weight more than about 1 per cent. when heated to 300° F. (148.9° C.) (limit of interstitial moisture). The other characters are similar to those applying to sodium arsenate.

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, February 21, 1900.

STRYCHNINE SALTS AND CHLOROFORM.*

BY J. RUTHERFORD HILL.

While working on the topic of strychnine hydrochloride and potassium arsenate, some interesting notes were made on the action of chloroform on various salts of strychnine. They are imperfect, but may be of interest and suggest lines of enquiry for others who may have time to follow up the work. As already mentioned, when $\frac{1}{2}$ oz. of a 1 per cent. neutral aqueous solution of strychnine hydrochloride was washed with four fluid drachms of chloroform 0.38 grain of strychnine hydrochloride was dissolved out and separated by the chloroform. That indicates that the chloroform which separated contained about 1 of strychnine hydrochloride (anhydrous) in 868 parts. When 10 minims of dilute hydrochloric acid was added before washing out with chloroform, 0.71 grain was removed, equal to 1 in 460 parts. When large excess (5ii.) of dilute hydrochloric acid was added the chloroform removed 1.48 grain, equal to 1 in 220 parts of chloroform. An excess of the salt strychnine hydrochloride was left in contact with chloroform for several hours at 15° C., with frequent agitation, and filtered. 12.396 Gm. of the resulting chloroformic solution left on evaporation 0.073 Gm. of strychnine hydrochloride. Therefore 12.323 Gm. of chloroform dissolved 0.073 Gm. = 1 in 169. The residue was neutral, soluble in water, and, when treated with excess of ammonia and washed out with chloroform, yielded 0.050 of alkaloid. 0.073 of $C_{21}H_{22}N_2O_2HCl$ require 0.066 of strychnine, a difference of 0.016. The residue was, therefore, evidently $C_{21}H_{22}N_2O_2HCl$. Probably it was not quite anhydrous, and that may account for the small discrepancy between the amount actually found and that required by theory. It was thought that possibly the alcohol in official chloroform might have something to do with the solution of the strychnine hydrochloride. But assuming that it contains 1 per cent. of absolute alcohol that would not dissolve more than about 0.067 grain of strychnine hydrochloride for each zss. of chloroform, and that does not account for the solubility of the salt in chloroform.

At last meeting Mr. Cowie suggested that chloroform decomposed strychnine arsenate, removing the alkaloid. When aqueous solution of strychnine arsenate is washed out with chloroform the residue from the separated chloroform is very small, and seems to consist of free alkaloid with a faint trace of arsenate. The remaining solution is acid. When dry strychnine arsenate was left in contact with chloroform, and the latter filtered off, it was found that 15.3 Gm. of chloroform had dissolved 0.013 Gm. = 1 in 1178. This residue was alkaline and appeared to consist of free alkaloid with a quite perceptible proportion of arsenate. The remaining salt was distinctly acid apparently from the presence of free arsenic acid. It thus appears that chloroform does decompose arsenate of strychnine, but only to a very small extent at 15° C.

When aqueous solution of neutral strychnine sulphate ($C_{21}H_{22}N_2O_2H_2SO_4$) is washed out with chloroform there is a residue which appears to consist mostly of free alkaloid, and the remaining solution is acid. It would seem that some alkaloid is removed with formation of the more soluble acid sulphate. When neutral sulphate of strychnine was left in contact with chloroform it was found that 10.551 Gm. of chloroform dissolved 0.010 Gm. = 1 in 1055. The residue was mostly neutral sulphate with a little free alkaloid, indicating probably that acid sulphate is partially formed.

When an aqueous solution of acid sulphate of strychnine, $C_{21}H_{22}N_2O_2H_2SO_4$, is washed out with chloroform a very small and negligible quantity is removed. When there is distinct excess of sulphuric acid practically nothing at all is removed. The bearing of this on the official process for standardising fluid extract of nux vomica will be obvious. When the dry salt was left in contact with chloro-

form it was found that 14.231 Gm. of the latter had dissolved 0.005 Gms. = 1 in 2846. This gave a distinct reaction for sulphate but was neutral, and appeared to be the neutral and not the acid sulphate. The remaining salt was very strongly acid.

The bearing of the foregoing on a very common method of analysis in dealing with alkaloids, such as strychnine, is obvious. That method is based on the dictum that while the alkaloid strychnine is freely soluble in chloroform, its salts are insoluble. It will be well to bear in mind that the dictum is only true to a limited extent, and so far as these notes show applies strictly only to the sulphate when a distinct excess of sulphuric acid is present.

COMMERCIAL EDUCATION FOR PHARMACISTS.*

BY H. W. RIETZKE.

"He couldn't make money even in the drug business." This quotation was often used in the past to show that if a man could not succeed in any other line he could still get along in the drug business. Such is not the case at the present day. Competition is far keener than ever, not only between druggists, but the keen and ruinous competition of the department store, whose business is watched with an attention as close as that which the engineer gives to pressure of the steam and the number of revolutions of the screw on a record-breaking ocean voyage. In this state of facts every possible mode of promoting the commercial success of the pharmacists in the fierce competition which we witness begins to be studied and discussed. One such mode is the cultivation of the attitude and skill of the individual man, who is the ultimate factor in this competition.

Commercial education is a branch of technical instruction in general, and may be described as the branch of it which is concerned not so much with the methods of production as with the methods of distribution—that is to say, with the process of sale and purchase. It is concerned with them on their practical side. Years ago it was not supposed that any special commercial training was needed for the business of a pharmacist. Many men of good ability, who have had the best instruction money can buy, do not succeed, either in business, or in law, or any other line, because a host of other things besides ability and education are elements in success—industry, sobriety, steadiness of application, pleasant manners, social tact and knowledge of human nature, the power of inspiring confidence. This is especially necessary in pharmacy. All these things count for much in winning success. Some may fail for want of some of these gifts, but that is not deemed a reason for omitting to get all the knowledge needed. The power of rapid calculation, and especially of calculating without the aid of paper, is well applied to both sides of a pharmacist's work, and always profitable. The habit of observing quickly, keenly, and accurately, a habit precious in all walks of life. This, no doubt, is largely a natural gift; it is one which may be greatly improved by appropriate training, and may be trained from very early years. The mental habit of reflection on facts observed is a faculty and habit of the utmost utility to practical pharmacy.

We should arrange our business with the understanding that it is to be our life work, trying to establish it so firmly in our younger years that it will run itself when we will want to shift some of the burden. The question is, can we do this unless we sell goods at any other than market prices? It is true we have not the great variety of stock of the department store, but is it not also a fact that we have not nearly so large an expense roll? I trust you will not form a misconception of what has been said. This paper is not intended to argue on behalf of what is called a modern or non-classical education, holding that the success will be greater on account of a thorough and wide training in pharmaceutical colleges than to the provision which may be had for technical and commercial education; but claim that technical and commercial education succeeds in proportion to the soundness of the pharmaceutical education.

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, February 21, 1900.

* Read before the Minnesota Pharmaceutical Association, and reprinted from the *National Druggist*.

INSECTS WHICH INFEST CRUDE DRUGS.*

BY W. A. KNIGHT.

Whilst zoology is not yet a separate subject in the Pharmaceutical Society's examinations, it is nevertheless necessary, for at any rate Major students, to have a passing acquaintance with the science, since they are required to have a knowledge of the microscopic structure of all organised drugs, amongst which must be included *Cantharis*, *Coccus*, and *Thyroid*, and hence I make no apology for introducing to your notice a zoological subject.

The preservation of drugs from the attacks of insects is a subject to which little or no attention has been shown in this country, although doubtless every retailer loses a certain amount every year from the depredations of these pests.

In attempting to fight these destructive creatures it is necessary first of all to know the habits and favourite food of the insect. Having acquired this knowledge the pharmacist will then be in a position to meet its attacks, and I therefore propose to-night to give a short classification of the large class of insects, indicating those which are specially harmful, and finally giving a few suggestions as to the remedies I have found most suitable.

The word insect is derived from two Latin words, *in*—in, and *secto*—I cut, the thorax being almost entirely severed from the abdomen by a constriction.

The word entomology has a similar meaning being derived from the Greek *εν*—in, and *τεμνω*—I cut.

The group of insects forms one class of the great phylum *Arthropoda*, which is distinguished by having a "metameric segmentation," or repeated appearance of similar parts. This segmentation is particularly well seen in the grub or larval stage of the Beetles.

A true insect is defined by zoologists as "An articulated animal breathing by tracheæ, divided into three distinct portions, *i.e.*, head, thorax, and abdomen—passing through a series of transformations, and having in the perfect or winged state six articulated legs and two antennæ." Although such animals as spiders and centipedes are usually included under insects, the above definition will show that they have no right to the title.

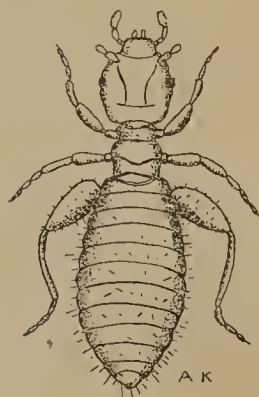


Fig. 1.

Book Louse, a species of *Atropos*.



Fig. 2.

House Moth, *Tinea pelionella*.

(4) Order Hymenoptera (*ὑμην*: membrane, and *πτερον*). This order includes the saw-flies, the gall-flies, ants, bees, and wasps.

(5) Order Heteroptera (*ἕτερος*: other, and *πτερον*). This comprises the water-fleas and bed-bug. The wings are partly leathery and partly membranous.

(6) Order Orthoptera (*ὀρθος*: straight, and *πτερον*). These insects have four wings, the anterior pair of which are leathery, the posterior pair folding longitudinally like a fan. The order includes the cockroaches, grasshoppers, and locusts.

(7) Order Neuroptera (*νευρον*: nerve, and *πτερον*). This order includes the beautiful dragon-flies and stone-flies. The wings are naked and reticulated with nerves.

While this classification will be found useful for obtaining the name and relations of the insect, from the pharmacist's point of view the only classification necessary is into harmless and injurious insects. Evidently only those insects which have strong biting mouths can deleteriously affect hard, dry drugs, insects with sucking mouths having a much more restricted baneful effect. To the former category belong the beetles and cockroaches, whilst the bugs and moths constitute the sucking insects. In some cases, *e.g.*, mites and ants, the mouth is adapted for both biting and sucking, and is hence injurious.

Although in the adult stage these sucking insects are harmless, many of them have, in the larval or grub stage, biting jaws and are hence injurious. A good example is the House-moth, *Tinea*



Fig. 3.

Sitrodrepa panicea.

Fig. 4.

Grub of *Sitrodrepa panicea*.

Fig. 5.

Ginger infested with *Lasioderma*.

pelionella (Fig. 2) which is quite harmless in the winged stage, but in the grub condition has a terrible combination of a tremendous appetite and sharp powerful jaws.

The most serious and common pests of a collection of drugs belong to the family Ptinidæ of the N.O. Coleoptera. They are cylindrical, pubescent insects, and eat anything and everything. They are responsible for worm-eaten furniture and many drugs. I have here a specimen of Pyrethrum attacked by this pest. The commonest member of this family is *Sitrodrepa panicea*, of which both the adult (Fig. 3) and larval (Fig. 4) stages are shown. A closely-allied insect is *Lasioderma*, the ginger beetle, and is often found in ginger (Fig. 5).

Another member of the Ptinidæ, *Bostrichus sp.* attacks sweet almonds.

An allied family, the *Cucujidæ*, furnishes a light-brown, flattened beetle with clubbed antennæ. It belongs to the genus *Silvanus* (Fig. 6), and is sometimes found in Senega root and Quince seed. The families Tenebrionidæ and Hesteridæ also have representatives among the pests. *Tenebrio obscurus* and *T. molitor* are dull-brown, flattish, square-bodied beetles with extremely hard elytra which are not easily pierced with a pin.

Several weevils—*Ceutorynchus sp.* and *Calandra oryza*—are also often found in seeds; the latter, as its name implies, infests rice, whilst the former is often found in maw seeds.

* Read before the Chemists' Assistants' Association, London, February 15, 1900. (See page 215.)

The Lepidoptera are represented amongst the pests only by their larvæ, the adult butterfly or moth being harmless. The larvæ of this order have usually eight pairs of legs, the anterior three being thoracic and the posterior pair attached to the last segment of the body, whilst the larvæ of beetles (Fig. 4) have usually only three pairs of thoracic legs.

To this order belongs the moth, the well-known grub of which causes such serious loss. It belongs to the family Tineidæ, but no member of this family is found in drugs.

Gelechia cerealella, the grain moth, is another lepidopteron, which, in the larval condition, attacks wheat and other kinds of grain.

The N.O. Diptera is represented by *Trypeta arnicivora*, sometimes found, as its name implies, in arnica. A wingless insect, *Lepisma sp.* (Fig. 7) of the N.O. Thysanura, has been found in mezereon bark.

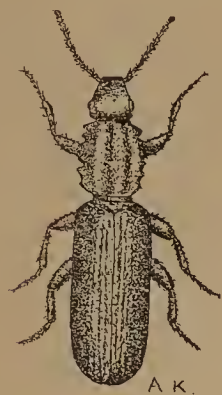


Fig. 6.
Silvanus.



Fig. 7.
Lepisma.

The N.O. Hymenoptera is represented by *Cynips kollari* (Fig. 8), often found in galls. This insect however belongs to the group Entomophaga (*έντομος*: insect, and *φαγειν*: to eat), and is hence beneficial. They lay their eggs on the larva of the beetles, and the young hymenopteron, when formed, lives on its host.

Finally we have the mites (N. O. Acarina). These are minute creatures, with piercing beaks. They have eight legs, and are therefore not true insects. Many species are found in flour, cheese, sugar, and even cantharides. The species *Glyciphagus spinipes* (Fig. 9), is often found in cantharides.



Fig. 8.
Cynips kollari.

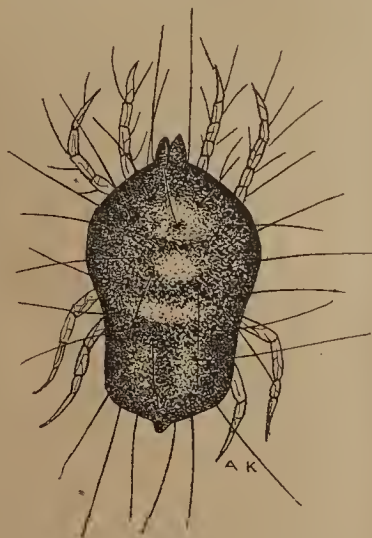


Fig. 9.
Glyciphagus spinipes.

With regard to the remedies which may be applied, many anti-septics have been proposed. Many of the remedies are toxic, and are hence almost worse than the disease. The vapour of carbon

bisulphide is fatal to insects in all stages except the egg stage. If the drugs are placed in a tightly stoppered vessel and a few drops of carbon bisulphide sufficient to charge the vessel with vapour, poured in, any larva or adult beetle will be killed. After allowing time for the eggs to develop, the bottle should be again examined and if any larvæ are present the process should be repeated.

One great advantage of carbon bi-sulphide is its ready volatility, an hour or two's exposure being sufficient to eliminate any trace of its vapour.

In conclusion, I have to thank Mr. E. M. Holmes for several specimens of infected drugs, and my friend and co-worker, Mr. A. Kirkland, for the trouble he has taken in preparing the illustrations.

BRITISH PHARMACOPŒIA, 1898. INDIAN AND COLONIAL ADDENDUM.

INDIAN SECTION.

The following preliminary report has been received from the members of the Indian Drugs Committee (Madras) appointed in 1894, on the several points on which an opinion was asked by the Pharmacopœia Committee of the General Medical Council.*

1. ACACIÆ ARABICÆ CORTEX.—As oak bark and its decoction have been omitted for substantial reasons from the British Pharmacopœia of 1898, and as in India we have already other equally good astringent liquid preparations more easily manipulated, we think that this drug may be omitted from our former list. As a matter of fact it is chiefly as one of their numerous internal tonics that the natives have been accustomed to use this bark. It is also applied as a strong astringent application to old and chronic ulcers.

2. ACALYPHA.—We have ourselves made preparations of this drug, and can say, therefore, that the "succus" should be prepared as suggested, namely:—"Bruise; press out the juice," to every three volumes of juice add one volume of alcohol (90 per cent.); set aside for seven days; filter." The result is a very stable liquid capable of being kept apparently an indefinite time. As, according to Hooper, alcohol extracts all the active principle, the "liquid extract" might be made official. It should be prepared as follows:—Mix 20 ounces of the powdered dry plant with some alcohol (90 per cent.), and set aside in a closed vessel for forty-eight hours; transfer to a percolator and exhaust, etc., as usual; make result up to 1 pint. Dose of the juice 1 to 4 fluid drachms; of the liquid extract, 5 to 30 minims.

[For a description of *Acalypha indica* Major Crawford has already drawn attention to Roxburgh's 'Flora Indica,' vol. iii., page 675. Surgeon-General Bidie also has sent to the Pharmacopœia Committee a botanical description of the plant, and recommends that it and its preparations be officially recognised. Dr. Van Dort makes a similar recommendation as regards Ceylon, and states that the plant is very common there in cultivated ground. *Acalypha* is an expectorant, an emetic, and a laxative.]

3. ANDROGRAPHIS.—We have in hand the tincture, liquor concentratus, and infusion of this drug—prepared by Lieut.-Col. Carruthers, of the Government Medical Stores—and so far they appear excellent stable preparations. Only the infusion deposits a very small quantity of sediment. Samples of these will be later on sent to you. Our present opinion is formed after keeping them under daily observation for just three weeks.

[Bidie and other authorities for India, and Van Dort for Ceylon, are strongly in favour of the official recognition of *Andrographis*. See also *Exacum*.]

THE TINCTURE.—Take 2 ounces of the dried plant, powdered (No. 40); moisten with two fluid ounces of alcohol (60 per cent.); percolate; using sufficient of the menstruum to produce 20 fluid

* The notes within brackets are by the Editor of the Indian and Colonial Addendum, Dr. John Attfield.

ounces.—Dose, 30 to 60 minims. LIQUOR CONCENTRATUS.—Take 10 ounces of powdered drug; moisten with 5 fluid ounces of alcohol (—per cent.); pack in a closed percolator for three days; percolate with the remaining alcohol in 10 equal portions, at intervals of 12 hours. Continue as usual so as to produce 1 pint. Dose, $\frac{1}{2}$ to 1 fluid drachm. INFUSION.—1 ounce cut small; distilled water, boiling, 1 pint. Infuse 15 minutes in a covered vessel; strain. Dose, $\frac{1}{2}$ to 1 fluid ounce.

4. ARISTOLOCHIA.—This is a climbing plant. Root and stem are the active parts. We have not yet prepared the liquor concentratus. It will be taken in hand at once. A tincture contains the active principle, and we would infer that the concentrated liquor also would contain it. We feel sure it would be perfectly safe to include a liquor concentratus in the official preparations. As there is a resinous substance in the drug, we think that the infusion would not contain the active ingredient, but that the tincture and liquor concentratus would be the most suitable official preparations. These might be prepared as those of serpentaria, namely, liquor concentratus:—10 ounces of the powdered drug to give a result of 1 pint, after first moistening with 5 fluid ounces of alcohol (20 per cent.) and packing in a closed percolator for three days; the remainder of the alcohol being used in 10 equal portions at 12 hours interval each. The tincture is made from 4 ounces of No. 40 powdered drug, moistened with 4 fluid ounces of alcohol (70 per cent.). Complete so as to produce 1 pint.

[Van Dort states that Aristolochia is abundant in Ceylon, and is often prescribed in native practice as a stomachic and tonic.]

5. BERBERIS.—Some difficulty and delay have been experienced in obtaining samples of this from the Nilgiris at this time of year. The root bark is the official part (Indian Pharmacopœia), stripped at the fall of the year and dried. The Indian Pharmacopœia makes a tincture, 12 ounces to 2 pints of alcohol (—per cent.); and an infusion, $\frac{1}{2}$ ounce of the dried root bark to boiling water 10 fluid ounces; infuse 1 hour; strain. Tincture, dose (tonic), $\frac{1}{2}$ to 2 fluid drachms; (antiperiodic), 3 to 6 fluid drachms; infusion, $1\frac{1}{2}$ to 3 fluid ounces. With reference to the liquor concentratus we must put off our recommendation until we have had an opportunity of applying the proper tests to this solution.

This is a very well-established drug. Berberine exists in great abundance in it. All authorities give references to its value. Samples will be submitted later on of all preparations we get made.

6. BETEL.—We experimented with the succus, and endeavoured to obtain the oil, but not altogether successfully. As suggested, however, the leaves, being universally distributed, and easily obtainable, might be officially recognised as an external warm application to the chest in inflammatory chest affections, more especially those accompanied by dyspnoea. It is highly spoken of in this connection by Shortt, Wood, Waring, and Gibson.

[Bidie, and other authorities, for India, and Van Dort, for Ceylon, strongly recommend the official recognition of this widely used stimulant. The leaves alone are prescribed.]

7. BUTEÆ GUMMI, official in the Indian Pharmacopœia (inspired juice, obtained from the stem by incision), occurs as irregular shining fragments becoming dull and blackish on keeping. It is referred to as an efficient substitute for kino. The tree occurs throughout India and Burma, and if a demand were active, the drug could be obtained with ease all over the country. Half the weight of the drug consists of kino-tannic acid. Roxburgh says that its solution in water is more astringent than its solution in spirit. The result of our inquiries is that buteæ gummi is most readily obtainable in the drug stores of Madras, and our advice is that it be made official in the places where it can be obtained. Of course, on the West Coast, and Malabar and Bombay, the official kino—*Pterocarpus marsupium*—is in the greater abundance. It might, therefore, be an official equivalent of kino.

[Bidie, for India, and Van Dort, for Ceylon, favour the official recognition of buteæ gum. Is it fairly soluble?]

8. BUTEÆ SEMINA.—We have decided to advise that these seeds cannot actually take the place of the official santonin. All medical officers, and we have consulted many on the point, draw attention to the eagerness with which natives resort to the hospitals for the English santonin. True, the General Hospital here mix 1 of santonin, 1 of powdered ginger, and 20 ozs. of powdered buteæ seeds to form their "compound powder of buteæ," nevertheless we certainly think the drug should find a place in the Addendum as an anthelmintic. The proportion of 1 of santonin in 22 is small, yet the action of our hospital compound powder is marvellously effective in expelling masses of round worms.

PREPARATIONS.—The seeds should be soaked in water; the testæ carefully removed; the kernels should then be dried and reduced to powder. Dose—20 grains three times a day for three successive days. Subsequently a dose of a purgative may be necessary, because some authorities think that much purgative action (in case of a single large dose) might interfere with the anthelmintic action of the drug. The powder made into a paste with lime juice (fresh) has a considerable reputation in parasitic skin diseases, more especially in the form of herpes known as "Dhoby's Itch." The infusion, of the seeds, has been referred to as having anthelmintic action, but we do not consider there is at present sufficient evidence in favour of this preparation being officially recognised.

9. CISSAMPELOS.—Our experience of this drug is practically what we have obtained from the many authorities who have written regarding it. It is very common throughout India, and easily obtained. Ainslie speaks very favourably of its use as a diuretic and tonic in Southern India. In nephritic disorders and inflammatory affections of the bladder and kidneys the drug has a reputation. The drug has a very similar composition to the official pareira, and we recommend a decoction, $1\frac{1}{2}$ ounces of sliced root to 1 pint water; boil for fifteen minutes in a covered vessel; strain and make up to 1 pint. Dose—1 to 3 fluid ounces.

[Van Dort states that this drug is very common in Ceylon, and is used by the natives in fever and diarrhoea.]

10. COSCINIUM.—A valuable bitter tonic. It has been investigated on a large scale (Waring), the preparations used being the same as of calumba, namely, tincture and infusion. It was found to be a valuable equivalent of calumba. Three weeks ago we got from Col. Carruthers a tincture, infusion, and concentrated liquor of this drug, and after daily observation we recommend that the following be officially recognised. Tincture, 2 ounces to the pint, maceration being alone carried out. Dose— $\frac{1}{2}$ to 1 fluid drachm. Liquor concentratus, 10 ounces of No. 5 powder, $4\frac{1}{2}$ fluid ounces of alcohol (90 per cent.), 20 fluid ounces of distilled water. Macerate the powder for 24 hours with 10 fluid ounces of water; press; again macerate the residue for 24 hours in the remaining 10 fluid ounces of water; press strongly; mix the expressed liquids; heat for 5 minutes to 180° F.; when cold add the alcohol; set aside; decant; make up to 1 pint. Dose— $\frac{1}{2}$ to 1 fluid drachm.

In this case we recommend a slightly greater proportion of alcohol to make the resultant clearer, namely, 9 fluid ounces instead of $4\frac{1}{2}$. With regard to the infusion, though our infusion made three weeks ago is now quite muddy, it was quite clear when fresh. It is referred to, as was the tincture (supra), by Waring, as having been successfully used on a large scale. It was made in the same way as infusion of calumba. The infusion therefore may be officially recognised. The mode of preparation and dose are similar to those of calumba. Samples of the above will be submitted.

[Van Dort states that this drug is common in Ceylon, and is a popular remedy in fever and dyspepsia.]

11. CRINUM.—Some misapprehension exists regarding our opinion on the value of the substitutes for the official squill, *Urginea scilla*. Preparations of *Scilla indicæ* and *Urginea indica* are now made in

the Government Medical Stores, and issued as fulfilling all the requirements of the official squill preparations. The official squill from the South of Europe is not utilised at all for the manufacture of preparations. Both of our kinds are used indiscriminately. Preparations of them will be submitted. The appearance of the sliced dried bulb is similar to the official squill, but has a brownish-yellow colour. The physical and chemical characters of the Indian squill are very similar to the official kind, and, as we have said, the official directions are followed in preparing Indian squill for issue from the Government Stores. No modification, therefore, seems needed or advisable in the mode of preparation. The name presents a difficulty, because we think the word *scilla* should be limited to the official drug, and we recommend that preparations of the Indian squill should be called *acetum urginæ*, *tinctura urginæ*, etc.

As regards *Crinum asiaticum* it is official in the Indian Pharmacopœia, but the weight of authority seems in favour of the other kinds. These latter, we find, are also utilised in the Bombay Stores, and have been, in fact, used for a number of years in both Government Stores. Dymock (one of the authorities), who was Storekeeper himself for some years, says they were used instead of the official squill for quite ten years, and were quite satisfactory. [Is "small squill" much used?]

[From the foregoing it would appear that the "crinum" of the Report on the Indian and Colonial Addendum should be displaced by "Urginea." Bidie supports this view.]

12. DATURA.—Two tinctures, the one of seeds, the other of leaves, are unnecessary. The seeds are preferable in the manufacture of the tincture for several reasons. The seeds may be obtained at any time in the bazaars, and may be gathered readily. *Tinctura daturæ*:—2½ ounces of the bruised seeds to 1 pint of alcohol (—per cent.), prepare by maceration and percolation. Dose—10 to 30 minims. We do not recommend any other preparations of this Indian drug.

[Bidie and other authorities write in support of the official recognition of *datura* (*D. fastuosa* and *D. metel*) for India, and Van Dort for Ceylon, as the equivalent of belladonna.]

(To be continued.)

AFTER AUGUST, 1900.

In a few months the time-honoured reproach that the Pharmaceutical Society's entrance examination is a delusion and a snare—inefficient as a test of preliminary training, and obsolete in its relation to the qualifying examination—will have been removed forever. A new era will be inaugurated which it is hoped will mark the commencement of a period of real progression in the evolution of pharmacy as a profession. The coming change has had the ample advertisement of three years' notification; but this tolerably long lease of warning is not altogether an unmixed blessing, for some of those interested have forgotten it, and many others have come upon the scene subsequent to its announcement. It appears appropriate, therefore, in the present special issue of the Journal—which will be sent to every registered person—to refer somewhat fully to the new conditions shortly to become operative, and to recapitulate not only what they are, but to explain what they mean, as well as what effect they may have upon students at present preparing for examination, in case they fail to secure their qualification under the fast dying régime.

WHAT THE NEW CONDITIONS ARE.

The bye-laws designed to effect the alteration in the examinations are those numbered 11 and 17 in Section X. of the Society's bye-laws, and they are published in full in the official calendar. Unfortunately, administrative excellence has not yet reached the point of devising means whereby every chemist and druggist in Great

Britain might be furnished with a copy of that useful compilation, and it is, therefore, necessary to reprint here the bye-laws in question. No. 11 deals with the registration of pharmaceutical students, and is as follows:—

After August, 1900, persons desiring certificates of competent skill and qualification to be registered as Chemists and Druggists under the Act, 1868, shall deliver to the Registrar on behalf of the Board of Examiners a certificate of having passed an Examination in English Grammar and Composition, in the Latin language, and in one Modern Foreign language, and also in Algebra, Arithmetic, and Euclid, conducted by any or either of the examining bodies which shall have been previously approved for the purpose by such regulations as are specified by the last preceding Bye-law, and shall pay to him a fee of Two Guinea, whereupon, if the Board of Examiners shall so see fit, they shall be registered as "Apprentices or Students."

No. 17 applies solely to the qualifying examination, and defines the fee to be paid for examination and registration.

All persons desiring registration as Chemists and Druggists shall in respect of an examination, to take place prior to September, 1900, pay a fee of Five Guinea, and shall in respect of an examination, to take place after August, 1900, pay a fee of Ten Guineas, and shall in either case pass the Minor Examination or the Modified Examination, whereupon they shall be registered accordingly.

WHAT THE NEW CONDITIONS MEAN.

To take the registration of students first, it will be seen that such registration is a precedent condition to obtaining a certificate of competent skill within the meaning of Section VI. of the Pharmacy Act, 1868—in other words, no person unrecorded on the Register of "apprentices or students" can be permitted to sit for the Minor examination. Now, what does this lead to? A little thought will bring the conviction that it will be impossible—and it is important enough a fact to be emphasised by italics—for a pharmaceutical aspirant to deliver his certificate of preliminary training to the Registrar and enter for the Minor at the same time. In fact, it will be found in practice that a period of at least three months must elapse between the presentation of the certificate of having passed the preliminary examination, and admission to the Minor. By way of concrete example, suppose a certificate, duly in accordance with the regulations, be delivered to the Registrar on September 1, 1900; the Board of Examiners not being in session until October could not authorise the registration, as a student, of the person named on the certificate until then, and he could not, therefore, become eligible to enter for any earlier Minor examination than that held in the following January. A good deal of disappointment will be obviated and much senseless twaddle about "red tape" may be prevented if this particular corollary to Bye-law 11 be borne in mind.

Another point to note is that the registration fee of two guineas is to be paid to the Registrar prior to the Board's sanction to registration. That is to say, *the fee must be paid at the time the certificate is tendered.*

The bye-law contemplates a list of approved examining bodies, and such a list has been compiled and adopted by the Council. There does not appear to be any necessity to print this list again in the *Pharmaceutical Journal*, as it does not require explanation, nor does it aid in the elucidation of the points which it is the object of this article to make comprehensible. Besides, a post-card to the Registrar will always procure an official copy of the list. But there are conditions appended to the enumerated certificates which do call for careful consideration. First, each certificate (or

the certificates, as the case may require) must include in the subjects for which it is (or they are) granted the following :—

English grammar and composition, Latin, a Modern Foreign language, Arithmetic, Algebra, and Euclid.

and, secondly, these six subjects must have been passed at not more than *two examinations of the same examining body*. The necessity for the parenthetical employment of the plural in the commencement of the preceding paragraph is thus apparent, for in most instances there will be two certificates presented by a candidate for registration; the reasonable assumption being that few persons will sit for six subjects at one time, when easy stages of three will suffice. No limit, it may be noticed, is imposed as to the interval between the parts, and no restriction is placed upon the choice of subjects or the number to be taken in one part. Thus, a youth may, on leaving school—say, at 15—secure a College of Preceptors' second-class certificate covering Latin, English, Arithmetic, Algebra, and Euclid. He may then forget most of them, till he is twenty and thinks of coming up for the Minor. By taking French or German under the same examining body (assuming that to be allowable according to its rules), the pharmaceutical regulations would be fulfilled. This is purposely an extreme case to illustrate the range of freedom allowable, making an entirely new principle in pharmaceutical requirements, and has not inaptly been termed the "instalment system" of examination. The reasons for its introduction were given when the Council adopted the new regulation in May last, and discussion as to the wisdom or unwisdom of the step would now be as futile as it would be inopportune. The "same examining body," then, must grant both the certificates in cases where the six pharmaceutical subjects are taken in two examinations, but there is an exception in favour of Scotland. Without going into the somewhat complex reasons involved, it may be stated that the Scotch Universities are permitted to accept, in relation to registration as medical students, certificates which, technically, would not come within the strict letter of the pharmaceutical regulations. On the principle that what is good enough for the Medical Council ought to be good enough for the Pharmaceutical Society, the following became a part of the regulations :—

Certificates which are accepted by the Scotch Universities for registration as medical students may be received by the Registrar for registration as "Apprentices or Students."

Provision is made for the special consideration of certificates granted by examining authorities outside the United Kingdom, and others not specified on the official list, and each individual case will be considered on its merits. But a word of warning may, perhaps, be uttered here as to the length of time involved in bringing an "outside" certificate within reach of acceptance. With an ordinary valid certificate there is little formality, as the Registrar accepts it on behalf of the Board without delay; but in the case of a foreign certificate the Registrar would have to submit it to the Board, and the Board would have to signify its approval to the Council in order that the latter might, in its turn, authorise the Registrar to receive it. Now, as the Board meets once in three months, and the Council once a month, it is not difficult to imagine that some patience will be required by a student desiring to register such a certificate. Of course, it is essential that "outside" certificates must cover the six subjects before enumerated.

MINOR.

The increased amount payable on entering for any minor examination after that terminating in July next is made up of five guineas examination fee and five guineas registration fee, paid in advance. An appreciation of this fact will render it easy to realise that the registration portion of the composite amount is only payable once. In other words, the ten guineas is only applicable on first entering for the qualifying examination, and the reduced fees

for re-examination will not be raised. The major fees are unaffected, and the nature and scope of the minor examination are not in any way changed by the new bye-law—there will not necessarily be a desire on the part of the Board to give candidates a more stringent straining for their money.

EFFECTS, UNTOWARD AND OTHERWISE.

Naturally the new order of things will bear heavily on a few individuals, but every change must entail some disappointment, or even hardship, and the unfortunate part of it is that the Council are not make laws for hard cases. The only thing possible is to forewarn those who may have to suffer disabilities. On Tuesday, July 10th the final "First" examination will take place at the usual centres, and some candidates will pass, while some will fail. What is to become of the failures? Will they receive preferential treatment? No, the answer is that they *cannot* receive any preference, for they will occupy precisely the same position as a person who has never presented himself for the examination: in fact, they must comply with the new conditions; *i.e.*, submit approved certificates, and pay two guineas registration fee. Similarly, candidates who have entered for the July examination, and fail to attend from any cause whatever, will forfeit their fees; for it will be physically impossible for them to attend an examination subsequent to the *last!* The sick, the absentee, and the failure, in connection with the July examination will, therefore, all pass into the category of those who must conform to the increased requirements, in spite of medical certificates, attacks of nervousness, delayed trains, and the various other valid and invalid excuses with which all Boards of Examiners are familiar.

With regard to the minor examination, the hardship is principally on the Society, inasmuch as scores of men whose studies should properly keep them from presenting themselves for examination until October or January, will enter in July, and save five guineas. But there is one unfortunate class of candidate—or rather would-be candidate—even here, that is the one born too late to enter for the July examination. As is well known, entries for this examination close on June 15, and on that date all candidates must be of the full age of 21 years—a matter which must be supported by the testimony of a Registrar's certificate of birth. Now, there are sure to be one or two students who will not be 21 till the 16th or the 17th, and who may consequently address pathetic appeals or indignant remonstrances to Bloomsbury Square; to these unfortunates sympathy is due, but their position cannot be altered. The accident of birth, that gives some wealth and others power, has saddled them with a ten guinea composite minor fee, and there's an end of it. The writer has been asked, will those students who pass the First examination in July next escape the composite fee. Certainly not, why should they? Such students cannot enter for a Minor examination to be held before August, 1900, and they necessarily must come under the regulations applicable to examinations held after that date. Conversely, a curious but more persistent idea seems to have taken root in the minds of some students who have already passed the "First" examination, that in the event of not entering for the qualifying examination before August, 1900, they will be required to submit to the new preliminary educational requirements. To relieve this species of anxiety, it may be stated that a person registered as an "Apprentice or Student," by passing the "First" examination previous to August, will not cease to be so registered when September arrives—in fact, he will not be expected to pass two preliminary examinations.

DATES EXPLAINED.

The date of nominal operation of the new conditions is according to bye-law September 1, but the exigencies of administration modify that date in one or two instances. For example, in the discontinuance of the "first" examination, the operative date of change is actually June 26, which is the day on which entries close for the final examination. For the minor examination, the change

practically operates as from June 15, which is the last day for receiving entries for the July examination. In the case of the reception of certificates, at present accepted in lieu of the "First" examination, it would appear at first sight that, provided they were in the Registrar's hands before September 1, the Board would be empowered to accept them. Such, indeed, would be the case if the Board met on August 31, but, as a matter of fact, the last meeting of the Board previous to the maturing of Bye-law 11, will be on August 1, or thereabouts, when a quorum of members will be in attendance to receive the College of Preceptors' report on the final "First" examination. It is evident, therefore, that the reception of certificates under the old régime must cease on July 31.

PHARMACEUTICAL SOCIETY.

Evening Meeting in Edinburgh.

The fourth evening meeting of the session was held at the Society's House, 36, York Place, Edinburgh, on Wednesday, February 21, Mr. PETER BOA, Chairman of the Executive of the North British Branch, in the chair. The minutes of the last meeting were read and approved. The CHAIRMAN read a letter from Miss Frazer (Garelochhead), in acknowledgment of the letter of sympathy sent by the last meeting.

A paper was read on

"THE DETECTION OF SULPHATES IN PRESENCE OF THIOSULPHATES," by Dr. LEONARD DOBBIN. The paper was illustrated by experiments, and is printed at page 182.

Mr. LOTHIAN said there was a compound in the Pharmacopœia, CaX sulphurata , to which Dr. Dobbin's remarks would apply. It contained sulphide, sulphite, thiosulphate, and sulphate, and this process might be available in its analysis.

Mr. COWIE asked how the thiosulphate dissolved the sulphate, and what was formed. He also asked if the nitric acid did not oxidise the thiosulphate to sulphate.

Dr. DOBBIN, in reply, said Fresenius in his paper referred to was dealing with a suggested process for separating calcium sulphate from barium sulphate, founded on the assumption that thiosulphate would dissolve the former, but not the latter. He used a concentrated solution and found that barium sulphate did dissolve, and that the assumption was not justified; probably a double salt was formed, but on that point he could not give a definite opinion. Nitric acid did oxidise thiosulphate, but only to a small extent in a cold dilute solution.

The next paper was on

"POTASSIUM ARSENATE,"

by Mr. JOHN LOTHIAN. It is printed at page 183.

Dr. DOBBIN said this salt was of considerable historical interest; it was carefully examined by Mitscherlich in connection with his theory as to isomorphous salts. Graham carefully re-examined this salt from another point of view in his wholly original investigations which led to the discovery of monobasic, dibasic, and tribasic acids. Those were of the nature of turning points in chemical theory. Mr. Lothian had determined and collected interesting particulars, which thoroughly spoke for themselves.

Mr. DUNCAN said the potassium arsenate he had was different from Mr. Lothian's. It was in feathery crystals, and an aqueous solution when boiled became alkaline. It seemed to be a different arsenate; he thought potassium should replace the sodium salt officially if it was necessary to have arsenate in the Pharmacopœia.

Mr. D. MACEWAN said he could confirm the statement as to the stability of the salt, he having a specimen at least twenty years old. There was a process for its preparation in Gray's 'Supplement.'

Mr. HILL said this paper represented a large amount of very careful work, and filled a blank in British chemical literature,

which was very meagre in information regarding this salt. He agreed with the author as to the probable process by which the strychnine was liberated in Mr. Dunlop's mixture.

Mr. LOTHIAN, in reply, said it was surprising that a salt which had been so fully investigated scientifically, should have been ignored so much in pharmaceutical literature.

Papers were then read on

"STRYCHNINE HYDROCHLORIDE AND POTASSIUM ARSENATE,"

and on "Strychnine Salts and Chloroform," by Mr. J. RUTHERFORD HILL (see pp. 184, 185).

Dr. COULL asked if Mr. Hill had in mind a paper by him in which he indicated that a solution of acid sulphate of strychnine deposited crystals of neutral sulphate.

Mr. DUNCAN said all that was required in the Pharmacopœia was an aqueous solution of arsenious oxide. It was soluble 1 in 100, and a little glycerin increased the solubility. An objection to using magenta dye for colouring galenic preparations was that it appeared in the urine of patients for several weeks after use.

Mr. ROWLAND said his salt seemed similar to that referred to by Mr. Duncan. It was only used in homœopathic medicine by faddists. Why have an arsenate at all? A simple solution of arsenious oxide was sufficient.

Mr. LUNAN said arsenious seemed to be preferred to arsenic compounds by prescribers because the latter were not found so effectual. The potassium arsenite might perhaps be examined before quite deciding upon the arsenate. It was a valuable suggestion to substitute the potassium salt for the sodium.

Mr. COWIE, while preferring the mono-potassium to the di-sodium salt, thought it was too sweeping a proposal to adopt it in place of the other two official arsenical solutions. He thought the enforcement of a better chemical knowledge in the medical curriculum would save pharmacists much trouble.

The CHAIRMAN said he was not in sympathy with the proposal to substitute a solution of potassium arsenate for the present official alkaline and acid arsenical solutions, which he fancied met all the requirements; too much importance should not be attached to isolated cases of badly-equipped and ignorant prescribers.

Mr. HILL, in replying, said he had noted Dr. Coull's paper, and founded on it an explanation why chloroform separated neutral sulphate from the acid sulphate of strychnine. The proportion of magenta—a three-thousandth of a grain per ounce of liquor—would be so small in each dose that it could hardly be objectionable. Potassium arsenite had been shown to act exactly like arsenious oxide. It was more rapid and intense than the arsenate, but the action seemed specifically the same. He quite realised the sweeping nature of his suggestions, but they would do good by stimulating fuller consideration.

The next paper was a

"NOTE ON MESCAL BUTTON,"

by Mr. J. RUTHERFORD HILL. The author pointed out that in some books Mescal Button was described as the fruit of *Anhalonium lewinii*, but it consisted really of the entire above-ground part of the plant. In examining the specimen recently presented by Mr. MacEwan, he had steeped one of the buttons in water and found that there were only eight of the characteristic convex ribs with rows of tubercles. In general appearance it seemed to be a closer resemblance to *Anhalonium williamsi* than *A. lewinii*, and it seemed that both species were met with in commercial samples of Mescal Button. After referring to the information in the *Pharmaceutical Journal* [4], 5, p. 520 534, and 7, page 457, he said he had, on inquiry, got some interesting information from Mr. E. M. Holmes, along with the living plant sent from Sevenoaks. In regard to cultivation, the plants were grown in limestone rubble and sand, and the pot placed in a larger pot with a layer of sphagnum between. In summer the sphagnum is kept wet, but in winter quite dry. The largest speci-

mens are about $2\frac{1}{2}$ inches across and one inch high. There are from ten to twelve rays, dividing transversely into six verrucæ. The centre of each areola, or verruca, has a tuft of hair in the centre. The tufts are crowded in the centre, where the areola are smaller. The flowers are produced in August on the summit, and are pink and about half an inch long. The expanded flower is about the size of a threepenny-piece, with a fine one sometimes as large as a sixpenny-piece, like a miniature cactus. The fruit is like a barberry in shape, and of a pretty orange pink colour. The seeds are small black cylindrical bodies about the size of black mustard seed, and having the surface marked with raised lines. There seems very little real difference between *A. lewinii* and *A. williamsi*, and whether the plant now exhibited is the former or the latter is a little doubtful. The chief distinction seems the number of convex ribs, of which there are usually thirteen in the former and eight in the latter; but the number is not constant.

The paper was illustrated by a living specimen and a dried flower of *Anhalonium lewinii*, and drawings of *A. lewinii* and *A. williamsi*, sent by Mr. E. M. HOLMES, who had the plants under cultivation at Sevenoaks, and who also sent a twig of *Rhamnus californica*, bearing leaves, while *Rhamnus purshiana*, growing in the same greenhouse, had shed its leaves. There were also exhibited the bark of *Melaleuca leucadendron*, presented by Miss Madgshon, and the tea and caffeine specimens of Mr. Whiffen, from the London Museum; additions to the Library were also referred to.

The CHAIRMAN said they were much indebted to the Council for having the interesting specimens from the London Museum sent to be seen by the members. He moved a vote of thanks to the authors of papers, to Mr. Holmes for information and specimens from Sevenoaks, and to donors of books and specimens.

The meeting then closed.

LETTERS TO THE EDITOR.

The Outlook in Pharmacy.

Since writing the paper published in last week's Journal, in which I argued that the Legislature should deal with company law and construct it so that no injustice is inflicted on any existing interest; but that if the Government proposes legislation which will infringe our titles we should oppose it, the Companies' Amendment Bill has again been laid before Parliament. As before, the clause dealing with the matter in question distinctly permits the use of our titles by corporations, provided they have a qualified Major or Minor man, as the case may require, as manager. Surely registered chemists must all be of one accord in believing that "no company—which is not composed of persons who are registered under the Pharmacy Acts—should use the description or titles conferred by those Acts." There may be some difficulty as to what we should suggest in place of the clause in the Companies' Bill, and it would seem that even the members of Council have not been able to agree upon a definite policy. But in my opinion there cannot be any doubt either of our individual duty as pharmacists or as to the duty of the Council, as the official guardian of our interests, to oppose that portion of the clause as it stands.

Though I am strongly of opinion that too much should not be made by registered chemists of the claim to professional position, since the majority belong more to a trading than a professional class, and though I think it would, therefore, be unwise to press for what is generally considered to be more of a monopoly than the law gives to medicine, surgery, or dentistry—though I do not even think it is our business to regulate company pharmacy and, least of all, to acquiesce in the project of a "qualified directorate"—still I am convinced that we should strenuously oppose the proposition that "a company may do what an individual without qualification may not do," which it is the object of the Companies Bill to con-

cede. Let us, therefore, sit tight on the principle that our titles—being the result of qualification—cannot be bestowed on companies. The attempt to bestow titles without qualification we should attack with the united forces of pharmacy, with all the allies we can get, so that if we cannot suppress company pharmacy, we may at least make it keep its extra legal position.

The brightness of our outlook in this matter will depend largely upon our unity. We are 15,000 strong, and our necessity is to unite all qualified pharmacists in defence of their legitimate interests and titles. In this case the best defence is to attack the injustice.

One of the first things to be done is to weld together all ranks and states of qualified chemists. Why should we, through loose combination, lose valuable sources of help and hope? I hold the opinion that tradesmen, as such, will never combine for an ideal in the abstract, however high. Nor can corporate life be built on the abstract. Nor, further, is there any need to try such a futile method of subsistence. The proposition of the clause in the Companies Bill is a very concrete thing and, as such, it needs to be demolished. Nor is that appropriation of titles, representing a qualification, the only concrete thing to be fought. There are positive interests to be defended. Our unity ought to focus itself on the Society and, I believe, it would do so if we could be led aright. But then I also think that the Society must become far more frankly and thoroughly than it has been, a trades organisation.

The interests and the qualifications in danger are not merely those of persons in business on their own account. They are as vital and important, in all respects, to those who are now serving companies. Can we win over these men? An important factor in such a process will be the attitude of those in the position of proprietors. The terms and conditions of service for assistants and managers should be as good and generous as trade will afford. The Society might help here by undertaking a propaganda amongst qualified men not in business on their own account. By showing determination to protect the individual title and, thus, indicating the value of the "trade-birthright," it might do much to lessen the hold of companies on these men. Here and in the matter of trade unity an organising secretary would be very useful.

It is perhaps doubtful, in the present state of Imperial politics, whether the Companies Bill will have a better chance than other domestic legislation of getting through Parliament. But it will never do for chemists to trust to such a consideration. The clause in the Bill dealing with their interests—in the very material point of titles—calls for instant and unceasing opposition. It gives us a good opportunity to state our position to the Legislature and to the public. To my mind, the Society, as well as the Council, is on its trial. If they fail the trade in this matter, I think we may cease our appeals to non-members to become members. But then the Council has a right to expect not only the moral support of the trade, but also the material support of every qualified pharmacist, whether or not he is serving the companies. I believe also that if the Council shows itself alive now to our interests it will lend immense strength to all attempts to secure, as regular subscribers, those who now stand outside.

Bolton, February 17, 1900.

JOHN TAYLOR.

Proposed Division of the Minor Examination.

Considerable attention has been given of late to the advantages that might accrue to "Minor" candidates by the division of that examination, but little has been said as to the disadvantages, both to them and to the craft generally, that might also be entailed.

It is argued on behalf of a division of the examination that the medical examinations are divided. That is so, but the conditions are dissimilar. There is a compulsory medical curriculum, and the minimum course of study for a medical qualification occupies five years. It would manifestly be undesirable, in that case, for

a candidate to be obliged to satisfy the examiners at one and the same examination in the rudimentary, the intermediate, the advanced, and the special knowledge of many subjects that is gained during the five years' course. Naturally, the examinations are so divided as to order the studies of the student, who otherwise would be utterly bewildered.

But in no case, so far as I know, does an examination comprehend the scope of less than one year's work. Take the examination for the London M.B. After matriculating it is necessary to pass, during the five years' curriculum, three examinations—viz., the Preliminary Scientific, the Intermediate Medicine, and the Final M.B.

Now, in the case of the Minor, the syllabus is such that any student who has devoted a reasonable amount of time to study during apprenticeship can with ease gain an intelligent and sufficient knowledge of the subjects in one academical year's study at a good school of pharmacy. In my experience as a teacher I have found three main types of unsuccessful Minor candidates—(1) men of inferior mental calibre, (2) men who idle away their time during the school course, (3) those who enter on a course almost or entirely ignorant of the subjects they are about to study. The first type will be eliminated by the new regulations for the entrance examination; the second is beyond the province of legislation; but the third type is, and promises under present conditions to continue to be, extremely common. The main reason for the prevalence of this type is, in my opinion, the lack of time for study during apprenticeship. The over-long hours of business are seldom mitigated for the apprentice, and it is unreasonable to expect him to study during the very short leisure time that comes between the closing of the pharmacy and bedtime.

It is clear to those who as teachers have come in contact with a large number of Minor candidates, that it would be better to encourage moderate study during apprenticeship than to lower the standard of the examination, which may be the result of dividing it. Obviously the standard of the examination would be reduced if the percentage of marks to be obtained in the divided examination were the same as the standard in the examination as at present conducted. Supposing a candidate has now to get 600 marks in his six subjects at one examination, it hardly needs stating that it would be much easier for him to get the other 300 marks on three subjects at one time, and the remaining 300 marks on the other three subjects at a subsequent examination—say, after an interval of six months. Rather than incur so grave a risk, let those who deplore the dearth of qualified assistants see that the apprentices committed to their charge enter a school reasonably well acquainted with the various subjects with which they will have to be familiar in the examination, and the result will be that the percentage of passes in the Minor will sensibly increase.

In speaking of the percentage of passes it is instructive to consider the Matriculation examination of the London University, which is now looked upon as the natural entrance examination for most professions. It includes (1) Latin author, grammar, unseens, and prose composition; (2) English grammar, literature, history and the geography relating thereto; (3) mathematics (including Euclid, books I. to IV.), algebra (up to and including progressions), and the whole of arithmetic (excepting cube root); (4) general elementary science, including the rudiments of mechanics, light, heat, magnetism, electricity, and chemistry; (5) either an additional language (*e.g.*, Greek, French, or German) or a science treated more fully than in (4). Now, these subjects must all be passed at one and the same examination, and yet the matriculation is only an entrance examination. Did anyone ever hear of a suggestion to divide this examination? How much more necessary should it be that a qualifying examination, which carries with it serious duties involving life and death, should not fall in standard below that of a mere entrance examination! Thirty-four was the percentage of passes in the last Matriculation examination. It is obvious, therefore, that the Minor is not alone in showing a low percentage of passes.

I have said that the division of the Minor might have the effect of lowering the standard, but, of course, I recognise that there is an alternative to this—viz., the tightening up of the individual subjects. But if this be done it follows logically that the percentage of passes will have a tendency to still further diminish.

The extension of the time occupied by the examination would not, therefore, be of much assistance to the candidate or to the craft. This point should be considered by those who propose a division of the examination. I consider that to divide the examination, or to extend the time occupied thereby, is a step that should not be taken apart from the enforcement of a curriculum.

Until it is found possible to enforce a curriculum these proposed modifications cannot be anything but unsatisfactory alike to the candidate and to the craft—to the former because of the possibly increased stringency in the individual subjects without increased means of preparation, and to the latter by reason of the consequent greater scarcity of qualified assistants. It is urgent, therefore, that the matter be looked at squarely from all points of view.

Who desire these changes, and for what purpose? The master pharmacists, probably, because they find it difficult to obtain qualified assistants. They wish to meet the difficulty by rendering it easier for candidates to qualify, instead of *striking at the root of the matter* by doing their part in the work of education. It will certainly not lead to advancement in the status of the craft to remedy a deficiency in the supply of qualified assistants by the acceptance of half-trained or imperfectly educated men.

To sum up in a few words, the proposed modifications, in the absence of a curriculum, will not necessarily furnish a larger supply of qualified assistants: it may have the opposite effect; and may at the same time give the student real cause for dissatisfaction. The frequent neglect of apprentices by their masters is one of the causes of the dearth of qualified assistants. As I am engaged in teaching it is obvious that it would be inexpedient for me to append my name.

London, February 19, 1900.

MAGISTER (21/20).

The Government and the Companies Bill.

On the 12th inst., to my surprise, I found the Companies Bill was down for the second reading on Thursday, the 15th inst., and, on behalf of the Bristol Pharmaceutical Association, I wrote a letter to Sir Michael Hicks-Beach, Chancellor of the Exchequer, and Mr. Lewis Fry, member for Bristol. The letter and reply I enclose herewith. As a matter of fact, the Companies Bill was not read the second time on Thursday last, but will no doubt very soon. The reply to my letter is very significant, and it is to be hoped the Law and Parliamentary Committee of the Pharmaceutical Society, to whom the eyes of all pharmacists in Great Britain are turned, will take steps for an amendment to be moved when the Companies Bill is in Committee, taking a firm stand and no compromise for the title and practice of pharmacy to be safeguarded to the qualified pharmacist.

Bristol, February 19, 1900.

G. T. TURNER.

[ENCLOSURES.]

Lynne, Osborne Road, Clifton,

February 14, 1900.

To the Right Honourable Sir Michael Hicks-Beach, Bart.

Sir,—On behalf of the above Association, representing some seventy chemists in Clifton and Bristol, I beg most respectfully to solicit your interest in the Companies Act Amendment Bill, which is to be read for the second time in the House on Thursday night. Knowing what heavy demands are made upon your time, I will as briefly as possible show how the Bill, as it at present reads, affects very seriously chemists generally and the public at large. The 1st Section of the Pharmacy Act, 1868, reads thus:—

From and after the 31st day of December, 1868, it shall be unlawful for any person to sell or keep open shop for retailing or compounding poisons, or to assume or use the title of Chemist and Druggist, or Pharmacist, or Dispensing.

Chemist in any part of Great Britain, unless such *person* shall be a Pharmaceutical Chemist or Chemist and Druggist within the meaning of this Act, and be registered under this Act, etc.

No one can be registered who does not pass a qualifying examination, as you are well aware.

But by the language as manifested in the Companies Bill, if it becomes law, it will enable a company to do what a private *person* is prohibited from doing.

The point at issue hinges on the word "person."

It is manifestly a great injustice to many thousands of highly educated pharmacists in Great Britain that by wording of this Act after years of study, and at great expense, to acquire the title of Chemist and D. or Ph.C., and to practise pharmacy, that both the title and practice can be usurped by a number of unqualified men who form themselves into a company.

In the interest of the general public, and for their protection, I respectfully submit that a qualified pharmacist, who gives his personal attention and skill to his business, and has a reputation at stake, is a greater guarantee for the safety of the public than a business, or a member of such, carried on by a body of unqualified men whose only interest in it is what dividend they can declare. Lastly, it is a matter of deep regret, after all the efforts put forth in this country in raising the standard of pharmaceutical education to the high level it has attained, that by any phrasing of this Act a loophole may be given whereby unprincipled and unqualified persons may usurp the title and practice of men who have spent the best years of their lives to attain. As one of your loyal constituents, and representing a number of others, I beg to solicit your powerful influence in this matter.—Yours respectfully,

G. T. TURNER,

President, Bristol Pharmaceutical Association.

Copy of Letter from Secretary of Sir Michael Hicks-Beach.

Treasury Chambers, Whitehall, S.W.,

February 17, 1900.

Sir,—I am desired by Sir M. Hicks-Beach to acknowledge the receipt of your letter of the 15th inst. on behalf of the Bristol Pharmaceutical Association with reference to the Companies Bill, which has been introduced in the House of Commons. I am to say in reply that the particular point about which you write has not escaped the notice of Mr. Ritchie, who is in charge of the Bill, and should the interest affected take steps for an amendment to be moved when the Companies Bill is in Committee, H.M. Government will give careful consideration to its terms and to the arguments urged in its support.—I am, Sir, your obedient servant,

W. A. MOUNT.

Mr. G. T. Turner.

Chemists and the Legislature.

It is well that we have in the Legislature, as well as on the Council of the Pharmaceutical Society, a better kind of representation than most of those who write in the trade journals on the topics of the day seem to be aware of. If the lugubriousness of some who figure in this week's Journal had any foundation, in fact, the outlook would be most gloomy.

The new Companies Bill now before Parliament is on all hands admitted to be an effort—an honest, but complicated, effort—to restrain some of the roguery that accompanies always the march of progressive civilisation—the progress of freedom. The clause that we are, as pharmacists, so deeply interested in may certainly be regarded as one of quite minor importance to the general drift of the measure, and one which may, therefore, be boldly attacked with a direct negative if it can be shown that it will perpetuate an injustice or further entangle the working of another important Act of Parliament—namely, the Pharmacy Act of 1868.

Our President's letter to the President of the Board of Trade should, I think, be regarded with unqualified satisfaction. Sooner or later some good must result therefrom. The strictures on this

head of the President of the F.L.P.A. seem to me amazingly flimsy and ill-timed. (See *ante*, page 166.)

Of all the stream of explicit words, and definite, that came in to enrich our mother-tongue in the middle period of the English Literature, the word "control" stands forth amongst the most explicit and useful ones, and, when clenched by the expressive "any," leaves nothing to be desired in the way of perspicuity. "Control M.E. from M.L.=*contra rotulum*=a counter roll or register"—*vide* Century Dictionary, page 1,237. It implies most definitely any check or restraint, or any power to check or restrain. Yet Mr. Smith is reported to have said that "everything depends upon what signification we give to that word 'control,'" which he goes on to condemn as ambiguous, which it certainly is not.

I pity anyone in Mr. Smith's position; he is evidently forced to a change of front at a critical period of the campaign. When one has a lot of intricate wire-pulling to do all of a sudden, and has others things of far more importance to occupy his best attention at the same time, every allowance should be made for his perilous situation, but not to the abandonment of straightforward criticism. A most serious flaw is reported a little earlier in his speech:—"With regard to the election of the Council of the Pharmaceutical Society, his own view, up to within the last few months, was that the F.P.A. would make a mistake in interfering with the election of members of the Council. But it was quite possible (*sic*) that circumstances might alter cases." To which the reply is—yes, circumstances do alter cases; but circumstances do not alter principles of conduct. It is either right or wrong for another organisation to interfere with an election of the Council, and what was wrong a few months ago cannot very well be right now.

The balderdash so common just now that we must "bring pressure to bear upon our representatives" in Parliament or elsewhere very often over-reaches itself. A representative surely has enough to do to attend to our business for us, in his own manner, without being worried by extra pressure from without, and by a semblance of control which has every likeness to an impudence that must damage any good cause instead of helping it on.

If we search the records, we shall find that association life woke up from a long slumber about ten years ago, when the Council first began to appoint and organise divisional secretaries for the different boroughs in and around London. An army of about fifty can now attest the general amelioration and the augmentation of interest consequent upon that movement. It is no mere "show of unanimity" such as some pretend to pine after still, but a real unanimity, resting upon a brotherly sympathy and a candid view of things as they really do exist.

During this period old associations have begun to assume a new life and new ones to arise in different parts of Great Britain. Altogether, independently of any federation whatever, associations have, indeed, become fashionable, with the usual result of anything fashionable; the bogus—the sham—rise up beside the valid and the genuine. There are thus bogus associations of chemists as well as bogus companies opposed to chemists, and what truth demands is that, instead of tying up in one bundle the good and the bad, each should stand on its own base and either flourish or explode, as time determines its true character and the elements of cohesion or of revulsion that lurk within. Federation of pharmaceutical associations is likely to prove a mere sham, and our representatives at Westminster, as well as at Bloomsbury, know well how by a touch to knock out the wadding and sawdust from such a bogey.

Am I asked what I would have to be done or attempted at the present juncture? I would answer, Go with clean hands and an open breast for pharmacy; let trade and the perennial curses that rest upon what is nicknamed the turning of an honest penny take care of themselves.

The members of the Pharmaceutical Society, increased in numbers, surely have increased, likewise, in the knowledge of the fact

that no benefits can possibly be brought about comparable to those which it is the main object and essential nature of the Society to evolve. The clause of the Companies Bill should be vigorously opposed as unnecessary and likely to work mischief to the public generally. It will, if passed, perpetuate an injustice that we have been the victims of since the law lords decided that our Pharmacy Act, 1868, was a faulty one.

The phrase, "*bona-fide* managers" is indefinite, complicated, and illusory. The idea of a man becoming educated, examined, and legally qualified to perform important functions for the public benefit, and then having to submit to any sort of control on the part of others who have no status whatever in his vocation, is ridiculous and unbusinesslike. Qualified directorship would seem to come nearest to a workable compromise; but where is the necessity of swerving from the solid front of individual proprietary qualification? If this is needed as far as the older branches of medicine are concerned, surely young pharmacy needs it too; and thus we might ask, having got rid of one obnoxious clause, to have the one lower down slightly amended by the insertion of the words "Pharmaceutical Chemist" immediately before the word "Dentist."

Marylebone, N.W., Feb. 20, 1900.

J. C. HYSLOP.

Wanted, a Chemists' Club.

"An Ordinary Pharmacist" has struck the right key in saying that a chemists' club, conducted on proper lines, is wanted. The great mistake that was made in the one near Ludgate Circus was in admitting certain advertising ideas. Though the support of the wholesale cannot be ignored—indeed, their patronage and influence is needed—to encroach upon the space and comfort of a club by the show-case of any firm is certain to lead to jealousy and to prevent that success which should ensure attention from the trade. A well-appointed club, situated within easy access to all parts of London—say, near Charing Cross—would prove a boon to every London chemist or to his *confrère* from the provinces. It should be no difficult matter to found such an institution on self-supporting principles, and if some of the trade will communicate with me the scheme can be put in hand forthwith, and no doubt will be greatly welcomed.

London, February 12, 1900.

C. E. PICKERING.

The Worcester Weed-Killer Case.

The defendant in the above case accepted an order for weed-killer, but not being qualified to sell poisons, transferred the order to a firm who supplied the article, the defendant making a trade profit by the transaction. The verdict was in favour of the defendant, it being held that he acted as an agent only, and had not control and management of the sale. In the Exeter methylated spirit case the defendants (oil and colour merchants) received an order from a customer for methylated spirit, but not having a methylator's licence, passed the order to another firm, who supplied the spirit, but in this case the verdict was *against* the intermediate parties, the defendants, who were held to be the actual sellers, and so to have broken the law, the argument for the defence that the defendants only assisted at making a contract between a third party and the buyer not being accepted. These transactions, so far as actual buying and selling are concerned, appear to me to be analogous, and the legal decisions most contradictory.

February 19, 1900.

M.P.S., Ph.C. (21/41).

The Company Pharmacy Problem.

The Council might utilise the great advantages they possess for influencing, all over the United Kingdom, Members of Parliament, by printing and distributing leaflets and literature for the use of local secretaries, and where there are none, local chemists, when interviewing their respective Members of Parliament, and at the

proper time an urgent whip should be sent from the office at Bloomsbury Square to all chemists to urge their Members to oppose the objectionable clause in the Companies Bill. If it be left to local initiative our opposition will fail, through the usual apathy of chemists. The Lord Chancellor is an astute politician, and will prefer to drop the pharmacy clause than lose his Bill. We must be prepared for that, and persist in our opposition unless our titles are protected in the same manner as medical practitioners and dentists. Those two professions have the same amount of love and respect for us that Continental nations have for Britishers. We must be "slim" enough to compel those professions to include us or lose the opportunity of securing their own titles. By so doing we treble our pressure upon the House of Commons, as medical practitioners and dentists especially are injured by trading companies; and, as our inclusion will not harm these professions, they will press their representatives to include us that they may secure their own titles.

St. John's Wood, N.W., February 20, 1900.

J. HICK.

The Companies Bill.

This Bill awaits its second reading. The obnoxious pharmacy clause is practically the same as passed by the House of Lords last year. In the Journal of 17th inst. we are advised that we should agree whether to oppose the clause or work for its modification. I think the former is the only course open, nor should the idea of a qualified directorate be entertained. Companies have over-ridden the spirit of the Pharmacy Act for years, and now they will, if the Bill passes, destroy its substance, because (1) The Pharmacy Act was passed for the "safety of the public." No mention is made of benefit to the chemist—the reason for the Act should be kept in mind. Years ago the judges decided that the public was sufficiently protected if a company employed a qualified assistant to sell (and by assumption to dispense) poisons. It was curious reasoning to find that companies were outside the terms of the Act, and then to sanction their practising the art thereof, entirely contrary to what an individual might do. (2) If the safety of the public is the only consideration, then I claim that my nearest grocer, a very respectable and conscientious man, should, if he chose, open a chemist's department with a qualified assistant. The public would be as safely studied, probably more so. (3) Scattered over the country are some hundreds of rejected Minor candidates, some in despair, others "waiting for something to turn up," who have all served an apprenticeship of several years in the business. I contend that these should be allowed to open shop by keeping a qualified assistant. Certainly the safety of the public would be greater than in either of the cases just considered. (4) Then the Pharmacy Act is practically a dead letter. It is for the Council to decide the best procedure—probably a leaflet showing our arguments sent to each Association, through the local secretaries, to be by them brought to the notice of the M.P.'s for their districts, would be desirable.

Northampton, February 19, 1900.

J. CLOWER.

ANSWERS TO QUERIES.

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

NAME OF PLANT (J. E.—39/10).—It is from *Juniperus sabina*.

BOTANICAL (W. L. M.—38/33).—Yes, they are all named correctly.

PRELIMINARY EXAMINATION (M. P. F.—39/4).—Certainly. See article at page 189.

CHARGE FOR ADVERTISEMENTS (C. B.—19/47).—The matter is not one which concerns the Editor.

CIRCULAR (A. W. H.—39/6).—There is no question of legality involved; it is purely a matter of taste and expediency.

MERCURIC CHLORIDE TABLETS (W. B. B.—38/34).—They should be dealt with as coming within Part 1 of the Schedule.

CLASSES IN BACTERIOLOGY (S. E. D.—39/3).—At the Jenner Institute, Grosvenor Road, S.W., and at King's College, Strand.

EXPOSURES OF QUACKERY (A. A.—39/7).—The two pamphlets were published by the Savoy Press, Limited, 115, Strand, W.C., at 1s. each.

MATRICULATION EXAMINATION (H. F. W.—39/11).—Yes, the choice of subjects does not affect the matter, so long as you pass your examination.

GERMAN JOURNAL (W. R. W.—39/2).—The *Apotheker Zeitung*, published at Spandauerbrücke 14, Berlin C. 22. There is no London agent. Why not advertise in the *P.J.*?

BOTANICAL (C. S. H.—39/10).—(1) A lichen, *Cladonia pyxidata*; (2) a moss, *Barbula unguiculata*; (3) A fungus, probably *Stereum purpureum* in an early stage of growth.

SCHOLARSHIPS (W. E. B.—39/1).—You will find the information you require in the Educational Number of the *British Journal of Dental Science*, published in September last. It can be referred to in the Society's Library.

BLOCKS OF LINEN GLAZE (H. E. S.—38/3).—The majority of these are nothing but hard paraffin, which is melted, added to the starch, and well mixed. Probably a solid block made on the lines of the formula given at p. 101 (*P. J.*, Feb. 3, 1900), evaporating only to a stiff paste instead of to dryness, would give a good result.

VIOLIN VARNISH (J. W. B.—39/8).—We do not know the address you mention. The following formula is said to give very good results:—Copal resin in coarse powder, 2 ounces; camphor, 120 grains; mastic, 120 grains; Canada balsam, 120 grains; methylated spirit, 10 fl. oz. Mix and let stand, in a well-corked bottle in a warm place for several days, with frequent agitation, until all the resins have dissolved, then shake up well with coarsely powdered glass, and allow to stand until bright; then decant the bright liquor.

LIQUOR AMMON. AROMAT. (W. H.—38/24).—The following has something of the flavour and the greater part of the stimulating effect of sal volatile:—Ammonium carbonate, $\frac{1}{2}$ oz.; strong solution of ammonia, 1 fluid oz.; oil of nutmeg, 34 minims; terpeneless lemon oil, 5 minims; alcohol, 90 per cent., 1 fluid oz.; kieselguhr, *q.s.*; distilled water to produce 1 pint. Add the oils to the spirit and rub down with a little kieselguhr. Dissolve the ammonium carbonate in 15 fluid ozs. of the water, and add the solution, with constant rubbing to the oily triturate; transfer to a well-stoppered bottle. Add the solution of ammonia and enough water to make up to 20 fluid ozs. Let the mixture stand, with an occasional thorough agitation, for 24 hours, then filter.

THE SCHOOL OF PHARMACY.—SESSION 1899—1900.

BY ONE OF THE STUDENTS.

As far as the work goes there is little difference between one session and another. There is the student who only works when he has nothing else to do, the average student whose spirit is willing but whose flesh is weak, and the "swot" who will not desert the study of cinchona bark even for the latest war news, who is bending over his burette when you go to dinner and in the same position when you return. As of yore, the Lord Mayor's Show attracted those from the country to their inevitable disillusionment, at the expense of a lecture. The departure of the Guards for South Africa also caused the laboratories to be deserted. There was the usual struggle with the Magdeburg hemispheres in the physics lecture, and explosions in the chemistry laboratories are greeted with the same interest. The novelties that attracted the greatest attention were the two electric ventilating fans in the lecture theatre, which ventilated with such vigour that several people caught bad colds and overcoats became the fashionable wear for lectures. They have now, however, been provided with covers, and only work when required.

The social side of the Square has been carried on with success, and many students gained useful experience in the process. The Football Club has had a successful season, having so far won eight matches and lost three. They have scored forty-three goals to their opponents' thirteen. The Inter-Pharmacy Football League has created great interest, and the Square team is hoping to win the Cup. Of the six matches played they have won four, lost one, and one, which was won, has to be replayed owing to a protest on a technical point. There is only one other club in the League in such a favourable position, and if it comes to a deciding match with them the team, under the capable leadership of Mr. W. Owen, look forward to the struggle with confidence.

A very good programme was provided for the Football Smoking Concert, and it resulted in a great success. A collection, which realised nearly £9, was made, in conjunction with one among those students who did not attend the concert, for the benefit of the War Funds. The Football Club also subscribed to the collection made by the Middlesex County Association for the same purpose.

The Students' Association, under the management of the energetic secretaries, Mr. C. W. B. Heslop and Mr. C. T. Allen, has had record attendances at its meetings. An innovation that has been much appreciated is the provision of tea before the meetings, thus enabling members to attend without going outside to get refreshment or else suffering the pangs of hunger during the proceedings. The papers have been well above the average, and the discussions on them have been good. One debate has been held, on the question of a compulsory curriculum, which showed a surprising amount of debating power in the School.

The interest taken in the working of the Association is shown by the fact that a committee has been appointed to revise the Rules, some of which are ambiguous.

The annual School Dinner, which came off on Wednesday, was a great success, and Messrs. E. Chapman and J. Lawson are to be congratulated on the result of their hard work in organising it.

The hearty good wishes of all the students are with Mr. J. S. Hills, who has gone to South Africa with the battery of Vickers-Maxim guns attached to the C.I.V., and while they are searching for the elements in vascular tissue they think with envy of Driver Hills in his more exciting and interesting task of seeking for Boers among the kopjes. The football team also deplore his loss, as he was one of their best players.

The taking of the annual School photograph this year precedes the Major examination, for which students are at present preparing. This year another photograph has also been taken, and affords further evidence of the influence of the war. The proposal, made in this Journal by Mr. F. A. Upsher Smith, for the formation of a Drill Class among the students, has been carried by its originator





SCHOOL OF PHARMACY—CLASS OF 1899-1900.

From a Photograph by W. S. Bradshaw & Sons.



SCHOOL OF PHARMACY DRILL CLASS.

From a Photograph by W. S. Bradshaw & Sons.



to a successful issue. Every Wednesday evening those who appear on the annexed page assemble in the Examination Hall, the use of which has been granted to them for that purpose by the Council, to drill under the direction of Colour-Sergeant Jones, of the 2nd Battalion of the Grenadier Guards, whose stalwart form may be perceived in the centre. They thus increase their store of health with which to face the less pleasant, but swiftly-approaching, meeting which will take place in the same room. The support the scheme has received leads the promoters to hope the class will be continued in future sessions.

Annual Dinner.

The annual dinner of the students of the School of Pharmacy of the Pharmaceutical Society was held in the Caledonian Salon, Holborn Restaurant, on Wednesday, February 21, Professor J. Norman Collie (Dean of the School) in the Chair. He was supported on the right by Mr. William Martindale (President), Professor Greenish, Mr. C. B. Allen, Dr. J. Attfield, and on the left by Mr. Michael Carteighe (School Visitor), Professor J. Reynolds Green, Mr. Walter Hills, Dr. A. P. Luff, Professor J. P. Farmer, and by other gentlemen well-known in pharmaceutical circles.

After an excellent dinner, and the toast of "The Queen," Mr. H. DEANE (Bell Scholar), proposed the toast of

THE PHARMACEUTICAL SOCIETY.

He referred to the work of the Society, and said that from the commencement it had worked for the improvement of the position of pharmacists. Some people thought that it had not been successful in that, and that it should be more energetic in connection with the company pharmacy problem, especially with regard to the Companies Bill. Whatever might be the opinion of those people, it remained the fact that the Society is the only organisation whereby the position of pharmacists can be improved. He then went on to speak of the interest the Society takes in the "Square" students, and mentioned, as an instance, that when they applied for the use of the Examination Hall for the recently formed drill class it was at once granted. He had pleasure in asking all to drink the toast of the Pharmaceutical Society.

The PRESIDENT, in reply, thanked all for the hearty manner in which the toast had been received, and recalled the fact that the Society has been established over half a century, has done good work, and is still capable of doing more. It should be remembered that the Society was founded by pharmacists for pharmacists, and has been kept up by pharmacists. Referring to the School of Pharmacy, he expressed the hope that the students would continue to improve upon the good work he understood they were doing this session, and that in years hence they would not be ashamed of their work. It was a beneficent work done to relieve human suffering, than which there was no nobler work. He also hoped they would be true to their *alma mater*; not only to the school and its associations, but to each other, and that they would have that *esprit de corps* towards their fellows which is so essential to the success of any body of men. Nothing created that *esprit de corps* so much as work, whether in the school, or at football, or at drill, so necessary to the discipline which is being so nobly exemplified by the British Army at the present time. The Council was proud to think that the students were taking up drill, and were being enthusiastic in that work. He hoped it would not be the least important part of their duties at the "Square."

The CHAIRMAN then called upon Mr. M. Carteighe to propose the toast of

THE SCHOOL OF PHARMACY.

Mr. CARTEIGHE, who was received with almost deafening applause, said he hoped they would reserve a little of their energy for a later period of the evening, as he had come there to enjoy

himself. That he proceeded to do by delivering an entertaining speech of some considerable length. He considered that the greatest benefaction that the founders of the Society bestowed was the founding of the School of Pharmacy. Pharmacists were all subject to competition, and all were generally badly used, but in that respect they were not much worse off than in sundry other branches of trade and professions. Competition was a factor in all professions, but the students in the school were receiving instruction—based really on the excellent curriculum laid down in 1842, when the school was established—which would assist them greatly in after life. Mr. Carteighe then briefly sketched the history of the School of Pharmacy—which he described as the backbone of the Society in the old days—and stated that it was largely due to the recognition of the educational value of the Society that it obtained from Parliament the charter of 1852. At that time, and again in 1868, there was a disposition in every part of the House of Commons, and in every department of the Government, to receive any proposal that the Society brought forward in regard to Pharmacy laws on the basis of education. Those who were associated with the school at the present time would do well to remember that the most important factors to success in pharmacy were capability and proper training. However brilliant a man might be, success could only come by steady drilling in that curriculum which the Society had vainly tried to make compulsory. He believed, however, that the time will come when it will be compulsory. Mr. Carteighe then referred to the election of a distinguished honorary member of the Pharmaceutical Society as a member of the House of Commons, namely, Sir Michael Foster, an educationalist of world-wide fame, who had been associated with the educational work of the Society for several years. The founders of the Society thought that a good school was the first essential in their programme, and he hoped that within a measurable distance of the present time the Council would be able to announce that arrangements have been made whereby students of the school shall be able, on easy and equitable terms, not only to obtain a university degree, but to be associated with the University of London. Mr. Carteighe then referred to the change made a year or so ago in the curriculum, and said it had not only been successful, but had brought about a change in the disposition of educational bodies towards the school. He hoped the time would come when second year's students would see the advantage, pecuniarily, of a third or even a fourth year at the school in order to work at some particular branch of knowledge under the direction of the professors. Mr. Carteighe went on to speak in high terms of the professors and demonstrators. He asked all to drink success to "the dear old School of Pharmacy," with which he was himself associated for so many years.

The CHAIRMAN (Professor Collie), replied. With regard to the lengthening of the curriculum, he thought the Council had acted wisely. It not only gave students a better chance in getting that necessary training so essential to their success, but it also helped the professors. The school was certainly in a very efficient condition, not only from an educational point of view, but also in its manlier aspects. He referred to the football team, and said it had only suffered one defeat during the present season, and he thought it was extremely likely that the cup which was being offered for the best pharmaceutical team would find a home at the "Square." In regard to the drill class, he hoped it would be carried on with the success attending its commencement, it would certainly be productive of one thing—a good healthy perspiration. Professor Collie then made a few remarks respecting the teaching in the school, stating that some of the students were very scientific, in that they looked at things from different points of view. Science was a very curious and somewhat elusive study, and he found that students could look at it from various standpoints. Professor Collie gave several humorous illustrations, and concluded by thanking all for the hearty way in which the toast had been proposed and received.

The toast of

THE PAST "SQUARE" STUDENTS

was proposed by Mr. WOOLCOCK in a clear and deliberate speech—displaying decided elocutionary ability—which appeared to be enjoyed both by speaker and audience. Referring to Professor Greenish, he said they were proud to call him an "old boy." Notwithstanding the great value of botany and physics, it was from Professor Greenish they received the instruction which fitted them for the work of pharmacists, and the great care he took with the students fitted them for that duty, while he did not forget that the Minor examination was a necessity. They all owed him a deep debt of gratitude. Then there were also Mr. Upsher Smith and Mr. T. E. Wallis, both old boys. To Mr. Smith they were indebted for the formation of the drill class, and in this connection he quoted Shakespeare's well-known lines:—

If England to herself be true,
Come the four corners of the world in arms and we will shock them all.

There were those who would have been with them that night, but they were out on active service. He alluded to Mr. Lorimer and Mr. J. S. Hills. They had not all the pleasure of knowing Mr. Lorimer, but they had associated with Mr. Hills for three months, and in that time had learnt to respect him and to regard him with affection. They all hoped he would come back safely, when they would give him a hearty welcome. He coupled with the toast the name of Dr. A. P. Luff. He also referred to "the ever genial Mr. Carteighe, of whom they had heard ever since they had been connected with pharmacy.

Dr. LUFF having replied, songs were rendered by Messrs. C. H. Baker, C. Morley, E. Jenkin, W. Owen, and C. Davis; a character sketch, "The Beano," was given with good effect by Mr. T. Morley Taylor. The accompanist was Mr. A. Newton, who also performed a well-executed pianoforte solo.

Dr. JOHN ATTFIELD, in a brief speech, proposed the toast of "The Chairman."

After Professor COLLIE had responded, the programme was continued, an extra item being added towards the end, Mr. Michael Carteighe having been persuaded to sing one of his well-known songs.

PROCEEDINGS UNDER THE PHARMACY ACTS.

CASE UNDER SECTION 17.

Pharmaceutical Society v. J. and J. Thompson, Limited.

At the Oldham Police-court on Wednesday, February 21, this case came on for hearing. The magistrates on the Bench were Dr. Yates (in the chair), Mr. T. T. Taylor, and Mr. C. C. Spencer.

Mr. Robson, solicitor, Manchester, appeared for the prosecution, and said in his opening that he appeared to prosecute on behalf of the Pharmaceutical Society. This was a charge of poison being sold without having the name and address of the seller put on the bottle or wrapper containing the poison. Having recited the section of the Act, he stated that on January 29 a sale was made of Dr. J. Collis Browne's chlorodyne, and he had received a letter from Messrs. J. and J. Thompson's solicitor admitting that Dr. J. Collis Browne's chlorodyne contained chloroform and morphine, so that it would not be necessary for him to prove that this medicine contained poison. In this, as in many other cases, the mere fact that they were able to find evidence of medicines having been sold without a label was an indication, or, at any rate, a fair assumption to draw, that this was not the only case that had occurred, and although he did not ask for a vindictive fine, he hoped they would show in a substantial

way that this dispensing and sale of medicines must be carried on in a more careful manner than appeared to be the case in the present instance.

Arthur Foulds gave evidence that on January 29 last he went to the shop of Messrs. J. and J. Thompson, Limited, and bought a bottle of Collis Browne's chlorodyne, for which he paid 9d. He produced the bottle, which had on it no label showing the name and address of the seller by which it could be identified. He bought a bottle of glycerin at the same time. That bore the seller's name.

Mr. Sixsmith, in defence, said he found no fault except that this was a prosecution, not in the interests of the public, but in the interests of a particular Society. His clients had a system by which the manager of each shop sent an order to the general manager, and there was a requirement that these proprietary articles should not be supplied over the counter by any assistant who might be there, but through the responsible manager, and, in corroboration of this, he should call the manager himself to give evidence. In respect to the labels, each assistant was personally cautioned against selling those poisons without the bottles being labelled. Possibly one might have been overlooked, and in that instance it seemed to have been the case, because there was evidently not the name and address of the seller upon the bottle. He put it that this was an oversight, and he asked the magistrates to deal very leniently with the case.

After the Bench had consulted, the Chairman said no doubt a bottle of chlorodyne had been sold without label, as required by the Pharmacy Acts. Whether it was carelessness or not he could not say. The defendants had neglected their duty, and they had no alternative but to inflict a penalty. It would not be a vindictive one—20s. and costs.

Mr. Robson: Will you allow the advocate's fee?

The Chairman: We take it this is a proper thing to bring into Court, and we shall allow you a guinea.

PRACTICAL NOTES AND FORMULÆ.

To Remove Tattoo Marks.

Salicylic acid massed with glycerin to the consistence of dough, applied over the marks with a compress and strips of adhesive plaster, and allowed to remain in contact for a week, will, according to T. H. Whiting, eventually remove tattoo marks. After the first dressing, the epidermis over the marks is removed, and a fresh application of the salicylic acid applied. Usually this second application removes the marks, but sometimes it is necessary to make a third.—*Med. Brief.*, 27, 1803.

Dose of Scopolamine.

Windscheid calls attention to the fact that the doses of scopolamine (hyoscyne) generally given are too high. From his own observations he concludes that the initial dose, whether by the mouth or by injection, should not exceed one tenth of a milligramme. To counteract the nocturnal transpiration in phthisis, he gradually increases this to 0.0004 Gm.—*Journ. de Pharm. d'Anvers*, 56, 17, after *Oesterr. Zeit. für Pharm.*

Epichlorhydrin and Dichlorhydrin as Solvents.

E. Valenta, who has found the above useful as solvents for resins, gives the following recipe for a copal varnish:—Manilla copal, 20, is dissolved in epichlorhydrin, 70, on the water bath; absolute alcohol, 100, is added, and the whole filtered. The varnish may be applied either hot or cold, and may be diluted with a mixture of epichlorhydrin, 1, alcohol, 5. It dries hard and bright, and stands well.—*Pharm. Centralh.*, 40, after *Photogr. Corres.*

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LONDON: SATURDAY, FEBRUARY 24, 1900.

THE PRESENT NECESSITY.

THE circumstance that a copy of this week's Journal will be sent to every individual on the Register of Chemists and Druggists, affords an opportunity of bringing under the notice of the entire body, the necessity of immediate action in regard to the intentions of the Government embodied in Clause 2 of the Companies Bill which is now awaiting a second reading in the House of Commons. As stated in last week's Journal, the nature of the clause is essentially the same as that in the Bill which passed through the House of Lords last session. However inconsistent the effect of its provisions may appear to be with the declared opinion of the LORD CHANCELLOR that "the idea of an ideal personage—such as a company—practising and undergoing an examination is absurd and cannot cohere with the language of the Statute"—whatever may be the purport of his Lordship's further statement that he is "very strongly convinced that a company ought not to be permitted to do what a private person is prohibited from doing" the fact is beyond question that this Clause of the Companies Bill—presumably introduced at the instigation of the LORD CHANCELLOR—proposes to enable, and authorise, a company to do the very things that the LORD CHANCELLOR has declared to be absurd, contrary to common-sense and to his conviction as to what should be permissible. The effect of the clause, as it stands, is not merely to bring companies within the scope of the Pharmacy Act by providing that anything which would be an offence if done by an individual should, if done by a company, be an offence for which the company is to be liable; but it also implies that, under certain conditions, a company may carry on the business of a pharmaceutical chemist or chemist and druggist. As a company cannot be qualified, the effect of the clause would be to break down the statutory provision that it is unlawful for any unqualified person to keep open shop for the purposes to which the Act relates. That invasion of the privileges attaching to qualification under the Pharmacy Act, is considered by many quite sufficient to justify opposition to the measure; but unfortunately the opinions of registered chemists are divided as to the course to be

adopted, and that want of agreement has hitherto found expression in the Council so as to prevent representative action on any line commanding general support.

But a far more serious invasion of the privileges attaching to qualification under the Pharmacy Act is the implied provision that a company may not only carry on the business of a pharmaceutical chemist or chemist and druggist, but may also use the titular designations now obtainable only by individual qualification. That would be a personal injustice to all legally qualified persons, and it would also be contrary to public policy, inasmuch as it would abolish the value of the criterion provided by the Pharmacy Act, 1868, for the express purpose of enabling the public to recognise the persons certified as being competent to discharge the functions to which the legal qualification relates. For both these reasons the clause in the Companies Bill should be strenuously opposed. On this point of title it may be anticipated that there cannot be any difference of opinion among legally qualified persons, nor can there be any reasonable objection to their claim to exclusive use of titles representing the statutory qualification demanded in the interests of the public. It is unnecessary, in connection with this point, to consider the conditions subject to which the proposal is made to legalise the use of titles by companies. If companies of unqualified persons are to be permitted to carry on the business of pharmaceutical chemists or chemists and druggists, and legally authorised to do so, the propriety of the stipulation that such business should be *bona fide* conducted by legally qualified persons may be maintainable; but that cannot be used as an argument for allowing companies to use titles they cannot acquire. Under existing conditions it seems desirable, therefore, that in the sense of the remark in Sir MICHAEL HICKS-BEACH's reply to Mr. TURNER (see p. 194) as to "the interest affected taking steps for an amendment to be moved when the Companies Bill is in Committee," every registered chemist who desires to protect his title from misuse should at once put himself in communication with his parliamentary representative and urge upon him the very simple arguments requisite for the purpose of securing opposition to that part of the clause.

It appears from the letter of Sir MICHAEL HICKS-BEACH that this particular point has not escaped the notice of Mr. RITCHIE, who is in charge of the Bill, and it may be useful, in showing the difficulties of the position, to state that the reply made, on behalf of the Government, to urgent appeals for an amendment of the clause that would place registered chemists in the position they occupied before 1880, has been that such a proceeding is considered to be absolutely impossible. The position taken by the Government is that the condition of things, actually existing at the present moment, requires to be regulated, and from that point of view the question presents itself whether the public is any better served or protected when registered chemists carry on branch shops, even without qualified assistants, than in the case of limited companies. That is the answer given to every argument brought forward and, to the disadvantage of qualified chemists, the legalisation of companies is justified, on the ground that they would be compelled to have legally qualified persons to conduct their business, and to ex-

hibit their names in that capacity, while there is no certainty that such is always the case in the shops of registered chemists. In fact, the mind of the Minister who has charge of the Companies Bill appears to be impressed with the opinion that though chemists, legally qualified under the Pharmacy Act, 1868, are privileged persons, they cannot, as a body, be treated by the Government in the same manner as professional men. It appears to be thought that in very many instances registered chemists have neglected their privileges, have omitted to take advantage of the opportunities of self-protection which the Act afforded them, and desire the Act to be put in force only as a means of obtaining for themselves a trade monopoly. That is a lamentable position to have reached, and the more so since there are many who are not open to any such condemnation; but it is not the less urgently necessary that those who are earnest in desiring to uphold the credit of the craft and defend their own rights, should make a vigorous effort to put the pharmaceutical house in order, and bestir themselves in devising protection from enemies within as well as without their ranks.

CHEMISTS AND THE COMPANIES BILL.

In view of the fact that the *Pharmaceutical Journal* will circulate much more widely than usual among registered chemists this week, it appears opportune to point out again that the Companies Bill, introduced into the House of Commons last week by Mr. RITCHIE—the President of the Board of Trade, contains the following clause, which, if it becomes law, will give legal sanction to unqualified persons who form themselves into limited or joint-stock companies to carry on the business of a chemist and druggist, and to misuse chemists' titles:—

2. No company may carry on the business and use the description of a pharmaceutical chemist or chemist and druggist unless the business is bona fide conducted by a manager or assistant being a duly registered pharmaceutical chemist or chemist and druggist, as the case may require, nor unless the name of the person so qualified is conspicuously posted in the shop or other place in which the business is carried on, but, subject to this provision, anything which would be an offence under section fifteen of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.

In a subsequent clause it is provided that such companies shall not practise as medical practitioners, dentists, or midwives. Thus:—

3. It shall be unlawful for a company to carry on the profession or business of a physician, surgeon, dentist, or midwife, and if any company contravenes this enactment it shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which the contravention happens.

The Bill is now down for second reading, and may come up for discussion in the House of Commons at any moment when the state of public business permits. At that or a later stage, it is not improbable that the registered chemists of Great Britain may need to call upon their representatives in Parliament to offer opposition to the progress of Clause 2, and, that being so, they ought to be prepared with good reasons for asking that the Clause should be rejected or amended.

In the first place, they may point out that it is contrary to public policy that any person who does not possess a competent practical knowledge of the business of a chemist and druggist should be permitted to use the titles mentioned in the Clause, or to exercise any control over the retailing, dispensing, or compounding of

poisons. Further, the individual actually conducting each establishment where poisons are retailed, dispensed; or compounded, should be personally responsible to the public in respect to all business carried on in that establishment, and no manager or assistant should exercise such control over the business as alone would suffice in the public interest. Over and above that, in the event of the Clause referred to becoming law as it stands, it would be in conflict with the decision of the House of Lords that the seller of poisons under the Pharmacy Act is the individual who actually conducts the sale, and not the proprietor of the business on whose behalf the sale is effected. It may also be urged with even greater force that it is unjust to sacrifice the vital vested interests of a legal qualification for the sake of a number of unqualified traders who have invested a certain amount of capital in a business which they are not legally entitled to carry on as individuals, but that would be the position if the Clause became law in its present form.

Last, but not least, stress might be laid on the fact that it is as important to a patient that his medicine—particularly if containing potent remedies—should be dispensed by a competent person, as that his medical attendant should be properly qualified, and that, whilst registered chemists do not seek to interfere in any way with the existing free trade in drugs and medicinal preparations, they consider that—so far as their strictly professional duties are concerned—they are entitled to be placed on the same footing as medical men, dentists, midwives, etc., whose practice it is proposed to protect, as against companies, by Clause 3 of the Companies Bill. But Clause 2 proposes that an individual qualification—restricted by Statute during the past thirty-two years to persons who have proved their fitness to retail, dispense, or compound poisons—is to be thrown open to use by companies and consequently to any unqualified individual who can associate with him six other unqualified individuals, on the sole condition that he procures a duly registered person to act as cover.

AFTER AUGUST, 1900.

UNDER the above heading will be found, at page 189, a very full explanation of the coming changes in the examination arrangements of the Pharmaceutical Society, advantage having been taken of the fact that this week's Journal will be sent to every person whose name appears on the Register of Chemists and Druggists, to state in the fullest manner possible that after the month of August next, the "First" or preliminary examination of the Pharmaceutical Society will cease to be held. The fact has been stated over and over again, but many correspondents seem to think there must be an examination *after the last*, and—however unnecessary the step may appear to logically-minded persons—it has been decided to explain in detail why that cannot be. Readers are told in the article referred to what the new conditions are, what they mean, and what the probable effects of the coming changes will be. But the main point to be noticed is that the "First" examination will be held for the last time in July next, and that the existing arrangements for testing the general education of candidates for the Minor examination will then be superseded.

ANNOTATIONS.

THE REGISTER OF CHEMISTS AND DRUGGISTS doubtless ought to be, as many amateur critics insist, much more free from inaccuracies than it really is, but it is not generally recognised that the remedy rests with the persons who are registered and not with the Registrar. It is essential that every registered person should clearly recognise the fact that the Registrar is not omniscient, and that he is only in a position to correct inaccurate addresses when the individuals directly concerned supply him with the necessary information. As soon as a registered person changes his permanent address he should promptly notify that fact to the Registrar, or the chances are that he will forget to do so later and, at the next revision of the Register, his name will be omitted. The additional fact that inaccurate addresses may be found in the Register, having apparently been overlooked when the periodical revision took place, is explained by the circumstance that official communications are frequently taken in at the places to which they are addressed, although the persons for whom they are intended have been gone from there some time. If those communications are not acknowledged or returned through the Dead Letter Office, the Registrar is obliged to conclude that they were properly addressed. They may or may not ultimately reach the hands they are intended for, but in a large proportion of instances neglect to deal with them proves fatal to the accuracy of the Register. The only efficient remedy, it is to be feared, is the oft-suggested one of an annual registration fee.

THE FEDERATION OF LOCAL PHARMACEUTICAL ASSOCIATIONS has held a meeting in London this week, at which it was decided to suggest to the federated associations a list of suitable topics for discussion during the remainder of the current session. It was also resolved to recommend the associations to take action in regard to the Companies Bill, by interviewing members of Parliament, and pressing them to vote for the rejection or amendment of Clause 2 of that measure. As an aid in the matter it was decided to draw up a set of reasons why the Clause should be rejected or amended, for the information of Parliamentary representatives. It is to be suggested to the associations that they should adopt one of two courses:—(1) Ask members of Parliament to vote for the restriction of chemists' titles to duly qualified individuals, and that companies of unregistered persons should be prevented keeping open shop for retailing, dispensing, or compounding poisons; or (2) Ask for protection of titles and insist upon the need of a qualified directorate, each establishment where poisons are retailed, dispensed, or compounded, being in charge of a qualified manager whose name shall appear in a prominent position. It will thus be seen that the Federation Executive, recognising the want of unanimity which prevails in pharmaceutical circles throughout Great Britain, finds itself unable to recommend a single definite course, and leaves the associations to select their own. It is significant, however, that no intention is shown of being content with protection of titles only, though that in itself is regarded as indispensable in any case.

DIVISION OF THE MINOR EXAMINATION may be a generally desirable thing or it may not; but there is a strong feeling on the part of those who are best qualified to judge that such a change in the existing examination system of the Pharmaceutical Society is undesirable unless accompanied by the adoption of a compulsory curriculum. The arguments against the proposed division are ably put by a correspondent, who is precluded by his position from signing the letter which appears at page 192, but whose expression of opinion is none the less valuable on that account. It is noteworthy that he insists upon the necessity of the standard being raised in each subject if division of the examination

is to become an accomplished fact. With that view anyone who is conversant with the difficulties encountered in conducting examinations will perforce agree. The object of effecting any change in the examination must always be to secure increased efficiency, not to enable candidates to pass with greater facility. In considering this subject it is necessary to bear in mind that the duty of the Pharmaceutical Society is to prevent the registration of incompetent persons as chemists and druggists, and that object is not likely to be attained by splitting up the qualifying examination in such a way that candidates can pass piecemeal after cramming the minimum amount of information in one or two subjects at a time. The experience of other examining bodies—notably the University of London—goes to prove that no undue strain is imposed on candidates by the necessity of studying a number of subjects at one and the same time. It is the methods of study adopted which make the difference, and if a compulsory curriculum were in force there would be few, if any, complaints such as are voiced by those who advocate division of the Minor examination. If anything is really amiss in the existing system of examination, it is that the candidate is examined in too many subjects in a limited time, but that can be remedied without dividing the examination on such lines as have been proposed.

REFERENCE MAY BE MADE, while on this subject of examinations, to an amusing letter which appears in the *Harrogate Advertiser*, of all places in the world, protesting against chemists being examined in anything except a knowledge of poisons. So far as botany, chemistry, etc., are concerned, the anonymous writer of the letter is assured that "the whole affair has been simply arranged . . . to keep as many out as possible!" And that in spite of the fact that some five hundred and fifty candidates passed the Minor examination last year. The ignorance of the writer of the letter may be judged from his statement that the questions at the Minor examination are only asked in order to make it difficult for the candidate to become a chemist, the following fearful example of the questions asked being gravely propounded:—"How to make *infusum rosæ audum* (*sic*), a perfectly harmless preparation, which it is not necessary for anyone to have to learn, as one would have the books that would contain all such information." If, as appears not unlikely, the writer of this curious epistle has been plucked at the Minor examination, or anticipates being so shortly, we can only suggest that it is a distinct misfortune to the British public if he has been permitted to pass the First examination or one of its equivalents. And whether he has or not, he would become decidedly less absurd if he were compelled to go through a prolonged course of scientific, technical, and general education.

THE CHEMISTS' ASSISTANTS' ASSOCIATION will hold its twenty-second annual dinner in the King's Hall, Holborn Restaurant, London, on Tuesday, March 8, and tickets (5s. each) may now be obtained of Mr. Herbert Hymans, 34, Devonshire Street, W. The chair will be taken on this occasion by Mr. F. W. Gamble, President of the Association, who expects to be supported by Mr. William Martindale, President of the Pharmaceutical Society; Mr. E. M. Holmes, President of the British Pharmaceutical Conference; Dr. William Murrell, and many other friends of the Association.

THE FORTHCOMING INDIAN AND COLONIAL ADDENDUM to the British Pharmacopœia is the subject of a further report to the members of the Pharmacopœia Committee of the General Medical Council, and part of that report is reprinted in the current issue of the *Pharmaceutical Journal* (see p. 187). The Editor of the Addendum anticipates the production of a satisfactory Indian Section within the next few months, and a well-developed Indian Appendix of the next British Pharmacopœia.

THE METRIC SYSTEM OF WEIGHTS AND MEASURES appears likely to be introduced shortly in Russia, a scheme to that effect, prepared by the Ministry of Finances, having already received the approval of the Council of State, on the condition that it should be supplemented by a scheme for organising the aid which different scientific societies and the universities are ready to render, in the verification of the new weights and measures for commerce. According to *Nature* the latter scheme is nearly ready, and will shortly be brought before the Council of State. In the military pharmacopœia, published in 1896, all measures are already given in the metric system, which has thus been rendered obligatory for the medical staff of the army.

THE "MEDICAL PRESS," having been reproved by the Pharmaceutical Society of Ireland (see *ante*, p. 165) for suggesting that pharmaceutical chemists are "incapable of dispensing minute doses of potent drugs," trusts it will not be considered disrespectful to say that the statement attributed to it was never published in its columns. But that is a mere evasion. It is true that the words we now quote from the letter written by the Registrar of the Irish Society were not those which actually appeared in the *Medical Press*, but it was asserted in an editorial note which appeared in that paper that the very active alkaloids "cannot be compounded even by the most capable and conscientious chemist without the risk that the entire dose will be concentrated in one or two pills."

THE STANDARDS OF PURITY FOR DRUGS suggested by Mr. C. G. Moor are of such great interest to chemists and druggists that Mr. Moor has been asked by the Editor to explain what is the exact position taken up by him in the matter. Reference to the paper printed at page 172 will show that Mr. Moor's proposals are far from revolutionary, though their effect should be beneficial to everyone concerned. Briefly, what is proposed is that an agreement should be arrived at between registered chemists and analysts to establish informal standards for articles which cannot at present be judged by any legal standard. The British Pharmacopœia is not a legal standard under the Sale of Food and Drugs Acts and, indeed, is not fitted to be so. It requires to be much more accurate and clearly written before it can be accepted as a general standard for drugs; above all else, it needs to be planned, and the work of compilation supervised, by experts. How the Pharmacopœia fails as a standard is explained by Mr. Moor, who also gives good advice to traders and points out that the demand for cheap stuff is probably the root of much evil which afflicts chemists in connection with the administration of the Sale of Food and Drugs Acts. With regard to Mr. Moor's suggested standards, it will be time enough to speak of those when they are before us, but his scheme may safely be commended on general grounds, and we trust our readers who are engaged in the analysis of drugs will respond readily to his invitation for assistance. It is high time that registered chemists and public analysts should work together amicably, rather than regard each other with mutual distrust, and if the only outcome of Mr. Moor's work should be to engender better feelings than have prevailed in the past, he will have done good service. At the same time, his scheme for the establishment of standards is quite good enough to secure for him the recognition which is his due.

THE DIFFICULTY OF SECURING CONVICTIONS under the Pharmacy Act, 1868, was once more illustrated by the proceedings at the Glasgow Sheriff Court last week (see *ante*, p. 159), when an unqualified assistant employed in a shop kept by a medical man was sued for a penalty incurred by illegally selling laudanum. The difficulty experienced was in connection with the numerous trivial objections to relevancy which were raised by the defender's agent. In the first place it was urged that the charge could not be maintained because a charge had been made for the same act against another individual, the fact of the matter being that the usual difficulty had been experienced in securing the assistant's name and another name had inadvertently been inserted in the complaint. Then the

agent demanded to know the exact hour at which the purchase was effected, the quantity purchased, the probable effects of the laudanum, and the actual harm it had done. He also asserted mistakenly that the reason for which the purchase was made should have been disclosed, and objection was taken because a man had been sent specially to make the purchase. Evidence of the fact that analysis had disclosed the presence of opium in the preparation sold was declared to be insufficient, and the results of a complete analysis were asked for. Finally, the agent demanded that the minute of Mr. Bremridge's appointment as Registrar under the Pharmacy Acts should be produced, and protested because only a printed copy of the Register was forthcoming. Ultimately, however, the Sheriff disallowed all the objections, and gave the most favourable judgment the Pharmaceutical Society has yet had recorded in such a case, the unqualified seller being fined three guineas, with two guineas costs, an exceptionally severe penalty to be imposed in Scotland.

THE BIRMINGHAM MAGISTRATE whose remarks are reported at page 207 is evidently under no misapprehension as to where the best drugs and medicinal preparations are to be obtained. A firm of druggists' sundrymen was charged with selling seidlitz powders which were deficient in tartaric acid and tartarised soda. The label on the packet containing the powders bore a warning, which was distinctly impudent on the face of it, to the effect that "thousands of boxes of common imitations of genuine seidlitz powders are sold by unprincipled traders for the sake of extra profit. We guarantee all ours to be genuine." It is not surprising to find that the magistrate described this as an abominable fraud, and fined the defendants heavily. It is satisfactory to find that he also advised the public to go to chemists if they desired to obtain proper articles.

THE EXPORTATION OF CARBOLIC ACID was the subject of a question by Sir C. Quilter in the House of Commons on Tuesday, when he asked the First Lord of the Treasury if he could explain to the House the circumstances which had influenced the Lords of the Treasury to authorise her Majesty's Board of Customs to allow, upon certain conditions, the exportation of carbolic acid and other similar articles, the exportation of which was recently prohibited by Royal Proclamation. He also asked whether the bulk of those articles was exported in a crude state, and was refined on the Continent (frequently being mixed with other raw material produced there), so as to make it impossible to trace the ultimate destination of any particular consignment after it had been refined or converted; and whether, as the object of that proclamation was to prevent articles which were capable of being converted into lyddite, melinite, and other high explosives, and for the supply of which Continental and other nations mainly relied upon this country, from reaching the Queen's enemies, he would rigidly enforce the original forms of the Royal Proclamation. Mr. Balfour, in reply, said he was informed that very careful inquiry was made into the export trade in carbolic acid and other similar articles. It was proved to the satisfaction of the Government that there was a large and innocent trade in those articles in foreign countries and in the colonies, with which it was clearly inexpedient to interfere. But the destination of those consignments can be traced very accurately, indeed, a large proportion of the exported material comes back to this country. The hon. gentleman might rest assured that the instructions which have been given will not in any way defeat the object of the proclamation.

GROGERS ARE IN FULL SYMPATHY with the P.A.T.A., a representative meeting having been held on February 8 under the auspices of the Grocers' and Allied Trades' Proprietary Articles Trades Association, at the Holborn Town Hall, when a resolution was passed in favour of joint action with the chemists' section of the P.A.T.A. to obtain a uniform rate of charge for all proprietary articles from the manufacturers, with a view to stopping the cutting of prices.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Company Trading Difficulty.

By the omission of the word "not" at the end of one of my notes last week, I was made responsible for a statement which was the exact opposite of what I meant. Writing about the apparent difficulty of persuading the Government that pharmacists are entitled to similar treatment—in the matter of protection against companies—to medical men, dentists, and midwives, I wrote that where personal services alone enter into consideration, our rulers are able to grasp the seemingly obvious fact that some measure of restriction is imperatively called for in the public interest; as soon, however, as the price is in question of articles which call for skilled service in their proper distribution, the monopoly bogie is resuscitated and worked for all it is worth in the attempt to secure for its wire-pullers advantages to which they are *not* entitled. What we require is to have Mr. Ritchie and other members of the Government impressed with the idea that it is no mere question of trade interests which is at stake, but that we mean to persist in a thoroughly justifiable struggle to maintain, in the public interest, the value of a legal qualification which is as much a professional one as those which are dealt with in Clause 3 of the Companies Bill. Pharmacists do not ask for anything in the nature of a trade monopoly; they are content that free trade in drugs should continue to prevail, but they feel that it would be a grave error of judgment to undo the work of the past thirty-two years by giving legal sanction to seven unqualified traders to do as an association what it is, and must continue to be, illegal for any one of them to do as an individual.

The Necessity of the Moment.

What I, in common with other pharmacists, desire is that our position should be fairly stated to the Government, and that, in the event of our claims being regarded as of but trifling moment, we should press them upon the Legislature with the not inconsiderable forces at our command. It is not enough that a Minister of the Crown should say "No" in answer to our request for justice, nor ought we to consider that our attack has failed because the large number of votes at the command of the Government may enable the Minister in charge of the Bill to overcome the opposition that may be offered at any particular stage in the progress of the measure through Parliament. I contend that we must fight on to the bitter end and decline to acknowledge defeat until there is absolutely no further ground left upon which we may assemble our forces—that is to say, until the Bill has passed through all stages in both Houses of Parliament. And even then we ought only to stop for a brief breathing space preparatory to drafting and getting introduced a new Pharmacy Bill, with the object of securing the removal of the anomaly for which the fortune of war may enable the Government to secure prolongation of existence by forcing through the monstrously unjust clause in the Companies Bill.

Not Time for Compromise Yet.

It is greatly to be feared that this question of company trading has been permitted to drag so long that many amongst us, including some of the foremost pharmacists of the day, have arrived at the conclusion that the battle is already lost. We have all discussed the matter, and re-discussed it, until all but a few extreme enthusiasts have become thoroughly sick of the whole question. Every point has been carefully weighed and its significance duly considered so frequently that, as a result, I have noted a tendency to sum the matter up as though it had been fully considered in the proper quarter. After that, I find, many self-constituted judges of the case appear to think there is nothing more to be said or done, except to throw up the sponge and allow judgment to go by default. But what does it matter to me that any particular pharmacist, however eminent an authority in his own proper sphere, has settled

everything to his own satisfaction and decided that it is no good continuing the struggle? If even the whole Council of the Pharmaceutical Society had arrived at that position and unanimously decided to take no further action, I should deny the right of that body to commit me in the matter until the question at issue had been fairly and squarely stated in Parliament. To put the thing in a nutshell, the obvious duty of the Council—which it is doubtless doing its best to fulfil—is to state the company trading problem to the Government, and subsequently, if necessary, to Parliament, in such a way that it can only be solved by an absolute prohibition of the use of pharmaceutical titles by corporate bodies, and by making it a punishable offence for any unqualified person or association of unqualified persons to attempt to exercise any control over the sale, dispensing, or compounding of poisons.

The Qualified Directorate Fallacy.

An ill-conceived and audacious attempt to induce pharmacists to commit themselves to a very stupid proposal for solving the company trading problem, which has emanated from the brains of the conductors of a trade paper that does not suffer from lack of self-advertisement, should not be taken seriously, as the remedy proposed is about as hopeless a one as could well be suggested. The proposal to which I refer is that if the directors of a company were severally qualified under the Pharmacy Acts the necessities of the case might be met. But, as I have pointed out on a previous occasion, no company is required to have any directors, and the only effect of legalising such a provision would be to secure the immediate removal or self-immolation of all the directors of existing drug companies, while future companies would take good care to start operations without any. Moreover, it will be found every whit as difficult to persuade the Government and Parliament to compel all directors of drug companies to be qualified under the Pharmacy Acts as it would be to secure the prohibition of company trading in pharmacy. Every pharmacist, therefore, who takes the trouble to send to his Parliamentary representative a copy of the speciously worded document issued by the trade paper to which I have referred will have all his pains for nothing, except that he may, to some extent, have produced a bad impression upon the mind of his representative and caused him to prejudge the matter more or less unfavourably. It is difficult to imagine what right any trade paper has thus to spoil the case of those in whose interests it is alleged to be conducted, and I for one am disposed to resent such action as an impertinent interference.

The Position of the Federation.

I was disagreeably surprised, on reading the report of the Stoke-on-Trent speech of the President of the Federation of Local Pharmaceutical Associations, in last week's *P.J.*, to find that he had suggested the possibility of the organisation of the Federation being employed to interfere with the election of the Council of the Pharmaceutical Society. To quote the exact words of the report, Mr. Smith said: "With regard to the election of the Council of the Pharmaceutical Society, his own view, up to within the last few months, was that the Federation of Pharmaceutical Associations would make a mistake in interfering with the election of members of the Council. But it was quite possible that circumstances might alter cases. The Council was their representative body, and if the members of Council did not do what they ought, then it might possibly be the duty of the Federation to use some sort of pressure in the matter." No explanation is given of the reason of Mr. Smith's remarkable change of views on this important point, but it may be presumed that it is not unconnected with a desire on the part of some individuals, of whom Mr. Smith can hardly be regarded as one, to convert the Federation into a sort of caucus. Any attempt of the kind, however, is strongly to be deprecated, as nothing could be more fatal to the continued success—nay, to the very existence—of the Federation. As an organised body it has no more right to interfere in the election of

the Council of the Pharmaceutical Society than has the British Pharmaceutical Conference, the Grocers' Federation, or the Anti-Vivisection Society, and any serious attempt to convert the Federation of Local Pharmaceutical Associations into a caucus is certain to involve that organisation in irretrievable disaster. Such, at least, is my opinion, and as a well-wisher of the Federation from the time it commenced operations, I deem it a duty to make this protest and to express the hope that wiser counsels may prevail.

POLITICAL GOSSIP.

THE LOBBY has acquired quite a pharmaceutical flavour of late, and the President of the Society seems to be fast developing into what is termed in journalistic parlance "a familiar figure in politics." He has had, too, the support of a past President, who holds strong views as to the necessity for maintaining the principle of the Pharmacy Act, 1868, and who has been seen within the precincts of the House on many previous occasions. As a trade publication, in an exuberant spirit of commercial enterprise, has been good enough to supply each member of Parliament with instructions how to knock the bottom out of the aforesaid principle, it is pretty obvious that the original confusion in the minds of legislators concerning the true inwardness of pharmaceutical aspirations must have been rendered worse confounded. Now, Ministers will not listen to the impotent frettings and fumings of a disunited craft, and there is every reason to believe that Mr. Ritchie's views of the situation are not flattering to the calling. They may be summed up in three sentences—viz., (a) public convenience requires and public safety needs the regulation, not the extinction, of the existing conditions; (b) a well-conducted company pharmacy can be no more menace to the safety of the community than the branch establishment of a registered chemist who runs a dozen shops; and (c) Parliament will not look at any project for prohibiting company trading. We happen also to know that Mr. Ritchie would not be keenly disappointed if the Government were forced to drop Clauses 2 and 3 from the Bill, nor has he ever disguised his opinion that they should not have been inserted in a Companies Bill; he may eventually succeed in converting the Lord Chancellor to a similar opinion.

THE SITUATION is not pleasant, but it is distinctly clearer now that the mental attitude of the Minister in charge of the Bill has been ascertained—that is to say, so far as the inner consciousness of a statesman can be fathomed. Under existing conditions the choice is between regulation and nothing. A wise course of action on the part of the Council, supported by the chemists and druggists of the country, or, at any rate, not hampered by them, could secure an equitable and reasonable regulation, whereas an unwise or precipitate line of conduct will result in the elevation of pharmaceutical registration by company machinery into a recognised public position. When the inexorable logic of the Board of Trade is realised amongst pharmacists, it should do much to promote agreement within their ranks, and it is to be hoped that even the free and ultra-independent "prohibitionists" of an important provincial centre will now see the futility of "kicking against the pricks." There is, however, no cause for anything in the nature of panic as a sequel to Mr. Ritchie's conception of "reasonable and logical" treatment of the company pharmacy question; for the Companies Bill, though it appears on the notice paper twice or thrice a week, will not be taken to its second stage for some time to come. It was last amongst the orders of the day for Thursday, and it is somewhat significant, and perhaps reassuring, that the Railways (Prevention of Accidents) Bill is given precedence by Mr. Ritchie over the Companies Bill.

THE THREE MEASURES regulating boilers, their makers, their proprietors, their users, and all thereunto pertaining are still, fortunately, in somewhat forlorn positions in relation to a second reading, and Sir J. Fortescue Flannery (Shipley) has further damaged whatever chance the Boilers Registration and Inspection Bill had, by intimating that whenever the second reading stage of the Bill is reached, he will move that no Bill is satisfactory which does not provide for the appointment as boiler inspectors of engineers of not less than two years' workshop experience. In short, the honourable gentleman holds the view that if it is necessary to have State regulation of boilers, it should be effected by means of men who know their business, and have acquired their knowledge in the laborious and often painful school of Experience.

BEFORE THE MILLENNIUM dawns Society will be divided into two classes only—the inspectors and the inspected. At any rate, one is tempted to say so in looking through the list of House of Commons Bills, either introduced or notified. The latest intimation on the paper relating to inspection—which word, by the way, was only a few years back regarded as synonymous with pokenoiseism—is by Mr. Thornton (Clapham), who, on the 23rd, will introduce a Bill to amend the law as to the qualification and tenure of office of sanitary inspectors. Mr. Thornton is, however, not a faddist, and his Bill will not be of a very revolutionary character, but aims rather at improving existing sanitary organisation than setting up new methods.

THE SHOPS BILL of Sir Charles Dilke and Co., which is sometimes apt to be confused with the Shops (Early Closing) Bill of a former Session, is checked by a blocking motion placed on the Paper by General Goldsworthy, the member for Hammersmith, who suggests the second reading of the measure "this day six months." The gallant member represents a constituency in which the small shop-keeper is strongly in evidence, and it is not surprising that this class should be somewhat alarmed at the extinguishing effect upon small businesses which the passage into law of the Shops Bill might produce. Retail chemists ought not to encourage Sir C. Dilke's proposals for shop regulation in any way, for that way lies disaster.

THE COMMITTEE ON PETITIONS just formed is an annual institution, and performs a very useful function. It examines all the petitions presented to the House of Commons, except Private Bill petitions, and classifies, sorts, and abstracts the same, so that the information sought to be conveyed to the House may be clearly grasped. In reporting, the Committee enumerates the number of signatures to the petitions which are valid, that is to say, those to which addresses are appended, and makes such observations on the petitions as may seem to be called for. The *personnel* of the Committee is as follows:—Messrs. E. Barry (S. Cork), Biddulph (Ross, Hereford), Brymer (S. Dorset), H. Lewis (Flint), C. Morley (Brecknock), T. P. O'Connor (Scotland, Liverpool), W. F. D. Smith (Strand), Tollemache (Eddisbury), and H. J. Wilson (York, W.R.), together with Sir T. Carmichael (Edin.), Col. Cotton-Jodrell (Wirral), Sir C. Dalrymple (Ipswich), Col. Kenyon-Slaney (Newport, Salop), and Sir H. Meysey-Thompson (Handsworth, Staffs.). Three members form a quorum with power to direct the printing of the petitions in full or such pertinent parts thereof as may be deemed fitting.

THE IMPERIAL INSTITUTE deal seems a highly economical arrangement, according to Mr. Balfour's reply to Sir M. Bohnagreg on Monday. The Indian Government will, it seems, occupy part of the east basement of the Institute Buildings, together with the

Bhownagrec corridors, rooms, and passages adjacent thereto; the Institute will occupy the western portion and some galleries; whilst the London University will occupy the rest. The Great Hall and the Cowasgee Jehanghir Hall are to be at the disposition of all three authorities conjointly, the Indian Government using them when the University and the Institute do not require them, and so forth; which strikes one as a farcical arrangement, strongly reminiscent of the tactics of Mrs. Bouncer in accommodating her lodgers, Box and Cox. The plan did not work in Mrs. Bouncer's case, and it does not seem likely to prove more successful with an additional rival thrown in. Nevertheless, the official view is that the future will be undisturbed by the smallest *contretemps*, and it is even intended to conduct at South Kensington from time to time, as opportunity allows, the examination of Civil Service candidates. If there are any leisure moments left unappropriated by the India Office, the University, or the Institute, perhaps the Government authorities might be disposed to entertain a proposal to hold the Minor examinations in the Institute Buildings in April and July!

UNREGISTERED SURGEONS in the Army formed the subject of a question some little time back by General Laurie (Pembroke), who was rather alarmed at the increase of unregistered practitioners acting with the military forces. Mr. Wyndham, in reply, said the Medical Act, 1858, prohibits the appointment as Army surgeon of a practitioner not registered in the United Kingdom, but it did not prevent an unregistered surgeon from rendering assistance under the orders of the Medical Staff. The question of Colonial reciprocity was also touched upon by the gallant Member, and in reference to that Mr. Wyndham thought that, as regards medical qualifications, it was too broad a question for the War Office to deal with. This subject of reciprocity between the mother country and various parts of the Empire is likely enough to be revived later on in the Session as the outcome of a desire to express in some way the nation's sense of the loyalty and practical patriotism exhibited recently by the Colonial Governments, but one cannot be sanguine enough to anticipate a favourable result, seeing that inter-Colonial reciprocity is far from being an accomplished fact.

MUNICIPAL TRADING is the new danger threatening the retailer, and especially the smaller class of tradesmen. The seriousness of municipal competition is much more pronounced in some callings than it is in pharmacy, but even here the malignant germ has appeared, and the Council would be well advised to watch the progress of the attempt now being made in Parliament to define the limits beyond which local authorities should not go. The subject cropped up several times last Session, and Mr. Balfour promised, just before the prorogation, to appoint a Committee of enquiry as soon as possible. Mr. Kimber (Wandsworth) on Monday reminded the First Lord of the Treasury of that promise, and obtained a reply to the effect that it was proposed very shortly to put upon the Notice Paper a motion for the appointment of the Committee of Enquiry. Mr. Kimber may be said to represent the banking interest, as he is closely associated with the Capital and Counties Bank, and presumably he does not desire to foster a condition of things that might end in the nationalisation of banks.

REPLYING to Mr. Provand in regard to the Government's intentions respecting petroleum legislation, the Home Secretary stated on Monday that he could hold out no hope of anything being done this Session, the matter being too controversial and contentious. That should be sufficient for Mr. Ure to withdraw his Bill, for it must be quite obvious that the Ministerialists will not allow the passage of any measure not on the lines of the unrevealed official draft now at the Home Office.

ENGLISH NEWS.

COMPANY PHARMACY AND JOINT-STOCK DOCTORING.—The *Medical Press* states that, as the President of the Board of Trade, Mr. Ritchie, has introduced into the Commons the two Bills which passed the Lords last session promoted by the Lord Chancellor, it seems obvious that the Government is determined to pass them if the exigencies of Parliamentary work permit. "These Bills are designated to amend the Companies Acts, and, in the case of pharmacy trading, it is provided that no company or syndicate shall dispense unless under the supervision of a fully-qualified pharmacist. This provision, when supported by the Lord Chancellor in the Upper House last year, by no means satisfied the chemists, because it allowed co-operative companies and such like to carry on business freely as dispensers by the agency of any number of unqualified assistants as long as one qualified man is in control and supervision. We sympathise with their protest, but we cannot see how the proposed new law can be resisted on public grounds. The second Bill, or portion of a Bill, refers to joint-stock doctoring, and absolutely forbids any company or syndicate to carry on business as physicians, surgeons or midwives, unless each and everyone of the members is a duly registered practitioner. Such a provision is essentially in conformity with the existing law. Every individual, whether member of a company or not, can practise as widely as he pleases, but always on his own responsibility, and subject to the disabilities which the medical Acts impose upon unqualified practitioners, and the ostensible supervision of his practice by a qualified doctor cannot relieve him of these. If such practitioner attempts to shield the unqualified man by signing death certificates, or performing other function which is reserved for the legitimate profession, he forthwith brings himself within reach of the law, and can be debarred by the Medical Council. It is thus obvious that the cases of the chemist and the doctor are not on all fours, and the chemist should not be jealous if Government makes a distinction which the existing law as already made."

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.—The seventh meeting of the session was held on Friday, February 9, at 17, Bloomsbury Square, W.C., Mr. W. Garsed in the chair. The minutes of the last meeting having been read and confirmed, the Chairman called upon Mr. T. E. Wallis to read his paper on "Aquatic Plants." Mr. Wallis classified the water plants under several heads, and mentioned examples. The paper was illustrated by means of several excellent diagrams, which attracted the special notice of those present, and were remarked upon by the subsequent speakers. The Chairman thanked Mr. Wallis for his interesting paper, and requested members to bring forward any question which had occurred to them. The invitation met with a hearty response, and seven gentlemen, in the following order, rose to thank Mr. Wallis for his paper, and to ask various questions:—Messrs. Woolcock, Gompertz, Finemore, Pollard, Harris, Chapman, and Hellyer. Mr. Wallis having responded, the meeting terminated. Thirty-seven members were present.

CHEMISTS WHO RENDER FIRST AID to the injured were advised by a jury at the Lambeth Coroner's Court, on February 16, to send all injured persons to properly qualified medical men after doing what they can to relieve them. The circumstances which brought out that advice were, briefly, that Thomas Dudman (32), labourer, cut his thumb in throwing a snowball. He washed the wound, banded the injured member with a rag, and went to the shop of Mr. W. Power, chemist and druggist, High Street, Walton-on-Thames, where he was attended by John Edward Marshall, who stated at the inquest that he was an unqualified assistant. The thumb was dressed, and the man was told to call again in two days. In the meantime his jaw became stiff, but when he again

visited the chemist's shop he made no complaint about the stiffness. Later, a Dr. Mason pronounced that he was suffering from lockjaw, and sent the case on to St. Thomas's Hospital, where he died.—The house surgeon, in reply to the coroner, said that the bacillus of tetanus was introduced probably by a piece of glass or stone. It would be difficult to say whether the injury would have proved fatal if the wound had been treated antiseptically at first. A verdict of "Accidental death" was returned.

WESTERN CHEMISTS' ASSOCIATION OF LONDON.—A meeting was held at the Westbourne Restaurant on Wednesday, February 21, the President, Mr. J. F. Harrington, in the chair. There was no definite business before the meeting, and the first subject of discussion was introduced by Mr. Warren with regard to the forthcoming visit of the British Pharmaceutical Conference. Mr. Parker then spoke on the position of chemists as recognised by the public and by Government, and advised more self-assertion with a view to improving their position. Mr. Gaubert pointed out that

"Chemist" is one of the very few titles which are protected, and is, therefore, valuable. He also mentioned the anomaly of requiring a qualified person to hand a medicine over to the purchaser, while an unqualified person might dispense it. Mr. Barnett raised the question of poisons. He said we have no exact definition of a poison, and compared our standing with that of apothecaries. Mr. Hick hoped the present Council would as successfully oppose the Companies Bill as the Council of former days did the first Apothecaries Bill. Mr. Bright also spoke of the Apothecaries Act in relation to chemists; our weak point is that we have no recognition by the public, medical men and dentists have. The President spoke of the prime necessity of securing the title of chemist to individuals, as that would give chemists a better recognised position than they have at present. He also introduced the subject of the recently established Chemists' Defence Association, which he thought would be of great service to chemists; he had known a similar organisation amongst members of another calling which was very successful. Mr. Cooper then explained the objects of the Defence Association, saying that it had no sympathy with dishonest trading, but was established as a protection to those who, while endeavouring to carry on their business in a proper manner, were subject to vexatious interference: while a prominent feature was insurance against dispensing accidents, which, however rare, might occasionally happen. He said that the Association only required extensive support to be a great success. Mr. Warren supported the principle of the Defence Association, and advocated chemists looking very sharply after their own interests, as neither the public nor the Government seem to appreciate them. Mr. Andrews also supported the Defence Association, and hoped it would receive greater support than a similar organisation which existed some years ago. Mr. Barnett then suggested that all present should, if not already members, give him their names, and succeeded in obtaining ten signatures. The proceedings then terminated.

MANCHESTER AND NORTHERN GROCERS AND THE P.A.T.A.—At the monthly meeting of the Northern Council held last week in Manchester, our correspondent says, something was at last found for the P.A.T.A. to do. Mr. John Williams in a burst of virtuous indignation, produced a nice little bundle of soap wrappers, which he placed upon the table, and he said they were to be given in exchange for a bottle of scent at certain grocers' who sold the aforesaid soap. But he objected to being made a tool of by the manufacturers—a sentiment greeted with loud cries of "Hear, hear" by the meeting. A long discussion took place, in the course of which Mr. Williams said the P.A.T.A. had a scheme for getting over the difficulty. They could take it from him that the resolution passed and adopted at the committee meeting of the P.A.T.A., which was that nothing could be

sold with less than a 12½ per cent. profit would be carried out. Mr. Perkins said if the Council called the attention of the P.A.T.A. to the soap business, he thought it would serve a useful purpose. After further discussion, in which strong language was used as to grocers being automatic machines, etc., it was decided that the Council should empower Mr. Williams to confer with the secretary of the P.A.T.A. as to some action being taken by the P.A.T.A. in regard to the price of Messrs. Lever Bros.' productions.

THE CLAIMS OF SCIENTIFIC EDUCATION were clearly put by Mr. A. J. Balfour at the festival dinner, held on February 14, in aid of the new scientific laboratories of King's College Hospital, London. He said it was his view that it was the bounden duty of all great places of university education that they should keep before them not merely the immediate practical needs of technical or other education, but that they should never permit the ideal of university investigation to be for one moment clouded in their eyes, or to lose interest, or cease to be the object of worthy effort and endeavour. But that great object must increasingly require the generous and liberal co-operation of all classes of the community, whether they be immediately interested in science, intimately acquainted with scientific details, or whether they be merely part of the general public. Men of science themselves were not always in a position to give that pecuniary aid necessary to establish the modern laboratory and to equip it with modern appliances; and they were right to call upon all those who take any interest in their subjects to aid them with that pecuniary assistance which in many other countries was extended to them by the Government, but which in this country, rightly or wrongly, by an almost immemorial tradition, has been left chiefly to the energy of private enterprise. He thought London had been somewhat remiss in the support which it has hitherto given to scientific investigation in the commercial metropolis of the world. Technical education has in it almost necessarily some element of competition. We heard it said that Germany is doing this, France is doing that, some other country is doing the other, unless you keep abreast of them in your methods of education you will fall behind them in your industrial enterprises. That was a very proper and patriotic argument, which he had used before and should use again; it was an argument he should think himself justified in using; but he was appealing on behalf of a case which had in it none of that inferior and lower element of competition whatever. Every scientific discovery, as soon as it is made, is the common property of every man of science. To that great common fund of knowledge London should contribute its full share. It take a well-earned tribute from every discovery made throughout the world for the advancement of civilisation; therefore let those who are dwellers in London feel that they have some obligation to the world at large corresponding to the great international position they occupy.

EXPLOSION AT A CHEMIST'S.—On Saturday, February 17, an explosion occurred in the office of the shop of Mr. J. Wharton, chemist and druggist, 73, Freeman Street, Grimsby. Mr. Wharton, who at once went to discover the cause of the explosion, found the office on fire, and in extinguishing the flames scorched his head and hair. A considerable amount of damage was done before the fire was got under. The cause of the explosion is not known.

POISONING BY VERMIN KILLER.—Mary Ann Rose (53), of Annie Road, Booth Street, Handsworth, complained of pains in the head, and on Wednesday, February 14, swallowed a small quantity of vermin killer, which had been purchased by her husband for the purpose of destroying mice. Medical assistance was requisitioned, but death occurred within an hour.

SOLUTION OF CARBOLIC ACID FOR MEDICINE.—On Wednesday, February 14, Joseph Morris, a labourer in Crewe railway works, who had been ill for some weeks, took some solution of carbolic acid, used for domestic purposes, in mistake for his medicine, the bottle containing the solution having been inadvertently placed near to the medicine bottle. Police-constable Roberts, who was called to the house, administered some olive oil, thereby practically saving the man's life, the medical man who subsequently attended expressing satisfaction with the prompt action of the constable.

SALE OF METHYLATED SPIRIT.—On Saturday, February 10, at the County Sessions, Chesterfield, James Harry Toplis, chemist and druggist, of Chesterfield and Staveley, was charged by the Inland Revenue authorities with unlawfully selling one pint of methylated spirit at his Staveley shop on December 18 last without a licence.—Defendant stated that it was a mistake on the part of his manager, who thought there was a licence, and that it was at the Chesterfield shop.—Mr. T. Good, of the Inland Revenue, proved purchase of the spirit and that defendant had no licence.—Mr. Stanton, defendant's manager, said when he sold the methylated spirit in question he was under the impression that they had a licence.—Defendant was fined £2 and costs.

THE SALE OF SEIDLITZ POWDERS.—At Birmingham Police-court on February 16, Magor, Limited, chemists, 318, Broad Street, were summoned for selling effervescent tartarated soda powders containing only 85 per cent. of the tartaric acid required by the British Pharmacopœia.—Dr. Hill (medical officer of health) stated that the absence of the full proportion of the acid would not be harmful, but unless the powder fulfilled the prescription it would not have the effect on the system that was intended.—Mr. Bailey, managing director for the defendants, said that the powders were bought from Messrs. G. Wilton, Son, and Co., Limited, Doncaster. A representative of the firm told him that there would be a guarantee given with the goods. The guarantee was not sent, however, but a packet was tested by the defendants, and was found to be correct within a grain or so, and they presumed the rest were correct. The defendants complained to the firm that proceedings were being taken against them, and Messrs. Wilton wrote stating that every packet was weighed, but they could only suppose that one of the three who packed them had not been sufficiently careful. Fined 20s. and costs.—George Turley, sen., and George Turley, jun., druggists' sundrymen, Edgbaston Street, were summoned for selling seidlitz powders containing only 47 per cent. of the quantity of tartaric acid, only 33 per cent. of the quantity of sodium potassium tartrate, and 213 per cent. of the quantity of sodium bicarbonate (or 113 per cent. in excess) required by the British Pharmacopœia.—Mr. Cross prosecuted, and said that on each packet the defendants cautioned the public, stating that "thousands of boxes of common imitations of genuine seidlitz powders are sold by unprincipled traders for the sake of extra profit. We guarantee all ours to be genuine."—Mr. Fisher (magistrate) stated that the defendants were the worst offenders they had had before them for a long time. It was an abominable fraud. The public were willing to pay for an honest article, but the defendants choose to mix up anything and palm it upon them. The best advice he could offer to the public was to recommend them to go to chemists who would give them proper articles. Defendants would be fined £10 and costs, or in default a month's imprisonment.

IS SAVIN OIL NOXIOUS?—At the Gloucestershire Assizes last week, Henry Sturge Young, 29, brewers' traveller, of Alveston, Thornbury, was charged with having on several days during September administered to Ethel Lippiatt, a certain drug for an unlawful purpose. Mr. Lawrence, Q.C., for the defence, submitted that the drug (savin oil) in the quantity in which it had been

administered was not noxious, and therefore did not come under the Act. Dr. Campbell, who had been called for the prosecution, had admitted that this was so. He quoted cases in support of his contention. Justice Bruce supported this view, and directed the jury that they must leave the question of intent out altogether, and say the drug administered was not noxious. Acting on this instruction, the jury returned a verdict of not guilty, and the accused was discharged.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY.—A well-attended meeting took place at the Liverpool School of Pharmacy on Friday, February 16, the President, Mr. Prosper H. Marsden, in the chair. A series of specimens of asafetida and sagapenum was exhibited by Mr. Marsden, who had received the samples from Mr. J. C. Umney. The asafetida samples were No. 1 finest tears carefully picked from an exceptionally fine case of asafetida—one of a lot of ten cases picked from over 500 imported into London. These tears only exist to about four or five per cent. in the very finest cases, and answer all the B.P. tests as to ash and solubility. No. 2 was a fair bulk sample from one of the finest cases on the market. No. 3 a fair average sample from a case of rough asafetida, unsuitable for pharmaceutical use, but used for other economic purposes. The sagapeum was similar to that mentioned in the *Pharmaceutical Journal* recently. In a letter to Mr. Marsden, Mr. Umney said that an asafetida similar to No. 1 could be supplied if persons would pay to higher price for a superior article. As bearing on animal remedies, Mr. Marsden produced for inspection some "Crabs' eyes"—a calcareous deposit from the cray-fish, *Astacus fluviatilis*—and some dried woodlice, *Oniscus asellus*, used on the Continent in the form of a syrup under the name of "Sirop de Cloportes." The lecturer of the evening was Dr. J. D. Nevins, who delivered an excellent and entertaining discourse on "The History of Materia Medica from the Earliest Times." Beginning with ancient Egyptians, the lecturer stated that doctors with them were regarded as persons who held communion with gods or spirits, whose aid they could invoke for curative purposes, and consequently the substances of their materia medica were more as adjuncts to the supernatural aid afforded than as articles of curative power. The result of all this was that the doctors were held to be magicians, as witness the scene between Moses and the Egyptian soothsayers, where he confounded their so-called miracles. In the original Greek, the lecturer said that the word "Oharmatroi" meant doctors and magicians, and in this latter adaptation it was used in the list given in the Bible of persons who could not enter the Kingdom of Heaven. The use of burnt offerings of incense was evidently intended to provide a ready and efficacious means of antiseptic-treatment, for the essential oils, creosote and aromatic bodies produced by burning the fragrant gums used were ideal disinfectants, and, moreover, were decidedly effectual. That antiseptics were thoroughly understood by the Egyptians we have proof in their wonderful methods of embalming the dead. Practically the chief diseases, or rather affections, among the Egyptians were indigestion, obesity, and constipation, owing to their doing little or no work so long as they had their bondmen, the Israelites, to slave in their stead. To combat indigestion, carminatives, to all intents and purposes the same as we use nowadays, were employed—aniseed, cumin, dill, caraway, etc. For obesity emetics held first place, together with exercise, whilst for constipation some mechanical means was adopted, such as clysters, administered by means of a bone tube with a bladder attached. Various nauseating animal bodies were used for the sake of their emetic properties, such things as lizard's blood and animal fœces being very common. As Moses was "learned in all the wisdom of the Egyptians," he must have been acquainted with their medical treatment, but he certainly never used these animal remedies. The attention of doctors then seemed to be fixed chiefly on the cure of wounds, which they effected by means of dressings of balsams, tar, etc., all of which were ex-

cellent for the purpose. The odour of burnt incense in the Temple sacrifices was possibly used for the very purpose of hiding that of the blood of the slain animals, and in lesser degree the odours arising from the crowded congregations. The lecturer drew parallels between these ancient remedies and those in use by the Hindoos down to the present day. He also rapidly ran through the changes in treatment, and the substances used in the days of Hippocrates, Celsus, Galen, Paracelsus, etc., and then discoursed upon the "Doctrine of Signatures," which he thoroughly explained by reference to the Lung Wort, Serpentary, Eyebright, and, lastly, the Coco de Mer, of which he showed two very fine specimens. The ordinary double nut is common enough, he said, at the present time, but formerly in India it fetched fabulous sums of money from the native princes, who imagined it would secure them male succession. An unusual development of the nut was exhibited when the whole of the six ovules had become equally developed, forming a fruit some fifteen inches high and eighteen inches across. This was brought by Bishop Royston from the Seychelles Islands, and was believed to be unique of its kind. After touching upon the changes in materia medica and prescribing within his memory, the lecturer brought a very interesting and valuable educational treat to a close. The proceedings finished with a discussion and a hearty vote of thanks to the lecturer.

SCOTTISH NEWS.

THE PAISLEY CHEMISTS' ASSISTANTS held a very successful gathering in the Art Gallery, Paisley, last week. Mr. Halley, Glasgow, occupied the chair at supper, and was supported by Drs. Russell, Duncan, and J. Bruce; Messrs. Stewart and Hannah, Paisley, and Messrs. Dykes, Wright, Thomson, Surgenor, Cairncross, Percival, representatives of the wholesale trade. After supper, and the usual loyal toasts, Mr. Munro proposed "The Medical Profession," Dr. Duncan replying to the toast; "Chemists and Druggists" being proposed by Mr. Cairncross, Mr. Stewart replying. Mr. Hannah most efficiently discharged the duties of M.C. at the dance, music for which was supplied by Mr. Loughton's band. Songs were rendered during the evening by Mrs. Kennedy, and Messrs. Dykes, Thomson and A. Reid. The arrangements, which had a successful termination, were in the hands of a committee composed of Messrs. Reid Alexander, M'Kay, M'Donald, Paton, and G. Hair, Secretary.

WEST OF SCOTLAND COLLEGE OF PHARMACY.—A post-graduate course on Urine Analysis has this month been inaugurated at this College by Mr. T. Maben, F.C.S., and, as it is the first of its kind, considerable interest has been shown in it by the more wide-awake pharmacists and the students of the College. The first lecture dealt with the secretion of the urine by the kidneys from the blood, and the physiology of the subject was expounded. The constituents of urine, both normal and pathological, were enumerated, and attention was drawn to the effect of diet, exercise, mental anxiety, etc., on the nature of the excretion. The physical characters, colour, smell, and specific gravity were discussed, and their significance indicated, and a general view was given of the importance of urine analysis, the hope being expressed that some day this work would fall into the hands of pharmaceutical experts. The second lecture dealt with the detection and estimation of glucose in urine. Experimental demonstrations were made of Pavy's and Gerrard's processes, the lecturer stating that for simplicity and accuracy the latter was by far the best that had hitherto been proposed. The estimation of albumin next claimed attention, and the various processes were discussed, Esbach's picric acid process being regarded as the most suitable for general use. Reference was made to Purdy's improvement, whereby the picric acid deposit was estimated in a few minutes by means of a centrifugal machine, instead of waiting for twenty-four hours. The estima-

tion of urea and uric acid were dealt with in the third lecture, the former being determined by the hypobromite of soda process, and uric acid by Haycraft's method. The processes for the estimation of chlorides, sulphates, and phosphates were fully described, thus completing the chemical section of the course, the microscopy and bacteriology of the subject being dealt with later on.

IRISH NEWS.

ARMY DISPENSERS.—A number of Irish pharmacists who made application for Army dispenserships in South Africa found that the offers of the War Office had all been appropriated. They were, however, informed that they would be privileged to join as private soldiers, if still under twenty-eight, and could thus place their intelligence and experience in compounding (at the lowest rates) at the service of a grateful country.

PROFESSOR E. J. McWEENEY, Dublin, has been appointed bacteriologist to the Local Government Board. The post is a newly created one in this country, and the duties include the inspection of all lymph issued by the L.G.B. to the various public health departments in Ireland. Dr. McWeeny is a well-known figure in Hibernian chemical circles.

MR. G. JAMESON JOHNSTON, visiting surgeon to the City of Dublin Hospital, Baggott Street, Dublin, and a former member of the Irish pharmaceutical craft, met with a serious mishap the other evening. Dr. Johnston, while operating in a case of diphtheria, happened to lean over the patient, and unfortunately received the discharge of matter fairly in his face. Realising the extreme gravity of the occurrence, he quickly took steps to disinfect himself from the virus of the disease, but notwithstanding his precautions, he was soon afterwards attacked by the malady, and for some days it was a question whether he would survive. Happily, however, youth and a good constitution have enabled him to safely pass the crisis, and his many friends in pharmacy will be glad to learn that their former colleague is now on the road to recovery.

SUPPOSED STRYCHNINE POISONING.—On January 13, Patrick Dunphy was charged, before Mr. Burke, R.M., at the Waterford City Police Court, with causing the death of his two children by means of strychnine (see *ante*, p. 86). Mr. Alfred Parker, assistant in Messrs. Poole's, druggists, identified the prisoner, who came into the shop and asked for a small quantity of poison. He cautioned him, pointing out that the poison was dangerous, and gave him four grains of strychnine, which he stated he required for killing rats. Prisoner returned on November 8 and made a similar request. The entry was as follows: Six grains for the purpose of poisoning rats; but witness did not supply the poison on that occasion, and cancelled the entry. Henry M'Adams, assistant in Messrs. George White and Sons, druggists, said, on December 12, 1899, the prisoner was supplied with five grains of strychnine. Further consideration of the charge was postponed until January 23, when prisoner was committed for trial at the assizes.

THE CHEMISTS' AND DRUGGISTS' SOCIETY OF IRELAND has held its annual reunion. In the absence of Sir James Haslett, M.P. (President), Mr. W. Jamison presided. The annual report referred to the honour conferred on the Society by the election of their Chairman to a seat on the Pharmaceutical Council. The Chairman referred to the legislation in force regarding the sale of poisons by unqualified persons, and hoped the work of the Society would redound to the welfare of all its members in the future as in the past.

MEDICINES NOT ON THE LIST.—Dr. Taylor, Tandragee Dispensary, wrote the Banbridge Guardians that the drugs ordered by him and disallowed by them were not patent or proprietary medicines, and though not on the prescribed list, were not liable to be surcharged. By refusing them they deprived the poor of a very efficacious means of treatment. After some discussion, the drugs were allowed.

WHETHER AN ANALYST'S CERTIFICATE can be tendered as evidence was a subject of dispute before the Belfast Recorder in a case of milk analysis. Mr. Whitaker contended that the analyst should be produced in Court, but his Honour decided that until the appellant proved the certificate wrong, it was binding.

BELFAST BOTTLE EXCHANGE LIMITED.—The above association has held its first annual meeting. Mr. William Rankin presided. The report, among other matters, referred to the various prosecutions instituted under the Merchandise Marks Act; whilst in nearly all cases convictions were obtained, it was regretted that many benches of magistrates seemed to look upon the illegal filling of bottles as a very trivial offence, and imposed merely nominal fines. It was stated that during the year three and a-half million bottles were received at the clearing-house.

CONTRASTS AND ANALYSES.—The Ballymoney Guardians have received a communication from the Local Government refusing recoupment for medicines under article 36 of the dispensary rules, because certificates of analysis had not been despatched in proper time. The Guardians have replied that the delay was due to the Local Government Board in not sanctioning the appointment of Mr. William Redpath as analyst when elected by them. As the ratepayers would lose to the extent of £47 7s. 2d., they urgently request the Local Government Board to reconsider their decision.

MR. ROBERT F. BLAKE, Antrim analyst, has reported analysis of two samples of drugs, one of which was not pure.

THE LOCAL GOVERNMENT BOARD forwarded to the Irvinestown Guardians the following return of the Trillick medical officer:—"The medicines are delivered promptly, but I think should be more carefully packed." The contractor was notified.

THE DOWNPATRICK UNION received from Sir Charles Cameron a report relative to the Killough dispensary, from which it appeared that the sample of glycerin of pepsin had no digestive properties. Dr. Tighe also wrote complaining of the non-arrival of medicines ordered from the Cork Chemical and Drug Company, and saying that the want of a certain drug had put him to considerable inconvenience for a number of weeks. The contractors were to be communicated with in both instances.

CARBOLIC ACID FOR SPIRITS.—While attending a patient recently, Dr. Charles P. Tenant (35), of Portnard, near Cappamore, County Limerick, accidentally swallowed a quantity of carbolic acid in mistake for some spirits, a bottle of each being in his pocket at the time. The doctor at once took an emetic, but without effect, death resulting about two hours later. A verdict of "death from misadventure" was subsequently returned by a coroner's jury.

FOREIGN NEWS.

A DOCTOR'S BOLD EXPERIMENT.—The Paris *Herald* is the authority for the startling announcement of a test with cyanide of mercury by Professor Walter T. Scheele, the well-known authority on chemistry. The murder for which Molineux has been on trial is alleged to have been accomplished by means of cyanide of mercury

mixed in a bottle of bromo-seltzer, which was given to the unfortunate Mrs. Adams. Although this trial has been dragging longer than any previous murder trial in the history of New York, the thought apparently never occurred to anyone that cyanide of mercury, when mixed with bromo-seltzer, was not deadly. Professor Scheele, it appears, called recently at the *Herald* office and announced that he had discovered in an eminent German chemical work the fact that any cyanide of mercury in the presence of the smallest possible quantity of carbonic acid gas is immediately decomposed, thus allowing the hydrocyanic acid to escape. Bromo-seltzer is composed (or supposed to be) of tartaric acid, bromide of sodium, bicarbonate of soda, and phenacetine. The moment bromo-seltzer is added to water its effervescence, liberating carbonic acid gas, decomposes, so Dr. Scheele contends, and renders comparatively harmless the cyanide of mercury which may have been mixed with it. So certain was he of the accuracy of this theory that he was willing to stake his life upon it. But the *Herald* declined to have experiments of this kind made under its auspices, where a mistake might result so fatally, but suggested that the truth or fallacy of the theory could be equally well demonstrated upon guinea-pigs or rabbits. Dr. Scheele agreed to this, and the animals were obtained. One guinea-pig was then inoculated with the pure cyanide of mercury, and it, of course, died within a short space of time. Cyanide of mercury was then mixed with bromo-seltzer, and preparations were made for inoculating the second animal, when Dr. Scheele suddenly raised the mixture to his lips, despite the excited protests of his bewildered witnesses. He then calmly poured into half a glass of water a tablespoonful of tinct. ferri perchlor., and remarked to those present, "Gentlemen, this thing is coming out all right, but in case I show any signs of collapse, force this solution down my throat. It is the recognised antidote for cyanide of mercury, and will pull me through all right." After resting a few minutes he proceeded to inoculate the other guinea-pigs with the same mixture of which he had drunk. Dr. Scheele and the animals are alive and well, and apparently suffer no ill-effects from their risky dose. It is thought that this demonstration had a direct bearing on the Molineux trial. Needless to remark, many doctors are sceptical and hardly credit the story.

THE PARIS INTERNATIONAL ASSEMBLY.—A feature of special interest of the Paris Exhibition of 1900 will be the learned and scientific congresses, some 200 in all, which are to be held under its auspices. A large number of those will be devoted not to pure science only, but to the application of the sciences to the various branches of art and industry. Among other meetings may be mentioned the congresses on medicine, on medical ethics, on hygiene and first aid to the injured, all of which will be held during the first fortnight in August. The congress on pharmacy will begin on August 8. In order to give the congresses a really representative character and a wide sphere of usefulness, committees of scientific workers have been formed in Great Britain, France, Germany, and the United States to disseminate information, and to recruit members in each country. In Great Britain the work has been undertaken by the Paris International Assembly, whose President is M. Léon Bourgeois, Ex-Premier of France, while Sir Archibald Geikie, F.R.S., and the Right Hon. James Bryce, M.P., are Vice-Presidents, and Prof. Patrick Geddes, Secretary. In addition to the task of spreading information regarding the congresses, the Paris International Assembly is organising a department of guidance to the Exhibition itself, in order to increase its interest and educational value to the British visitor. Lectures and demonstrations by experts on every subject will be arranged with special reference to the exhibits, so that visitors who avail themselves of the assembly arrangements will be able to see the things they are interested in to the best advantage, and with the least expenditure of time and energy. The assembly also aims at providing a rendezvous where members of any profession

in this country may be brought into touch with their colleagues in France, at other times besides the short sittings of special congresses. A number of receptions and social gatherings are also being organised, to which members of the assembly will receive invitations. Any further information with regard to congresses and assembly arrangements may be obtained from the secretaries, *nrietta Str eet*, Covent Garden, W.C.

CERTAIN FRESH-WATER ALGÆ named by a French botanist, Monsieur R. Bouillhac, are claimed to be able to absorb arsenic without injury, at least one species appearing to derive more benefit in growth from arsenic acid than from phosphoric acid.

A FRENCH PHYSICIST, Monsieur Perreau, has found that selenium is not acted on by Hertzian electric waves in the atmosphere as it is by light—that is to say, its electaric resistance is unaltered. The Röntgen rays, however, diminish the resistance of selenium after the manner of light.

LIQUEURS IN FRANCE.—When did liqueurs come in vogue? At the present time all classes in France have their stock of liqueurs—the rich their “Benedictine” and their “Chartreuse,” the peasants their home-distilled peach brandy, anisette, and so on—in fact, an infinite variety of cordials. In his new volume, ‘*Le Mécanisme de la Vie Moderne*,’ that most interesting of statisticians Monsieur d’Avenal tells us that until the sixteenth century hypocras was the only liqueur known to French *von vivants*. Nowadays, next to the famous Chartreuse, the so-called Benedictine enjoys greatest favour. The history of this liqueur is curious. It was invented by a wine-merchant of Fécamp in 1863, who had so much confidence in his cordial that he spent 800,000 francs upon advertisements. Success was not only rapid but complete. Only 23,000 litres were disposed of in 1864; at the present time the annual sale is considerably over a million litres. The inventor, however, had not reckoned with the clergy. Clerical protests were raised against such association of a trade in liqueurs with the name of a once-famous monastery. Cardinal de Bonnechose approached Napoleon III. on the subject, but Monsieur Le Grand, a pious Catholic, knew well how to overcome the dilemma. He would not give up the name, but he most ingeniously contrived to render the connection of Church and cordial pleasing. Adjoining the distillery, and surmounted by a Gothic spire, now stands a small museum devoted to relics of the Benedictine order—stoups, reliquaries, missals, statues, jewellery, vestments, and the like. The present Archbishop of Rouen blessed the new building, and after the banquet compared its author, Monsieur Le Grand, to various heroes of Christianity. In a liqueur distillery (writes Monsieur d’Avenal) we are tempted to ask ourselves whether we are on the premises of a chemist, grocer, or perfumer. Roots, dried flowers, and fruit of every kind and from every part of the world are here, with spices, essences, and chemical substances. The majority of the herbs used in liqueur-making may be had at the rate of a hundred kilos for forty francs; tropical plants, however, sometimes cost three times that price. The green colour of absinthe is artificial. It is made by an admixture of hyssop, peppermint, and a certain preparation called “*Melisse de Moldavie*.” Why absinthe, so-called—the plant itself representing only a third element of that liqueur—should be so injurious to the system is explained by the exciting nature of the oil. Unfortunately, this seductive poison is absorbed more and more. Within the last fifteen years the sale of absinthe in France has tripled.

DEATH IN A PHARMACY.—As the Abbé Delville was walking along the Rue Castiglione, Paris, last Thursday, he was seen to stagger and fall into the roadway. At once passers-by picked him up and bore him to the Pharmacie Hogg, being close at hand, where restoratives were administered. Having regained con-

sciousness, he was permitted to remain quietly alone. However, a few minutes later he was noticed to faint off again, and ere anything could be done for him he died. Then arose a disagreeable dilemma for the pharmacien, the law compelling him to keep the corpse until all the formalities were duly gone through. The police were at once acquainted of the affair, and the Commissaire summoned. There being no annexe to the pharmacie wherein to put the corpse, it had to be laid upon chairs. But the news soon spread throughout the quarter, and business for the rest of the day was soon vetoed, for clients little cared to transact business alongside a corpse. The ambulance was summoned, but when it arrived the doctor in charge simply said, “*Déad is he?* Then you can keep him!” and quickly vanished. The hours rolled on, and at last, before closing time arrived, a handcart rumbled up in charge of two men. In it they placed the remains of the poor priest, and bore them off to the “*Morgue*.” It is hard lines that better arrangements do not exist, and that pharmaciens should bear the brunt as they do in cases of accidents, etc., and not receive any recompense.

ILLEGAL EXERCISE OF MEDICINE AND PHARMACY IN FRANCE.—Despite the fact that laws exist, and are sometimes enforced, to suppress the illegal exercise of medicine or pharmacy, a certain class of individuals enjoy singular immunity in their barefaced contravention of these laws. Not that they are without the pale of the law, by any means. Those individuals are none other than the Catholic clergy, who throughout the country carry on a most lucrative business in “quacking,” and use the up-to-date methods to advance their interests. Their consummate “cheek” knows no bounds, and is all the more appalling inasmuch as the money raked in goes to no charitable institution, but swells the coffers of the various orders of monks who do the exploiting of the specialities. Their *modus operandi* is to “get up” a speciality for a certain complaint, give it a name connecting it with their order, and then advertise it extensively. Some of their advertisements are “immoral” in the extreme, for they generally write a small pamphlet with a short tale to please their numerous clientèle, and, coming from “one in holy orders,” it is swallowed with gusto. Quite a lively competition is engaged in between the various orders, and so common has this trafficking become that little or no comment has been aroused. But familiarity breeds contempt, ’tis said, and two orders of monks (neither evidently doubting legal interference with their commerce) have just been disputing in the courts the right to a name for a speciality which one called “*Confiture de Saint Vincent de Paul*” and the other one copied. An order called “The Trappists” claimed the right, and by their insistence were rightly trapped, inasmuch as the law demands that no secret medicines shall be sold in public, that all specialities must bear their formula and be compounded by duly qualified individuals. Since the learned brotherhood failed to comply with the law in this little matter their case was quashed, and the doctors and chemists began to awaken to the fact that they had keen, impudent, and dangerous competitors in the field. The result was that both professions joined hands in a campaign against the commercial “brethren,” and are now making it generally lively for them. We shall no doubt soon hear of the nuns taking their turn, for they are likewise sinners in this respect. In fact, for some time past isolated instances have occurred in which chemists have complained against the practices of such and such a “sisterhood” and have gained the day, but no combined action has been taken such as that now entered upon to put down the sale of such rubbish as “*Pâte bienfaisante de Chantelle*” (for the toilet), “*Musculine*” (for jaded individuals), and “*Eucalyptine*” (for coughs, colds, etc.), to say nothing of various little contrivances of doubtful utility. If unchecked we may one day hear of them manufacturing serums, and so become competitors of the Institut Pasteur.

PHARMACY IN AUSTRALASIA.

(From Our Melbourne Correspondent.)

IT IS SOMEWHAT UNFORTUNATE that the two societies into which the New South Wales (or should I say Sydney?) pharmacists have split up—that is to say, the Pharmaceutical Society of New South Wales and the Registered Pharmacists' Society—should take such diametrically opposed views in connection with the Early Closing Bill at present before Parliament. It is scarcely edifying to find the latter forming a deputation to the Premier objecting to chemists being brought under the Act on any consideration, while the former pass motions approving of the principle involved and suggesting certain hours for adoption. In justice to the Registered Pharmacists Society, I must state that, while objecting to pharmacies being brought under the operation of the Act, they express themselves as quite willing to agree to any restriction limiting the hours of apprentices and assistants. So far as my information goes at present, I understand that the New South Wales chemists as a body are working for the adoption of the following clauses:—(1) That pharmacists' shops shall close not later than 9 o'clock on five days of the week, and not later than 11 o'clock on one day of the week; provided that pharmacists at any time may attend to urgent cases. (2) That pharmacists may open their shops on Sundays from 10 a.m. to 1 p.m., and from 7 p.m. to 9 p.m. (3) That no clause of the bill shall affect pharmacists.

DISPENSING CHARGES.—At a recent meeting of the Canterbury (N.Z.) Pharmaceutical Association the following report from a sub-committee in reference to "dispensing" charges was submitted and adopted. It may be of comparative interest to English pharmacists:—Mixtures, 2-oz., 1s. 6d.; 3-oz., 1s. 6d.; 4-oz., 3i dose, 2s.; 4-oz., ʒ ii dose, 1s. 6d.; 6-oz., 2s.; 8-oz., 2s. 6d.; 12-oz., 3s.; 15-oz., 3s. 6d. Powders—Single, 3d.; ½-do., 1s.; 1-do., 1s. 6d.; 2-do., 2s. 6d. Cachets—Single, 6d.; ½-do., 1s. 6d.; 1-do., 2s. 6d. Ointments—1-oz., 1s.; 2-oz., 1s. 6d.; 3-oz., 2s.; 4-oz., 2s. 6d. Pills and Tablets—½-do., alone, 1s.; with other medicine, 6d.; 1-do., 1s.; 2-do., 1s. 6d. Liniments, Bellad., Aconite, Chlorof., Iodine, Pot. Iodine, Opium and Compounds of these, 2-oz., 1s. 6d.; 3-oz., 2s.; 4-oz., 2s. 6d.; 6-oz., 3s.; 8-oz., 4s. Other Liniments—2-oz., 1s.; 3-oz., 1s. 6d.; 4-oz., 1s. 6d.; 6-oz., 2s.; 8-oz., 2s. 6d. Lotions, Gargles, Mouth-washes—3-oz., 1s. 6d.; 4-oz., 1s. 6d.; 6-oz., 2s.; 8-oz., 2s.; 12-oz., 2s. 6d.; 16-oz., 3s. Eye and Ear Drops—Minimum price, 1s.; 1-oz., 1s. 6d. Suppositories—½-do., 1s. 6d.; 1-do., 2s. 6d.

THE PROPOSAL TO HOLD A "RECIPROCIITY" CONFERENCE in Melbourne while the annual meeting of the Australasian Association for the Advancement of Science is taking place in January has not caught on with the two principal colonies—New South Wales and Victoria—and it is now very improbable that anything will come of it. As a matter of fact, the crux of the question lies between the two colonies mentioned; and as, notwithstanding the special negotiations entered into between them about two years ago, and which have since been kept more or less open, they still agree to differ, they see no benefit that would arise from the discussion of their differences at a general meeting.

THUS IT IS that, at the last meeting of the Pharmacy Board of Victoria, after consideration of correspondence with the New South Wales and Queensland Boards, it was resolved—"That the Pharmacy Board of New South Wales be referred to the letter of December 24, 1897, which expresses the views on the subject, and that a reply be sent to the Queensland Board, that in view of the improbability of anything definite being arrived at with New South Wales a conference would be useless."

AND THUS IT IS ALSO that even the *Australasian Journal of Pharmacy*, which may almost be said to have given birth to the federal idea as relating to pharmacy, and has, at least during the past thirteen years, nurtured it with all the solicitude of a parent, arrives at a similar conclusion. In an editorial in its December number, the *Australasian Journal of Pharmacy* refers to the first conference held on the subject in Melbourne in 1886, and after recounting the various resolutions arrived at during that meeting, adds:—"It will be seen from the foregoing that we were apparently justified in congratulating ourselves on the prospect of an early realisation of the grand object in view—the pharmaceutical federation of Australia. 'Pharmacists are now committed to the task,' we then wrote, 'and we have every confidence as to the final results.' We were sadly mistaken. During the thirteen years that have since elapsed the colonies whose delegates were then so enthusiastic in the cause of uniformity and federation have been drifting further apart than ever, and what might be considered a compact entered into on their behalf has been deliberately broken in one or more particular by every colony which has since obtained pharmacy legislation. As witness the subsequent legislation of South Australia, 1891; New South Wales, 1897; and New Zealand, 1898, in all of which the agreement as to apprenticeship was ignored. West Australia was not represented at the conference, but her Act (1894) does not provide for a curriculum." To sum the whole matter up, the *Australasian Journal of Pharmacy* concludes that, apart from the expenditure which the proposed conference would involve, its practical utility, in view of past experience, and more especially in view of the unbending attitude of New South Wales and Victoria in connection with the comparatively small differences existing between them, appears more than problematical. "Undoubtedly," it adds, "a great responsibility rests on the two colonies named, for were they to agree to a common platform a conference might in that case be not only successful, but practically unnecessary."

AT THE DECEMBER MEETING of the Pharmaceutical Society of Australasia a letter was received from the Honorary Secretary of the Australasian Association for the Advancement of Science, asking that someone should be nominated to represent the Society on the General Council. Naturally, the choice fell on their energetic Secretary (Mr. Shillinglaw, Registrar of the Pharmacy Board), than whom no one is more able to give the Council valuable advice and assistance during their forthcoming meeting.

PHARMACY IN SOUTH AUSTRALIA has suffered a severe loss by the death of Mr. W. J. Main, President of the Pharmacy Board. Mr. Main—a native of the colony, by the way—was among the first to recognise the need for pharmaceutical legislation and association, and it was at a meeting convened by him in 1885, and greatly through his influence, that a resolution was carried founding the Pharmaceutical Society of South Australia, a considerable number being in favour of having simply a trade association. Undertaking the duties of Hon. Secretary, he was subsequently elected President of the Society, and later on President of the Pharmacy Board, which office he filled until his death, and in which he rendered conspicuous service to the cause of pharmacy in its educational and broadest aspects.

THE ELECTION OF MEMBERS of the Pharmacy Board of South Australia for the next term of office was held on December 18, when, in addition to the old members, three new candidates (Messrs. Glover, Stubbs, and Williams) came to the post. Of the latter, only Mr. Glover proved successful, the death of Mr. Main affording him his opportunity. The new Board will therefore be constituted as follows:—Messrs. John White, Robert Hutton, Joseph Parker, J. J. H. Young, Howard Whitbread, C. S. Hill, and E. G. Glover.

EXTRACTS FROM CONSULAR REPORTS.

THE MANUFACTURE OF FERRO-CHROME is stated to be one of the specialities of the Boucan (France) iron foundries. The article is exported in small barrels, and according to a recent report about 40 to 50 tons is annually shipped to Great Britain, whilst the demand from Germany amounts to 500 tons. A ton of 1,000 kilos. is said to be worth about £40.

THE DECIMAL AND METRIC SYSTEMS OF WEIGHTS AND MEASURES are reported to be in use all over Brazil, and are employed throughout the tariff. Weights are always calculated in kilos. Measures vary according to the article, some being in English yards, others in metres, and others in Portuguese varas. When the English system is adopted in invoicing, it is stated in a report on matters of commercial intelligence relating to Brazil, to be generally advantageous to give equivalents in the decimal system for custom-house work and other purposes.

"SLEEPING SICKNESS," OR "DOENÇA DE SOMNA," is a malady which is reported to be responsible for the deaths of more natives in the districts of the Lower Congo (South-West Africa) than any other of the many ills to which African flesh is heir. So far it has defied the medical knowledge or missionary skill brought to its treatment, and it is expected that if European medicine cannot find a remedy entire districts of South-West Africa will be either stripped of their present inhabitants or kept in a perpetual state of under population. A medical man at Cabinda is said to be engaged in trying to inoculate two tame monkeys with the virus of the disease by hypodermic injections of the blood of persons suffering from it, his hope being to ultimately establish by inoculation a cure for the malady so communicated. It is suggested that the School of Tropical Medicine, lately established in Liverpool, should find in a study of sleeping sickness a work of as great importance to the future of Africa as in anything that malarial fevers may offer to special research.

WHEN ONCE ATTACKED BY SLEEPING SICKNESS, ultimate recovery is stated to be unknown. The disease has been attributed by some to a too prevalent use of food-stuffs prepared from manioe or cassava root (*Manihot utilissima*)—the staple food of the Lower Congo country—but this surmise has not been verified. Others attribute it to bad water. The remedies tried have varied from frequent hot baths to strong doses of arsenic and violent movement. Of these, that of brisk movement, some continual occupation of mind and body, and change of scene, are said to have produced the most lasting effect. The disease is stated to be highly contagious, so much so that in the native Christian communities, situated in the "land of death" area of the Lower Congo, it has now become established usage to provide each communicant with a separate vessel in which to partake of the Sacramental wine.

MANY OF THE QUALIFICATIONS OF GENUINE INDIARUBBER are said to be possessed by a substance produced by the oxidation of linseed oil, with the addition of prepared jute refuse, or similar hitherto worthless textile refuse. This substance is reported to be capable of being utilised in various ways and of being manufactured into various articles hitherto made of indiarubber.

A CURIOUS METHOD OF COLLECTING RUBBER is mentioned by Consul Casement in a recent report on the trade and commerce of Angola. Referring to the uses made by the wild people of the Balolo tribe of the rubber-giving vines, he states that during a journey through a forest country it was noticed that some of the drumsticks used for striking the hollow section of a tree-trunk were covered with knobs of hardened rubber. How coagulation

had been brought about was not ascertained, but the method of collection was said to be simplicity itself. The native simply smeared his naked body over with the milk as it exuded from the cut creeper, and after a certain exposure to sun and air this was then worked off with the fingers into more or less sticky masses.

TO PREVENT THE DESTRUCTION of rubber-giving plants by hasty and avaricious collectors, the Government of the Congo State has issued a decree, ordaining that each firm exploiting rubber from its territories shall plant a certain number of fresh trees in proportion to its shipments of that article. In addition to this, the Government has itself caused fresh varieties of rubber plants to be imported, and is, through its agents, paying attention to their distribution and cultivation. Among such plants may be mentioned the *Ficus elastica*, the Ceará or *Manihot glaziovii*, and the *Hevea brasiliensis*, which furnishes the celebrated Pará rubber of Brazil.

THE RUTHLESS DESTRUCTION by the natives of rubber-yielding trees in German East Africa has brought about a great diminution in the amount of rubber exported. A few years ago rubber was exported from Mikindani to the extent of about five hundred bags a month in the season, but, according to a recent report, owing to the cause already mentioned, the export has fallen off to about forty or fifty bags a month. The natives are now only allowed to tap the trees by incisions some way up, and it is hoped that by thus preventing the cutting down of the trees the export will revive considerably during the next five years or so.

THE RISE IN THE PRICE OF QUININE AND CINCHONA BARK in the beginning of 1899, led to an enquiry by the Government Botanical Department of Jamaica into the present condition of the cinchona plantations, and the practicability of manufacturing quinine locally, as in India. The result of the enquiry appears to show that it is doubtful, unless prices rise still further, whether bark can be harvested for sale, or quinine manufactured in Jamaica, as a source of profit.

THE NECESSITY FOR RETRENCHMENT in public departments in Jamaica has led to various economies being effected in the several establishments during last year. In the medical establishment consequent on the transfer of the medical attendant at the Lepers' Home to Port Royal as Health officer, and the retirement, etc., of a few district medical officers, their successors were appointed at smaller salaries. Another economy was effected by the appointment of Mr. F. Watts, Government Chemist at Antigua, as Government Analytical and Agricultural Chemist in Jamaica, succession to the late Mr. Bowrey, under an arrangement by which his services were made available to the Jamaica Agricultural Society, and the public as well as the Government, at less cost to public revenue.

THE CULTIVATION OF TOBACCO in Spain is forbidden by law, although, as Mr. H. Harrison, Commercial Attaché to Her Majesty's Embassy at Madrid points out, judging from the small quantities grown in many gardens, it appears that it might be made an important industry. According to the regulations by which the sole right of sale and manufacture of tobacco in Spain is held by the Bank of Spain in the form of a monopoly, the cultivation of tobacco is prohibited both in Spain and the Balearic Islands. The tobacco monopoly is required to make experiments in cultivation during three years in different parts of Spain, and these experiments are being carried out, but whatever the result, Mr. Harrison is of opinion that it is most improbable that the cultivation of tobacco will be allowed during the lease of the present monopoly, which extends for twenty-five years from August 30, 1896.

THE IMPORTATION OF DRUGS AND CHEMICALS into Spain is a trade of some importance, the following being the values of the imports during the last three years:—Simple drugs, 1896, £598,000, 1897, £610,000, 1898, £395,000; colours, dyes and varnishes, £458,000, £405,000, £388,000; chemical and pharmaceutical products, £935,000, £1,067,000, £1,054,000; wax, soap, etc., £270,000, £269,000, £250,000; perfumery, £55,000, £55,500, £41,000. The total values for the three years, were £2,317,000, £2,407,000, and £2,129,000 respectively. Of general chemical and pharmaceutical products the largest supply is imported from France, Great Britain coming next, followed by Italy and Germany.

THE EXPORT OF DRUGS AND CHEMICALS from Spain for the three years (1896, 1897, 1898) shows little variation, the following being the values of the principal classes exported:—Simple drugs, 1896, £152,000; 1897, £308,000; 1898, £291,000; salt, £153,000, £142,000, £131,000; chemical products, £221,000, £229,000, £261,000; wax, soap, etc., £304,000, £248,000, £193,000; perfumery, £25,000, £26,000, £14,000. The total values for the three years were £857,000, £954,000, and £891,000 respectively.

DENTAL NOTES.

PORCELAIN INLAY WORK FOR IRREGULAR CAVITIES is on its trial before the dental profession, and will no doubt, for obvious reasons, become one of the future methods of repairing the ravages of dental caries. In theory nothing could be more simple or beautiful, but in practice it is found that there are many little difficulties to overcome, and it is doubtful if it will in the future be extensively used except by expert operators. One of the difficulties is the obtaining of a perfect impression of approximal cavities where, from overcrowding or other causes, it is impossible to get as wide a separation as desired necessarily in this position, where the labial and lingual walls are left intact; the separation must at least be a little wider than the depth of the cavity. In such cases (where platinum or platinised gold foil is not used as in the Jenkins system) wax for taking the impression will be found unworkable. A better plan is to use softened King's crown composition dipped in French chalk, finishing off nearly flush with the edges of the cavity; place a very thin separating file (serrated side) over the compo., just sufficiently warmed to cause it to adhere, being careful not to injure the impression of the cavity edges; harden with ethyl chloride spray, and the impression can be withdrawn without injury.

IN CASES OF SUPERIOR PROTRUSION with the lower incisors biting against the gums, before attempting to retract the upper teeth, Mr. Mattheson, who described his method of treatment at a recent meeting of the British Dental Association, inserts an upper plate for the lower incisors to bite against, thickening it as occasion requires. The models shown illustrated the fact that the incisors were pressed downwards into their sockets rather than that the level of the molars and bicuspid were raised. Mr. Mattheson also explained his way of replacing a porcelain face on a crown. The pivot holes in the backing were made into one slot and the sides freely bevelled, a new porcelain front adjusted and fine fitted, with the pins bent so as to slightly diverge. Phosphate cement smeared over the back of the porcelain, then squeezed home, the surplus cement removed, and the slot filled up with amalgam. As was pointed out, the thicker the gold backing is the better, and in cases of close bite the method would not be so good.

NERVANIN IS A NEW LOCAL ANÆSTHETIC derived from orthoform, and said to be but one-tenth as toxic as cocaine. For extraction of teeth a 5 per cent. solution is employed. No sterilising agent need be added, as nervanin in 1 per cent. solution prevents bacterial growth, and, according to an account by Dr. Kyner in *Items of*

Interest, it will produce a deeper and more prolonged anæsthesia than either cocaine or eucaïne B. The anæsthetic effect is continuous for a number of hours after operating.

TO RELIEVE TOOTHACHE from an inflamed pulp, introduce into the cavity a plug of cotton wool steeped in an alcoholic solution of orthoform. The pain instantly disappears. Being absolutely non-toxic, it makes a simple remedy which the patient can apply without danger.—*Southern Dental Journal*.

DENTAL STUDENTS have their attention directed by Mr. W. A. Maggs, in the *British Medical Journal*, to the fact that, on and after January 1, 1900, a dental or medical student will be required, before registration by the General Medical Council, to produce a certificate of having passed the first class College of Preceptors Examination (or its equivalent), whereas until the above-named date the second-class certificate will suffice. It is probable, he continues, that a large number of men now registered as dental students only, with the lesser certificates, may subsequently desire to take medical qualifications, and the question is, Will the first-class certificate be demanded by the Council, or will the dental student registered before January 1, 1900, be exempted? Mr. Maggs has interviewed the Registrar of the General Medical Council, who has promised to lay the matter before the Educational Committee at an early date. But, in order to avoid any difficulty arising, he advises all dental students registered with second-class certificates, and who intend entering a medical school during this year, to take out a course of chemistry from October at one of the institutions recognised throughout the Kingdom, and forthwith to become registered as medical students. Apart from the consideration of medical registration, a course of chemistry is necessary for the dental licence, and the instruction and examination in this subject are best taken during pupilage.

WHEN USING THE NAPKIN in filling an upper molar or bicuspid an excellent way to hold it in position and to free the left hand is to pass the napkin across the tooth just at the back of the one to be operated on, and place a clamp over it, holding it to the tooth, then place a roll of bibulous paper between the gum and cheek. This liberates the left hand, and very much facilitates the operation.

RELIEF OF TOOTHACHE FROM INFLAMED PULP.—Introduce into the cavity a plug of cotton wool steeped in an alcoholic solution of orthoform. The pain disappears for a considerable time. Being non-toxic it is a simple remedy which even the patient can apply without danger.

A SUBSTITUTE FOR THE DIAMOND DISK.—Dr. Roberts, in the *International Dental Journal*, states that a small disk of thin copper, used with water or oil, will cut as perfectly as a diamond disk and even more quickly.

TO KEEP A PARTIAL LOWER COMBINATION PLATE from crawling when being swaged, Mr. C. Rippon, in the *Journal of the British Dental Association*, recommends that after having roughly swaged the plate into position drill a hole through the plate and a considerable depth into the die, then drive an ordinary tack, cut off the head; thus you have the plate nailed to the die. If necessary, two or three tacks can be used. The holes are easily filled up by forcing in a piece of wire and soldering with fine solder.

BORDER OF CAVITIES.—Any practical hint that enables the dentist to obtain a perfectly smooth and polished border to cavities previous to inserting any filling material is of the greatest interest to every dentist, for all experienced men know how much of their success depends upon this point. Dr. Greystone, in *Items*, states that he

uses an ordinary fine-cut plug, finishing bur of suitable size, dipped in water, then in carborundum powder, using it in the usual way, dipping it in the water and carborundum powder as often as necessary. He uses half-worn-out burs, and says it is a faster method than using diamond burs.

POWDERED BORAX added, in sparing amount, to cement mixture will cause the latter to set quickly and produce a hard and tenacious cement.

SILVER LACTATE is strongly recommended by many practitioners as one of the best germicides to use in the treatment of pyorrhea alveolaris, also for any septic or suppurating condition around teeth. It can be used up to 20 per cent. without causing pain.

TO REMOVE TEETH FROM A RUBBER PLATE without danger of cracking or etching the teeth, boil the plate in glycerin in a porcelain pan till it smokes, and the teeth will come away clean and free from discoloration. Put them back in the glycerin till cold to anneal them, and when cool wash in water—they will be as bright as new and free from grease. When cold bottle glycerin for future use.—*Ohio Dental Journal*.

WHEN USING VAPOCAINE in a cavity, tie a piece of rubber dam over to prevent evaporation, and it will be found that the obtunding effects are far deeper than if put loosely into the cavity.

COMBINATION FILLING.—Dr. Spooner, in *Items of Interest* tells how he makes a combination filling with alloy and osteo without the use of mercury. He writes: "The alloy is first mixed with the liquid, so as to ensure that the metal becomes thoroughly coated with the liquid, next mix the zinc powder with the wet alloy, working it up thoroughly into a tolerably stiff mass. The mass hardens quickly, so it has to be handled rapidly. Sometimes I put a softer mix into the cavity, following with the stiffer one. In this way adhesion is got with the first and strength with the last. A surplus is put in, while an instrument, dipped in the powder, can be used to contour the filling to the edges."

ANTISEPTIC VARNISH.—Canada balsam, deprived of its volatile turpentine by evaporation over a water bath, then dissolved in ether, with about 10 per cent. of creosote added, makes an excellent antiseptic varnish for lining cavities previous to inserting stopping. The cavity should be carefully dried out with warm air, so as to allow the varnish to penetrate deeply into the tubuli of the dentine.

THE USE OF CARBOLIC ACID.—An article by Dr. Oscar H. Allis in the *Polyclinic* on the use of carbolic acid, full strength, is of interest to dentists. He says the use of carbolic acid of full strength upon flesh tissues, raw surfaces, etc., causes the formation of a protective albuminate, a condition which makes further absorption impossible. The same takes place when the strong acid is applied to a raw-burned surface. It is not claimed that an aqueous dilution is safe when applied extensively to raw surfaces; on the contrary, the more dilute the more dangerous. He goes so far as to state that excess of strong acid in a cavity, such as an abscess cavity, or upon exposed tissue, as a burn, or a fresh wound, does no harm; while excess of a dilute solution if left in a cavity, or used over an extensive raw surface, will be promptly followed by dangerous, if not fatal, toxic effects.

TO HOLD A DAM out of the way when it is applied to the upper front teeth and secured with a holder, draw it between the bicuspid on each side with a silk ligature, allowing the thread to pass from side to side. This will effectually hold the dam up in the mouth and out of the way.—Dr. CATELING.

WHERE THE EDGE OF CERVICAL CAVITIES extends far under the gum, and it is found impossible to carry the rubber over the edge and retain it with a silk ligature, binding wire will prove of great use. It can be placed around and the ends twisted with a pair of pliers, then bent and pushed with a blunt instrument into position, carrying the rubber dam with it.

PHOTOGRAPHIC NOTES.

REDUCING ACTION OF PERSALTS.—For some years now chemists have been paying considerable attention to the subject of photography and photographic chemicals, and now hardly a month passes but what we have some new discovery or investigation of an old subject, the main principles of which have been but poorly comprehended, or buried in empiricism. The latest announcement that has been made is one by MM. Lumière and Seyewetz, the well-known chemists of Lumière Frères, of Lyons, who have probably the largest dry-plate factory on the Continent. They have been examining the reducing action of certain metallic persalts on the negative image with the hope of finding a satisfactory one-solution reducer, free from the staining and unequal action of the most generally used reducer, first suggested by Howard Farmer, a mixture of potassium ferridcyanide and sodium thio-sulphate (hypo). They point out that ferric, manganic, titanous, and mercuric will nearly all of them act as reducers, but that there are certain disadvantages which they find can be entirely obviated by the use of ceric sulphate.

CERIC SULPHATE is a commercial salt which can be obtained without any difficulty, and although there is a slight precipitate when dissolved in water, this may be totally avoided by the addition of a small quantity of sulphuric acid, and this has no action on the gelatin of the film, and it will keep almost indefinitely. Further, the solution may be used in any concentration, the rapidity of its action being solely dependent on its strength, and no irregularity of action nor stain can be detected, and it is therefore quite suitable for bromide prints. The best strength for a stock solution is 10 per cent., and this should be made with distilled water, to which 4 per cent. sulphuric acid has been added. Such a solution may be diluted with water to any extent, without the precipitation of any basic salt. When used of 5 per cent. strength, that is, the above solution diluted with an equal volume of water, a reducer is obtained which, like ammonium persulphate, attacks the denser portions of the negatives first, whilst a 1 or 2 per cent. acts slowly and evenly over the whole negative.

MERCURIC IODIDE INTENSIFIER.—Some little time back the same chemists suggested a modification of the well-known mercuric iodide intensifier, which is also useful, and it has but two disadvantages, one that the solution itself is sensitive to light and must therefore be kept in the dark, and the other that the final image partially consists of silver iodide, and this is sensitive to light also, and the negative gradually bleaches by the conversion of the metallic, mercuric and silver iodide into a complex double salt of mercurous and silver iodides, but this bleaching may be entirely obviated by treating the intensified negative with a developer, old or once used. Lumière's improvement is in the substitution of anhydrous sodium sulphate for sodium thiosulphate (hypo) as a solvent for the mercuric iodide, and this may be prepared as a stock solution as follows:—

Anhydrous sodium sulphate	40 Gm.
Mercuric iodide	4 Gm.
Distilled water	to 100 C.c.

For use, dilute one part of this solution with three parts of water. The negative should be washed for five minutes in running water and then immersed in the solution. Intensification may be

Stopped at any stage by merely washing, and the dilute solution may be used over and over again till exhausted.

SENSITISING POSTCARDS.—Considerable interest is still being taken in those solutions which can be used for sensitising post cards, linen or other fabrics, without any preliminary preparation; the latest formula is:—

Silver nitrate	3 Gm.
Distilled water	10 C.c.
Uranium nitrate	30 Gm.
Alcohol	100 C.c.

This solution must of course be kept in the dark, and should be applied to the paper or other material by a camel's hair brush somewhat freely, and then allowed to dry, and be exposed under a negative in the usual way, then rinse in water and fix. Ironing the pictures thus obtained with a moderately hot flat iron somewhat improves the colour.

PHOTOGRAPHIC PATTERN CARDS.—Although photography has been considered as one of the minor discoveries of the fast-dying century it promises in the near future to take a much more prominent part in some of our industries than it has hitherto done and the latest application of it is for the preparation of the pattern cards which are used for weaving in the Jacquard loom. It has been customary hitherto for artists to draw their designs and for these then to be spaced out on a particular kind of paper by hand. An Austrian photographer has, however, discovered a very simple method by means of which any picture or design may be "spaced" or "squared" in a few hours, and this not only in two but any number of colours. He has even produced woven photographs in natural colours by this method, though they were not absolutely perfect.

THE PICTURE OR DESIGN to be reproduced in fabric is first of all photographed in the ordinary way, and from the negatives thus obtained transparencies on glass are made. These are then projected by means of an electric light and a lens on to a perforated plate in contact with a sensitive surface, such as a dry plate or bromide paper. The lens is fitted with different shaped stops, some round, some slits, others square, or in the shape of the ordinary numerals. The result is a design broken up into small squares, dots, longitudinal or numeral figures, which, with a key, form the pattern card for the weaver. Recently this ingenious inventor produced in six hours the pattern-cards for a portrait of the Austrian Emperor which would have taken the ordinary pattern-cutter working by hand at least nine months. It is stated that at the Paris Exhibition the invention will be shown in operation, but many of the leading English, French, and German weavers have seen it in operation, and are enthusiastic over the results.

INTERFERENCE COLOURS.—An extremely interesting communication has been made on behalf of M. Vallut to the Académie des Sciences by Professor Kippmann, who was the discoverer of the photography in natural colours by the interference method, and it is to the effect that if an ordinary negative be exposed to the vapour of nitric acid so that the silver image be converted into the nitrate and then to sulphuretted hydrogen the silver is deposited in a black state, but in very thin layers which give rise to interference colours, which at first sight appear to be distributed haphazard; but, on careful examination, it would be seen that there really was some sort of distribution of the colours, according to those of the original subject, and it was possible to distinctly trace the blue of the sky, the green of the trees, etc. This is a promising field, not only for speculation, but for experiment.

SECRET PREPARATIONS are decidedly on the increase in photography, and one or two firms are doing a very good thing by putting up special developers, etc. For a one-solution developer,

capable of being used both for plates and papers, that will keep well and stain neither fingers nor films, the following should satisfy most requirements:—

Sodium sulphite	300 Gm.
Potassium carbonate.....	600 Gm.
Distilled water (hot).....	1,000 C.c.
Adurol.....	60 Gm.

For use dilute the above with from 10 to 15 parts of water.

Adurol is bromohydroquinone, which is formed by the substitution of one molecule of bromine for a molecule of hydrogen in hydroquinone, and although subject of a patent adurol can be very easily made by adding to hydroquinone dissolved in benzole the necessary quantity of bromine, also dissolved in benzole.

POWDERS FOR PHOTOGRAPHIC DEVELOPERS.—(1) *Pyrogallol developer.*—Pyrogallol, 0.3 Gm.; sodium sulphite, 1.2 Gm.; sodium carbonate, 1.2 Gm. (2) *Hydroquinone developer.*—Hydroquinone, 0.6 Gm.; sodium sulphite, 3.4 Gm.; potassium bromide, 0.3 Gm.; sodium carbonate, 7 Gm. (3) *Eikonogen developer.*—Eikonogen, 1.1 Gm.; sodium sulphite, 2.4 Gm.; potassium carbonate, 1.5 Gm. The powders are wrapped in parchment paper, and then in black paper. For use 1 powder is dissolved in 60 C.c. water.—*Oesterr Zeits für Pharm.*, 53, '975.

CHEMISTS' ASSISTANTS' ASSOCIATION.

The PRESIDENT, Mr. F. W. Gamble, occupied the chair at a meeting of this Association, held at 73, Newman Street, W., on Thursday, February 15, when Mr. W. A. KNIGHT delivered a lecture on

INSECTS WHICH INFEST CRUDE DRUGS,
the substance of which is printed at page 186.

The PRESIDENT, in thanking Mr. Knight for his lecture, said it was difficult in dealing with any subject of interest to chemists, to touch upon new ground, but the lecturer had hit upon what was practically a new subject, and had displayed much originality in his manner of treatment. At the outset he showed that he was an educationalist in that he advocated that zoology should be taken up by pharmacists, not only as an interesting study, but because it would tend to their profit. The President then complimented Mr. Knight on the manner in which he had dealt with his subject and on the excellence of his illustrations. Mr. Knight had mentioned carbon bisulphide as a destroying agent; he (the President) should have thought that chloroform was more destructive.

Mr. C. J. STROTHER, referring to the remark of the President as to the originality of the subject matter of the lecture, recalled the fact that on one occasion he had himself addressed the Association on the subject. His paper dealt principally with the insects infesting linseed meal, and he pointed out that, inasmuch as they were not destroyed by a temperature of 90 degrees, in applying a poultice to an open wound there was a certain amount of danger that the insects in the meal would cause trouble unless it was subjected to a temperature sufficiently high to destroy them. Mr. Stark, he believed, also read a paper on the subject, but neither went into it so thoroughly as Mr. Knight had done that night. With regard to the use of chloroform in destroying insects in drugs; he had known instances where it had been tried and had failed in its purpose.

Several members followed with suggestions for preserving drugs from the attacks of insects, Mr. Moore mentioning formic aldehyde, while Mr. Morley Taylor thought cyanide vapour would answer the purpose well. Mr. Peck and one or two others stated that they had employed chloroform as a means of destroying insect pests with but indifferent success.

Mr. KNIGHT, in reply, said he had found a few drops of carbon bisulphide perfect as a destroying agent except for the egg state, and with a little knowledge of zoology one knew how long it would

take for the eggs to develop into the larva stage, when the operation could be repeated. With regard to chloroform, he had found it extremely difficult to get rid of the odour when a weak solution of 1 in 400 only was used, and as it would take a stronger solution than that to kill insects, it would take longer to volatilise. That objection also applied to cyanide of potassium; neither were to be compared with carbon bisulphide in that respect. Owing to its powerful reducing properties, formic aldehyde was also to be avoided. Mr. Knight then referred to the study of zoology, and said he was certainly of opinion that it should be included in the syllabus of the Pharmaceutical Society. Some knowledge of the subject was at present necessary in the Major syllabus in respect to the microscopic structure of animal materia medica. He had to thank Mr. Kirkland for the drawings which had illustrated the lecture, and also Mr. E. M. Holmes, Curator of the Pharmaceutical Society's museums, for some of the specimens exhibited of drugs infested with insects. He had always found that Mr. Holmes was willing to help anyone who undertook original work, and he seemed to know something about everything.

A hearty vote of thanks was then accorded to Mr. Knight, and the meeting terminated.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

The annual dinner of the North-East Lancashire Chemists' Association was held on February 15, at the White Bull Hotel, Blackburn. Mr. Councillor CRITCHLEY (President) occupied the chair, and Mr. Councillor Shorrocks the vice-chair, and there was a capital attendance, in spite of the terrible inclemency of the weather.

Mr. J. RYMER YOUNG (member of the Pharmaceutical Council) proposed the toast of

THE NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

He said he would leave questions of pharmaceutical politics to his friend, Mr. Newsholme, who was the chief mate of the good old-fashioned ship the Pharmaceutical Society—a craft perhaps not quite equipped with all the most modern appliances, but one of the good old copper-bottomed sort that would weather the present as well as other storms. Of both the gentlemen on his right (Mr. Newsholme and Dr. Symes) he would say that no two gentlemen could more profoundly appreciate the miserable position which pharmacists occupied in the country, or would do more to extricate them from the wretched position to which he had alluded. When one thought of the appalling apathy that pervaded the pharmaceutical atmosphere at large, it was refreshing to find that there were scattered over the surface of Great Britain associations like the N.-E.L.C.A., consisting of men who had emphatic views and the courage and ability to express them, and enthusiastic men willing to leave their business for days in order to give attention to matters of vital interest to their fellow chemists. But there was sometimes danger that enthusiasm would outstrip discretion, although he freely confessed that he would rather have open, direct, and straightforward opposition than be hampered with the wretched apathy and indifference which is the besetting sin of the pharmaceutical community. He did not think that the Council of the Pharmaceutical Society always received the consideration it deserved. The Council could not be regarded as a body of delegates. He was perfectly sure that neither Mr. Gifford nor anybody else would like to see that: intelligent men could not be got to submit to such a position. But there were broad lines of policy, the main features of which every member of the Pharmaceutical Council might be expected to observe in regard to the interests of the trade and in seeing that the Pharmacy Act of 1868 was carried out. In view of the fact that there are twenty-one members on the Pharmaceutical Council it went without saying that there would be many differences of opinion, and sometimes their views were treated with some degree

of impatience. He had frequently expressed his own views in the columns of the official journal, and he was pleased to think that they were held by the North-East Lancashire Association. But all the members do not think alike on all matters; and when they noticed how each section of the Council was represented by a different trade journal, they must come to the conclusion that it was a difficult thing indeed to bring them all over to the same view. Although every member of the Pharmaceutical Council was equally desirous of ameliorating the condition of things, the moment the question how that was to be done was approached almost twenty-one different methods were disclosed. In conclusion, he wished continued prosperity to the N.-E.L.C.A., and hoped it would be still more useful and a still greater power in the land. He would remind them that the elections were coming on, and there was no reason why North-East Lancashire should not elect a member of its own.

Mr. Councillor SHORROCK, in reply, said he had every confidence in the Pharmaceutical Council, and believed that the members were conscientious in their work. If they in North-East Lancashire, however, could stir up the spirit of discussion and bring about a measure which would put pharmacists on a better footing they would only be doing their duty, and he hoped other local associations would do the same thing.

Mr. EDWARD EVANS, jun., J.P. (Liverpool), proposed
PHARMACY.

He remarked that, commercially, pharmacy was not altogether inviting, if one were to judge by the announcements in the trade papers of the "wills of deceased chemists." They heard of millionaires in almost every trade, but they had never yet heard of a millionaire druggist; although for that matter he did not know that the amassing of a great fortune was everything in this life. The social position of the chemist had undoubtedly greatly improved during the last forty or fifty years, and for that they had to thank the much-maligned Pharmaceutical Society. To-day, however, pharmacy was going through a critical time. He had means of knowing some of the troubles and anxieties the trade was suffering from just now, but he was optimistic enough to believe that they would come through all right. He was not quite sure that the bringing of these matters before Parliament would be much to the benefit of the trade, because there was a possibility of misunderstanding upon matters that might be detrimental. One thing was certain, that the chemists must never allow the idea to get abroad that they looked to legislation to enable them to make their customers pay more than they now paid the retail trader. A chemist, however, was entitled to a certain amount of protection, just as a doctor or a lawyer was; but, given that, he believed the business could be made pleasant and profitable. He wished success to pharmacy with all its just rights, brought about, if not by legislation, by consolidation and union, such as that exemplified in the North-East Lancashire Chemists' Association.

Mr. HEATON (Burnley) responded. He thought professional pharmacy had been strangled by apathy. Commercially, they were hampered by little "stores" which were springing up all around, and they were not under such restrictions as chemists as to qualified assistants. The great difficulty chemists now experienced in getting qualified assistants called for a reform in the method and cost of examinations.

Mr. R. LORD GIFFORD proposed the toast of
THE PHARMACEUTICAL SOCIETY.

He said the Committee had honoured him with the responsibility of expressing its feelings towards the Society at a time when affairs were at such a critical stage, when they were in at the death, or the salvation, of their legal rights. The policy of a Society must depend upon the dominating influence, and the old paternal influence still prevailed which all along had taken their money and allowed them to run wild. There could not be any improvement until the great body, by sheer insistence, altered the character of

the ruling influence. The Pharmaceutical Society was on paper perfectly democratic, but in practice intolerably oligarchic, ruled and regulated by obsolete methods, by impossible people—altogether out of touch with the constituency and ignorant of the spirit of the times. The Pharmacy Act of 1868 was not acceptable to the Pharmaceutical Society, which was imbued with aspirations of high pharmacy, and that idea had been preserved ever since. That had been the curse of pharmacy—that inability on the part of the dominating influence on the Council to see that governments look beyond the needs of sections to the requirements of the whole people; even now the official journal was used to bolster up that fallacy, and had used every discreditable means to push the “pre '68” policy and to suppress the real opinion of practically every chemist on the Register. The Pharmacy Act of 1868 established the principle of qualification, and, in the interests of the public, put the sale of poisons outside the operations of free trade, confining their distribution to properly qualified persons. Chemists had omitted to keep intact the principle of the Act, with the result that the edifice, however insignificant, was now falling about their ears. Had the Council insisted upon the retention of those principles that the association of the chemist with responsibility would have induced a real practice of pharmacy? It was by such natural evolution that they must look for a settlement of the irritating problems of chemists prescribing and doctors dispensing. What was needed for natural development to take place was that qualification must (1) be recognisable and (2) not negotiable. In regard to the organisation of the drug trade, his Association asked why the stagnant Pharmaceutical Society did not make effective Mr. Newsholme's scheme for increasing the membership and power of the Society, which it professed to approve? If the Society lifted its finger it could bring within its fold at once the great majority of registered chemists, and it had only itself to thank if it was stated that the dominating traditional element did not want them, but only just guineas enough plus the examination fees. The administration of the Pharmacy Acts had been, and still was, inept, ineffective, and incompetent. Lastly, his Committee protested that it was shameful their own Journal should distort, manipulate, manufacture, and misrepresent opinions in the way it did.* An official organ should reflect accurately the views of the members; it could not with propriety do the questionable things which private enterprise might do. Its primary duty was to insist that the views of any considerable section of members were stated with clearness. He proposed the Pharmaceutical Society in harmony with its constitution.

Mr. G. T. W. NEWSHOLME, in response, said that Mr. Gifford was nothing if not outspoken. He did not blame him for that—indeed, it might be better if other men copied him in that respect. He had spoken of the Pharmaceutical Council being “oligarchic.” That was a word which they had heard a great deal about lately, and it reminded him somewhat of “that blessed word Mesopotamia.” But whether the Pharmaceutical Council was democratic or oligarchic it was what the chemists of the country made it. Members could vote as they pleased, and if the North-East Lancashire chemists were not satisfied with the Council they should alter it. The Bill read in the House of Commons two days before was on similar lines to the Bill introduced into the Lords last session. One of the most important clauses affecting registered chemists proposed to give limited companies the right to call themselves by chemists' titles provided the companies had qualified individuals in their employ. That was a monstrous thing: the qualification for which they had worked was to be bartered away to a limited company. Was it reasonable that a limited company should be allowed to do

* While on this occasion Mr. Gifford is accorded the publicity to which he considers his effusions are entitled, he requires to be reminded that he abuses his privilege and the considerate indulgence he has received. The infamous statements he makes concerning this Journal are so utterly untrue that they must recoil upon himself and upon the Association in whose name he professed to speak.—[Editor, *Ph. Journ.*]

this; and would it not be equally fair that any individual should be able to do the same? In reference to that matter the Council were not united, but he thought it would be the Council's duty to do all it could to oppose the Bill unless chemists were included with medical men, dentists, and midwives. Surely they had some claim to professional knowledge and ability? It had been said over and over again that chemists were traders. He admitted the fact, but they were not upon the same level as ordinary grocers. They claimed to be professional men because they were, or ought to be, responsible for every article that went out of their shops. They did not want to be elevated above their proper station by calling themselves professional men, but enormous sums of money had been spent on their education to fit them for their position and for the protection of the public. It was not that chemists would benefit very much, even if the companies were not allowed to carry on their business; he did not think that would be any great advantage to them. The Pharmaceutical Council—either present or past—was not to be blamed for the position chemists were now in, nor did he think that another Pharmacy Act was required. The Act of 1868 was good enough now and for all time if chemists would be loyal to themselves and to the Society. They must not forget that companies could not carry on if qualified men did not sell themselves. It was very unfortunate that the evil had grown to such an extent, but he believed that if an effort was made they could defeat the proposal of the Companies Bill. He thought they ought to go further and get a penal clause inserted to prevent a chemist covering any company. With the chemists of the country properly organised, he was of opinion that there would be no need to fear limited companies or anybody else. Every man had to do his duty to himself, and could not expect to be protected solely by the Pharmaceutical Society. They could not expect Government to protect trade interests. If better times were coming it depended upon chemists being loyal to themselves and their craft, otherwise it was no use looking to the Pharmaceutical Society.

Dr. SYMES remarked that they were told that the Pharmaceutical Council did not attempt what it ought to, and he felt that taunt a little. Eight or nine years ago he moved, and not for the first time, that carbolic acid should be placed on the Poisons Schedule, and every member of the Council on that occasion voted with him. The resolution was sent to the Privy Council, and they knew what became of it. The same resolution had again been passed by the Pharmaceutical Council some months ago, and the Privy Council had told them that the matter was under consideration. Did they think that in the face of such experience it was fair to blame the Council? He maintained that the accidental deaths which were happening through the drinking of carbolic acid were largely to be laid at the door of the Privy Council. Two conditions were at the bottom of their troubles—first, the madness on the part of the public to get things cheap; that pervaded all classes. If the turnover of the chemist was four or five times larger than what it now was their profits would still be unsatisfactory, but when the turnover was small the diminution in their profits was felt very much more severely. Then they were suffering from the medical profession dispensing their own medicines. There was also the “cutter,” who, whether individual or store, had no regard for his fellow, but went into the business solely for what he could make. There was also the great evil of the qualified man who was willing to sell his services and become a hireling to an unqualified employer. It was the accumulation of such things that was acting prejudicially towards them. If they asked him for the remedy he would say he was there to learn it, for if they succeeded in preventing limited companies carrying on their business they would not be free from difficulties. Other toasts followed, the toast of

THE MEDICAL PROFESSION

being replied to by Dr. CUNLIFFE and Dr. POLLARD. The former speaker deprecated the position taken up by the *Practitioner* and

the *Pharmaceutical Journal* on the question of the moment—[The reference is presumably to the suggestion of Mr. Malcolm Morris, that "would-be reformers should reform their manners" (see *P. J.*, February 3, page 106).—Ed. *P. J.*]—and urged that it was particularly desirable that the opinions of all should be known, irrespective of their position in medicine or pharmacy. It was advisable that the work of educating people up to the present situation should be vigorously proceeded with. One effect of this policy was that their own local Medical Society had recently, after a full discussion, unanimously passed a resolution of sympathy with qualified chemists and pledged itself to support them actively in the protection of their titles and practice.

GLASGOW CHEMISTS' AND DRUGGISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.

The weekly meeting of this Association was held on the 16th inst., when Mr. J. P. GILMOUR occupied the chair, and Mr. JOHN LOTHIAN, Ph.C., lectured on

Urine Analysis.

At the outset the lecturer claimed that analytical work in reference to this subject was peculiarly suitable for the pharmacist, medical men with whom he had discussed the matter freely conceding as much.

In the healthy subject there was an average excretion of 50 oz. per diem. Normal urine had a specific gravity of 1.015 to 1.025, and should be of a pale straw colour. When freshly passed the urine was said to have an aromatic odour, but this was difficult to detect. It contained about 4 per cent. of solid matter. The normal organic constituents were creatine, creatinine, and uric acid, while the inorganic salts were mainly sodium and calcium in combination with phosphoric and uric acids, the acid reaction being due to monosodium phosphate. The most important abnormal or pathogenic constituents of urine were albumen and glucose. Of the many qualitative tests for the former the most convenient and trustworthy were:—(1) Boiling and subsequent acidulation with acetic acid, (2) the contact test with nitric acid, and (3) the reaction with freshly-prepared metaphosphoric acid.

Having given demonstrations of each of these tests, the lecturer went on to deal with the qualitative tests for glucose. As in the case of albumen, a host of reagents had been proposed, but Fehling's Solution was still *facile princeps*. No doubt substances like creatinine had a slight reducing effect on Fehling's Solution, but there was practically no danger of mistaking this for the presence of dextrose in pathological quantity. Albumen if present or H₂S should first be removed before using Fehling.

Acetone was best identified by distilling the urine and applying the iodoform test to the distillate. Blood was easily detected by the ozonic ether and guaiacum test, mutual reduction of the hydrogen peroxide and oxyhæmoglobin taking place. There was also the spectroscopic test, the absorption spectra of oxyhæmoglobin and hæmoglobin being characteristic; but this was not so accessible to the ordinary pharmacist. As regards the bile pigments and acids, Pettenkofer's test answered well.

The quantitative determination of glucose, urea and uric acid was next dealt with. The precipitation method for glucose with Fehling's Solution had all the disadvantages of precipitation methods, and was only roughly proximate unless conducted with very great care. Pavy's ammonio cupric test was both expeditious and effective, but the evolution of NH₃ fumes was objectionable, especially in a shop. He had found Gerrard's cyano-cupric test convenient and accurate; a little practice, however, was necessary. The best way was to make a rough preliminary determination, to get an idea of the quantity of glucose present, and then to do two very careful determinations. It was essential that the same degree of dilution be maintained. For these operations the burette was indispensable, and he would strongly advise students to keep their

burettes after the Minor was passed, as it was an instrument of wide and varied usefulness. The polarimetric test for glucose was probably too technical for general use, and it had the drawback that if the urine contained lævogyre substances it would counteract the dextro rotation of the glucose. Proceeding to speak of ureametric analysis, Mr. Lothian gave a demonstration with Gerrard's ureameter, and concluded with a reference to the separation of uric acid and the relation of the latter to theobromine and caffeine.

The separation of urinary deposits was next performed by means of the centrifuge, and at the close of the lecture emission and absorption spectra were shown by means of a fine spectroscope, the property of the lecturer.

The CHAIRMAN having expressed on behalf of the Association its deep indebtedness to Mr. Lothian for his lecture, commented upon the well authenticated but little known fact that a diabetic urine may have as low a specific gravity as 1.010 or 1.015. The tests for blood in urine were all conclusive enough, but not even the spectroscopic test was distinctive for human blood, although scores of novelists and detective story writers would have us believe that the medical jurist, by simply turning his searchlight on a suspected blood-stain, can tell that it is the sanguinary fluid of a red-haired Irishman, six feet high. If any of his hearers wanted to cover himself with glory he had only to discover a differential test for human blood. Reference had been made to the medicinal treatment of diabete mellitus. Speaking from his personal experience of hospital practice, he found that although there had been active experimentation with other agents—*e.g.*, nitrate of uranium—the tendency always was to go back to codeine. He had found Pavy's method for determining glucose most serviceable and exact. The mention of the polarimetric determination of glucose reminded him that some years ago Dr. Dawson Turner, of Edinburgh, had made a research as to the electrical conductivity of morbid urines, which showed that in certain renal and urinary diseases an electrical diagnostic might be determined. However, this method seemed to be merely tentative and academic. The synthetic affinities of uric acid with alkaloids, and the alkaloidal character of ptomaines and toxines, would probably lead to remarkable discoveries in the near future. They had an earnest of this in the separation of antitoxines.

Mr. J. P. TAYLOR proposed a vote of thanks to the lecturer, and considered that Mr. Lothian had been very happy in his choice of a subject, as it was one in which every pharmacist ought to be interested.

Mr. LOTHIAN, in the course of a brief reply, suggested that the low specific gravity of some diabetic urine was probably due to the excessive amount voided by the patient. Pavy's process was undoubtedly one of the best, as the whole process was carried out in an atmosphere of NH₃, so that there was no possibility of atmospheric oxidation. In Gerrard's method the final determinations should be smartly performed to avoid oxidation.

CHEMICAL SOCIETY.

At a special meeting held on Thursday, February 8, Sir HENRY ROSCOE occupying the chair, the

Victor Meyer Memorial Lecture

was delivered by the President, Professor T. E. THORPE, F.R.S. Professor Thorpe said that as a friend of nearly thirty years' standing, and as one who had worked with him literally side by side under the directorship of Bunsen, he had taken upon himself the duty of placing on record the Society's appreciation of the remarkable services rendered by Meyer to the science he cultivated with such assiduity and success. He was born in Berlin, the son of a calico manufacturer, and there was nothing in his home life to incline him to the study of chemistry; rather, the environment of his youth was of a literary nature, his mother being a woman of considerable intellectual power. He himself wished to be an actor,

and in that calling would no doubt have succeeded; his gift of ready speech, affable manner and humour made it always a pleasure to hear him. At Heidelberg there existed a small chemical society, with which he became associated, and about the same time he became interested in a series of lectures given by Hofmann. When barely seventeen years of age he took up chemistry with Bunsen, who was struck with his capabilities. Bunsen employed him in his private laboratory, where he worked extensively on water analyses, profiting greatly, as everyone must who carefully followed Bunsen's laborious methods. In 1868 he left Bunsen and entered Baeyer's laboratory in Berlin, afterwards becoming assistant to Fehling at the Stuttgart Polytechnic. Here he carried out researches upon the di-substituted benzene derivatives, notably on isophthalic acid. His great work on orientation led him to conclusions that, except in the case of the hydroxy benzenes, have not since been materially altered. It was noteworthy that he even touched upon the constitution of camphor. When only twenty-four years of age he succeeded Wislicenus as director of the chemical laboratory at Zürich. On the remark being made at his appointment that he was very young, he wittily replied that he should endeavour to repair the fault day by day. During the thirteen years that he remained there he brought himself to the foremost rank of contemporary investigators. His famous method of determining vapour densities, devised in 1877, is too well known to need comment. Among his important works may be mentioned a study of the chemical nature of chloral hydrate, the discovery of nitro-compounds of the aliphatic hydrocarbons, and their constitution. But perhaps his most important discovery was that of the oximes. They led to his investigating a great number of ketones, and it is probably not too much to say that stereo-chemistry took its rise from the discovery of oximes. Fruitful of ideas, he was never at a loss for an experiment, but Meyer's genius was of a different kind to that of his master, Bunsen. Bunsen considered his problem and weighed it with such care that when his apparatus or method was given to the world it left no room for improvement. In 1879 he announced, together with his assistant, Carl Meyer (not a relative), the phenomenon of dissociation. Such was his energy and enthusiasm, and his influence on those about him, that the Zürich laboratory during his stay there gave no less than 130 papers and memoirs to chemical literature, and it was said by Carl Meyer that he was compelled to work so hard, although only by the fascinating influence of his master, that fits of depression came to him, almost driving him to suicide. His lectures were always made interesting and lucid, while his delivery was easy and natural. Great care was bestowed on the lecture experiments. On one occasion the indophenin reaction in benzene failed, although, as was customary, it had been tried with success immediately before the lecture. It was found that his assistant had substituted benzene prepared from benzoic acid in the lecture for coal tar benzene. This led directly to the discovery of thiophene, and a new branch was added to organic chemistry hardly less extensive than that of benzene itself. Pyrochemical problems always interested him, and he expressed the belief that a new chemistry, with undreamt-of discoveries, would arise when vessels were obtained capable of bearing temperatures at which meter could no longer exist and oxyhydrogen gas became an unflammable mixture. He was one of the first in Germany to recognise the value of Raoult's method of determining molecular weights. On the death of Hübner he was called to Göttingen, and in 1888 to Heidelberg, as successor to Bunsen, the Nestor of chemistry, who himself said that no one was better fitted than his former pupil and assistant to take his place. In 1892 he announced with Wachter the existence of iodoso compounds, the study of which led him to the discovery of the remarkable iodonium compounds. The formation and electrolysis of ethereal salts of aromatic acids occupied him from 1894 up to the year of his death. During the last few years of his life his health suffered severely from the over-active energy of his younger days. Insomnia afflicted him heavily, and his memory, formerly so clear that it had few parallels,

became very weak. He died, at the age of forty-nine years, on August 8, 1897, his merits being recognised in every country where science has penetrated. Among the distinctions conferred upon him by this country may be mentioned the Davy medal of the Royal Society.

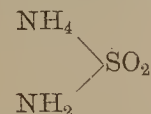
Professor DEWAR, at the request of the Chairman, rose to propose a vote of thanks to the President, who had admirably carried out the task of giving a faithful picture of the life and work of Victor Meyer. He had done an imperial service to chemistry, and our action would be appreciated beyond the sea. Professor ARMSTRONG seconded the vote of thanks.

The PRESIDENT, in acknowledging the vote of thanks, announced that at the anniversary meeting of the Society, on March 29, the Chairman, Sir Henry Roscoe, would deliver a lecture on the life and work of Bunsen.

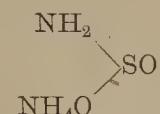
At a meeting, held on Thursday, February 15, the PRESIDENT, Professor T. E. Thorpe, F.R.S., in the chair, a paper by Edward Divers and Musataka Ogawa on

AMMONIUM AMIDO-SULPHITE

was read by Dr. DIVERS. No important work has been done on the interaction of ammonia and sulphur dioxide in the dry condition for sixty years. The authors have taken up the subject, and find that when sulphur dioxide is passed into a solution of ammonia in alcohol-free ether, kept cold by a freezing mixture two volumes of ammonia react with one volume of sulphur dioxide and a substance is at once precipitated, to which the authors have assigned the name of ammonium amido-sulphite, its properties indicating that it is a sulphuryl compound—



and not a thionyl compound—



Hitherto the text-books have always stated that dry ammonia and sulphur dioxide interact in the proportion of equal volumes, and in fact, unless the containing vessel be well cooled, the product of reaction has the composition NH_3SO_2 , but the authors have shown that this compound is produced by the action of heat on ammonium amido-sulphite with the loss of a molecule of ammonia, hence the true nature of the reaction between the two gases must be represented as involving two molecules of ammonia to one of sulphur dioxide.

Another paper by the same authors on
PRODUCTS OF HEATING AMMONIUM SULPHITES, THIOSULPHATES,
AND TRITHIONATE,
was read describing the properties of the substances formed. The work is being continued.

A note was also communicated on

THE COLOUR OF ALKALI NITRITES,
showing that the yellow colour was a property of the pure substance, even in the solid condition.

A short discussion, in which Mr. C. E. GROVES, Mr. BAKER, and Dr. SCOTT joined.

A paper by Edward J. Russell and Norman Smith on

THE COMBINATION OF SULPHUR DIOXIDE AND OXYGEN,
was given by Mr. RUSSELL. The authors have carried out experiments to determine the amount of combination of these gases in the presence of certain metallic oxides due to surface action of the latter. No sulphur trioxide was ever found unless an absorption of sulphur dioxide by the metallic oxide took place and manganese peroxide which absorbs no sulphur dioxide alone, produced no combination. The experiments and apparatus were also described

which had been used to determine the amount of combination between these gases in the presence of platinised pumice heated to 400°—450°. The platinised pumice was dried by passing dry hot air over it continuously for three weeks; sulphur dioxide was then admitted, and the contraction observed. In spite of the difficulty of obtaining perfectly dry platinised pumice the results clearly indicated that in the absence of moisture sulphur dioxide and oxygen do not combine in the presence of platinised pumice.

Congratulations to the authors were expressed by Mr. GROVES and Dr. BAKER, and another note was given by Mr. RUSSELL on

THE ESTIMATION OF GASES CONTAINING SULPHUR.

Except in the case of sulphur dioxide absorption methods are unsatisfactory for estimating hydrogen sulphide, carbonyl sulphide, and carbon disulphide in gaseous mixtures; it is better to explode with oxygen. When hydrogen sulphide is exploded with oxygen the reaction—



is accompanied by the formation of sulphur trioxide, yet accurate results may be obtained by introducing equations furnished by the diminutions observed.

A paper by William Jackson Pope and S. Peachey on

OPTICALLY ACTIVE TIN COMPOUNDS

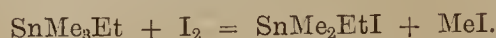
was read by Mr. POPE. Up to now no compounds of tin have been prepared having four different groups attached to the tin atom, but this has now been successfully accomplished.

The authors started with tri-methyl tin iodide— $\text{Sn}(\text{CH}_3)_3\text{I}$.

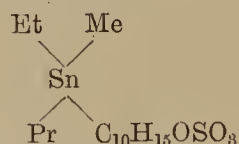
By the action of zinc ethyl the following reaction easily takes place:—



The resulting tin compound is then treated with iodine, and dimethyl ethyl tin iodide is produced.



This substance is now acted upon with zinc propyl, and in this way methyl-ethyl-propyl tin iodide is obtained. It is an oil of unpleasant odour, which reacts readily with silver dextro-camphor sulphonate, giving a compound that may be represented by



in which it is seen that the tin atom is asymmetric.

The molecular rotation of the dextro-camphor sulphate ion is 95°, while the molecular rotation of the tin compound is found to be 51°, the difference being due to the optical activity of the tin base.

By careful decomposition with potassium iodide in the cold methyl-ethyl-propyl tin iodide was regenerated from the sulphonate, and was found to have a molecular rotation in ether of $[\alpha]_D 23^\circ$.

This iodide racemises with extreme ease, and it is only by keeping it at a low temperature that it can be preserved. Concluding, Mr. Pope drew attention to the fact that tin belongs to the carbon group in the periodic system, and stated that as lead follows after in the same group he hoped to be able to obtain similar results with it also.

The PRESIDENT congratulated the authors on their achievement, the importance of which he said it was impossible to exaggerate, and hoped that they would be able to communicate to the Society a similar result upon lead.

ROYAL INSTITUTION.

On Friday evening, February 2, a discourse was given by Signor MARCONI, before a crowded audience, on recent developments of

Wireless Telegraphy.

During the past year elaborate experiments have been made, in order to test the system of wireless telegraphy for all sorts of purposes. It has been proved that by means of poles 150 feet high messages may be sent from one station to another a distance of eighty-five miles. It is necessary that the transmitting and receiving station should be fitted with a pole sufficiently high to counteract the curvature of the earth's surface. In the case of transmission from cliff to cliff, or hill to hill, the elevation may often be high enough to enable the operators to dispense with poles. This extension of the distance over which messages can be sent has been largely brought about by means of a new induction coil.

Communication has now been daily kept up between the installations at the South Foreland and the Goodwin lightship, showing conclusively that the system is both certain and trustworthy in operation. Daily messages are sent by the men on board the lightship to relatives on shore, and in five instances serious loss of life and property has been averted by a prompt call for aid by means of wireless telegraphic messages. In one instance the salvage value was £52,588, a sum that would equip enough stations to set the system in operation all round our coasts ten times over. It is to be hoped that before long the Trinity House authorities will be able to provide the money for this enterprise, as it will enable our coastguards and lifeboatmen to avert huge loss of life and property.

In the recent

NAVAL MANŒUVRES

the system was severely tested in the B fleet, on board the flagship *Alexandria* and the cruisers *Juno* and *Europa*. These vessels were able to send messages to and fro when out of sight, with great advantage to the Admiral of the fleet. It was found that the *Europa* and the *Juno* were able to maintain communication at a distance of sixty nautical miles. The maximum distance through which messages were sent was seventy-four nautical miles.

The use of a new transmitter and a new transformer contributed largely to the success of the trials, and give promise of even greater possibilities in the future. At the autumn meeting of the British Association at Dover last year it was found that the large masses of rock at Dover did not interfere with the operations by ether wave telegraphy. At the International Yacht Race, in October last, wireless telegraphy was used to great advantage. As Signor Marconi was returning on board the *St. Paul* he was requested to signal the station at the Needles, in order to obtain the latest war news. This was done at a distance of sixty-six nautical miles, the *St. Paul* at the time going at a speed of twenty knots. The news was printed on board in the form of a paper which was called the *Transatlantic Times*. At the same time the passengers sent messages to their homes; thus the time may not be far distant when voyagers will be able to maintain communications *en route* with the land they have left and the land to which they are journeying. Wireless telegraphy is now being severely tested in South Africa

IN ACTUAL WARFARE.

Towards the end of last year, at the tardy request of the War Office, Mr. Bullock and five assistants went to South Africa. They were intended only for the base and the main railroads, but the officers on the spot desired their presence also at the front. Owing to lack of balloons, kites, and poles the first operations, conducted in December, were not satisfactory. Eventually, however, through the exertions of Major Baden-Powell and Captain Kennedy, kites

and poles were obtained which were sufficiently suitable to be of use. Stations were fitted up at De Aar, Orange River, Modder River, Enslin, and Belmont. Messages were sent from De Aar to Orange River, a distance of about seventy miles; and for general use portable installations were set up on service wagons. These preparations will, it is to be hoped, prove of extreme value, should the field telegraph lines be cut by the enemy. Indeed, it is regrettable that Kimberley, Ladysmith, and Mafeking were not in possession of the apparatus before their investment. Two of Mr. Bullock's assistants volunteered to make their way through the Boer lines into Kimberley, but the military authorities considered the attempt too risky. Mr. Bullock is now with General Buller in Natal.

A report was circulated recently that the iron in the hills in South Africa was the cause of the partial failure of the apparatus. This is incorrect, since iron has no more effect on the messages than any other metal. During the Naval Manœuvres messages were constantly being dispatched through a fleet of thirty ironclads.

Towards the end of last year a consignment of apparatus consigned to the Boers was intercepted. It was found to be imperfect and unworkable, and proved to have been made in Germany. It is unlikely that the Boers have in their possession any apparatus in working order, as Signor Marconi himself has not allowed any apparatus to leave his works that might be intended for Boer use.

There is reason to believe that during the present year still more astonishing progress will be made in ether wave telegraphy.

A discourse was given on Friday, February 9, by Professor J. REYNOLDS GREEN, Sc.D., F.R.S., on:—

Symbiosis and Symbiotic Fermentation.

There are various degrees of completeness of relationship in known cases of symbiosis. True symbiosis is always associated with reciprocity; where reciprocity does not exist, *e.g.*, in *Azolla*, *Anthoceros*, *Cycas*, and *Gunnera*, the term commensalism is applied; in either of these plants a seaweed may shelter and so live more easily, but the seaweed does not confer any known benefit on the plant that harbours it.

True symbiosis is frequently met with in plants of the Corollifloræ, especially in the natural orders, Scrophulariaceæ and Santalaceæ. *Thesium linophyllum*, a plant which grows on grasses, was formerly, like many others, called a parasite, but since there is a mutual benefit arising from the partnership it is now regarded as a case of symbiosis.

The mistletoe grows freely on the poplar and the apple, but is now seldom found on the oak. The seed of the mistletoe plant is carried by birds; on germinating, the roots penetrate through the bark of the tree, and put forth seekers at right angles, which branch freely among the softer tissues of the trunk. The mistletoe is always associated with the Druids, who are said to have used silver knives to sever it from the oak on which it grew. Possibly these ancient priests were so successful in cutting it that it explains why the plant is so seldom found nowadays on the oak.

This is a good case of symbiosis. Both plants are green in summer, absorb carbon dioxide from the atmosphere, and manufacture sugar. In the autumn the host plant loses its leaves, but the mistletoe is evergreen, and continues the work of elaborating food materials throughout the winter, to the advantage both of itself and its host.

In some of the higher plants—*e.g.*, the rhododendron and some of the Cupuliferæ—the roots are covered with a dense feltwork of the mycelium of a fungus, which is developed in the absence of root-hairs, and provides for the absorption of nourishment.

The lichens show an even more complete alliance—a fungus and an alga in close symbiotic relationship. As a rule, the alga is

surrounded by the fungal filaments. The fungus condenses aqueous vapour from the air, which dissolves debris and quasi-organic matter, to be worked up by the fungus. The alga, by virtue of its chlorophyll, decomposes carbon dioxide and builds up from it and the various foods at hand the necessary materials for the life of the dual organism. The alga, growing inside the fungus, develops larger cells and is more vigorous than when it lives alone.

Many leguminous plants—*e.g.*, pea, bean, clover—show an interesting relationship between a flowering plant and a fungus or bacterium. It is now well known that the atmosphere is the source of the nitrogen from which such plants build up the necessary proteid. These plants when fully developed contain more nitrogen than they could possibly obtain from the soil. This has been established as a case of symbiosis. If one of the tubercles that are found on the roots of these plants be cut across it may be seen that a fungus enters the tip of a root-hair, which consequently swells enormously, and eventually passes into the tissues of the root. It there branches, and breaks up into small bodies of various shapes. These are known as bacteroids, and are responsible for the intake of atmospheric nitrogen. If a leguminous plant be cultivated in a soil that has been sterilised by heat the amount of nitrogen absorbed diminishes, whereas such a culture, if treated with an aqueous extract of soil, gives on analysis the extra amount of nitrogen that is normally found in leguminous plants. It is not yet definitely known when and how the nitrogen is fixed, but it has been suggested by recent workers that it takes place in the tubular structures that grow down the root-hairs. As these tubes are not always present the subject is still under investigation.

There are certain bacteria which, together with schizomycetes, induce symbiotic fermentation, but in these cases a mutual benefit is not well seen at present. Undoubtedly there is a power possessed by the joint organism in a direction which the constituents do not possess. In putrefaction there are many organisms present; some attack the organic matter directly; some attack the products; others could be dispensed with. In one well-known case there are three so-called nitrifying bacteria which work together: one decomposes proteid, with production of ammonia; the ammonia is converted into nitrous acid by a second bacterium; while the third converts the nitrous acid to nitric acid.

The drink known as kefir, which is so popular in the Caucasus, is produced by three organisms, which act on the milk of goats. The ginger-beer plant furnishes another example of symbiotic fermentation, the organisms being *Saccharomyces pyriformis* and *Bacillus vermiformis*. In Madagascar a disease of the sugar-cane has been traced to some organisms which also act jointly.

GLYCERIN IN NEPHROLITHIASIS.—By giving doses of 1 to 4 ounces by weight of glycerin, taken in one dose between meals, A. Hermann has obtained good results in certain cases of nephrolithiasis. A certain amount of pain in the kidneys was noticeable after taking the dose, but was not generally severe; this was sometimes followed by the passing of a calculus. Much mucus and pus were generally present in the urine excreted. The anodyne and stone-expelling properties of glycerin appear to be due more to its lubricating properties on the urinary passages than to any solvent action on uric acid. In no case was any toxic effect produced by the largest dose of glycerin, but, in some instances, headache or diarrhoea was complained of. To obviate these, the smaller dose should be first employed. In the treatment of 115 cases by this method, it proved efficacious in 60 per cent., in fifteen cases concretions were passed and improvement followed, in twenty-nine cases concretions passed without bringing about improvement, and in twenty-five cases improvement only was observed without the passage of any concretions.—*Med. Chron.* [3], 2, 235.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

'A MANUAL OF SURGERY,' by Charles Stonham, F.R.C.S., Eng. In three vols., 7s. 6d., 7s. 6d., 10s. 6d. net. (Macmillan and Co., London.)—This is a comprehensive and essentially practical work, giving a succinct account of modern surgical pathology, diagnosis, and treatment. The work covers the whole field of modern surgery, and is arranged in such a systematic and concise manner as to make it an easy and rapid work of reference for practitioners and students. The author has wisely divided the work into three volumes—Vol. 1, General Surgery; Vol. 2, Injuries; Vol. 3, Regional Surgery. Each volume is carefully indexed and profusely illustrated, there being about four hundred and fifty illustrations throughout the work, many of which are original. The whole work is quite in keeping with Mr. Stonham's high reputation as a surgeon and teacher, and the publisher's name is a sufficient guarantee of the style in which the volumes are produced.

'THE STORY OF LIFE'S MECHANISM,' by H. W. Conn. Pp. 219, with 50 illustrations. Price 1s. (London: George Newnes, Limited.)—The living body is here described as a machine, with the object of explaining the trend of recent biological science and of the advances made toward the solution of the problem of life. The story is related in a most interesting manner, and one can only marvel that the publisher is able to produce such a work at the price.

'PHOTOGRAPHY AT HOME,' being No. 8 of the *Photo-Miniature*. Price 6d. (London: Dawbarn and Ward, Ltd.)—The monthly magazine of photographic information known as the *Photo-Miniature* is a very high-class production, and should meet with a wide circulation among those who take up photography as more than a mere passing amusement. Each number of the publication is complete in itself, one single subject being dealt with therein, and the idea of devoting one number to hints on photography at home should commend itself to many.

'OUR PATENT LAWS,' by James Keith, C.E. Pp. 20. (London and Woking: Unwin Brothers.)—This is a reprint of an article on the subject of British patent laws, which was originally published ten years ago, with the object of helping to secure much-needed reforms in the Patent Office regulations. An article on "American competition" is now added.

'MATRICULATION DIRECTORY' for January, 1900. Pp. 142. (London: University Correspondence College.)—Everyone who has any idea of attempting to secure a university degree should make a point of writing for a copy of this extremely useful guide, which is sent free on application. Information is given respecting the choice of text-books, as well as solutions of examination papers which have been set at past examinations.

'TERPENELESS ESSENTIAL OILS,' by Ernest J. Parry, B.Sc. Pp. 20. (Pimor, Germany: Heinrich Haensel.)—This is a report on a well-known brand of terpeneless essential oils, interesting particulars regarding which are given at some length. The terpeneless oils of lemon, orange, lavender, caraway, pimento, and angelica are dealt with.

'GOLDEN RULES OF PHYSIOLOGY,' by I. W. Hall, M.B., Ch.B., and J. A. Menzies, M.D., C.M. Pp. 80. Price 1s. (Bristol: John Wright and Co.)—The sixth booklet in the "Golden Rules" Series is intended for the use of students who have already attended lectures on physiology and read a text-book, prior to entering for examination. It is hoped that such students will find it a stimulant, both to memory and to thought. An alphabetical arrangement has been adopted to facilitate reference.

Obituary.

DITTMAR.—On February 1, William Dittmar, managing director of the well-known firm, the Chemische Fabrik auf Actien vorm E. Schering, Berlin. Aged 48. Mr. Dittmar was well and favourably known in English chemical manufacturing circles, and has frequently occupied the chair at meetings of chemical manufacturers in this country. He would shortly have celebrated his twenty-fifth anniversary in the position he held in the factory, which he entered in October, 1875, after having for several years been with Mr. E. de Haen, of List. The loss to Messrs. Schering of such an eminent and influential leader will be felt very much, and his memory held in universal esteem.

ELLIOT.—On February 16, John Elliot, Chemist and Druggist, Hyde Hill, Berwick-upon-Tweed. Aged 84. Mr. Elliot was the oldest tradesman in the town, having been in business there about sixty years. He was born at Temple, near Dalkeith, where his father was forester to Lord Dunglass, and after a hard struggle in his early days he saved sufficient money to enable him to attend Edinburgh University. In 1840 he commenced business in Berwick with a capital of about £7. Twenty years later he was involved in a law suit with a Border farmer, who alleged that a number of his sheep had been poisoned by Mr. Elliot's sheep-dip, the action costing some £22,000. In spite of this loss he prospered, and became the owner of considerable property, being engaged in several other occupations in addition to that of chemist and druggist. Mr. Elliot was the oldest office-bearer of Wallace Green Presbyterian Church, Berwick. Last year Mr. Elliot and Mrs. Elliot, who is over 90 years of age, celebrated their golden wedding.

FRANCIS.—On February 9, at Hertford, Sarah Inglesby, widow of George Bagget Francis. Aged 72.

JOHNSTONE.—On February 6, James Johnstone, Chemist and Druggist, Carlisle. Aged 30.

RICH.—On February 15, George B. O. Rich, Chemist and Druggist, Mile End Road, London, E. Aged 56.

RUST.—On February 15, James Rust, Chemist and Druggist, Thaxted, Essex. Aged 58.

NEW REMEDIES.

GLAUCIUM LUTEUM IN GLYCOSURIA.—Marpmann some time back (*P. J.* [4], 8, 91) drew attention to the value of the extract of *Glaucium luteum* in the treatment of diabetes. Helt confirms this statement, and finds that after fourteen days of treatment with this drug, the blood of the patient becomes richer in hæmoglobin, and the number of the red corpuscles is increased in a degree which is not attained by treatment with iron. The dose is a teaspoonful of the fluid extract in the evening, or morning and evening, with beer or water. After three weeks of treatment the amount of sugar excreted is reduced, and, in many cases, disappears.—*Pharm. Post*, 32, 346, after *Südd. Apoth. Ztg.*

TROPACOCAINE FOR OPTICAL ANESTHESIA.—R. Hilbert states that the hydrochloride of tropacocaine is preferable to the same salt of cocaine for use in ophthalmic work. Although it rapidly produces a strong anæsthesia, it is absolutely free from irritant action; it acts as a slight antiseptic, it is more stable in solution, does not affect the arterial pressure, and does not dilate the pupil. At the same time, it is less toxic than cocaine. The solution employed consists of tropacocaine hydrochloride, 50 centigrammes; sodium chloride, 10 centigrammes; distilled water, 10 Gms.—*Nouv. Rem.*, 15, 554.

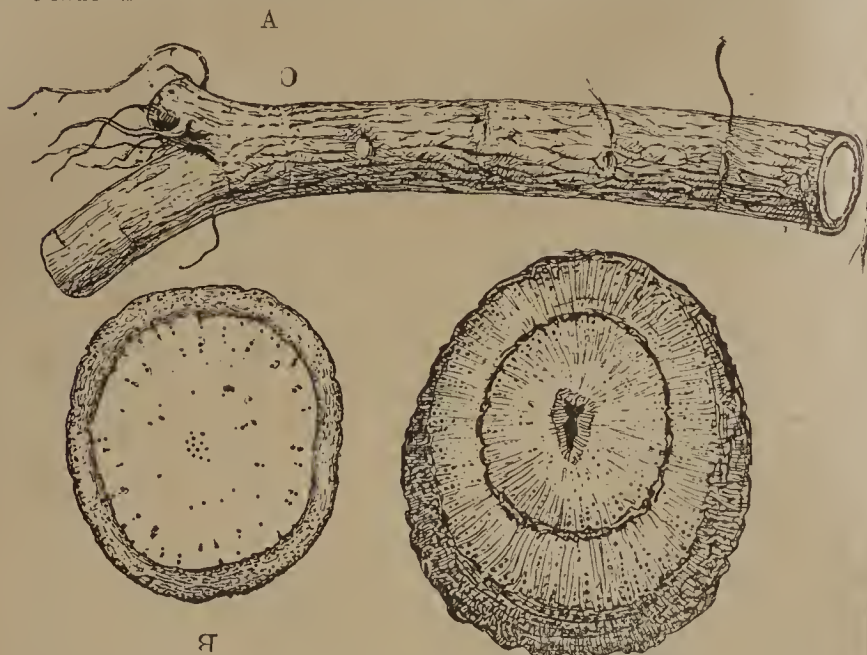
[E. Merck has shown (*P. J.* [4], 8, 431) that a similar but even weaker solution of the same ingredients remained perfectly stable for eighteen months.—*Ed. P. J.*]

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Belladonnæ Radix.

BELLADONNA ROOT is obtained from *Atropa belladonna*, Linn. (N. O. Solanaceæ), usually from plants cultivated in England or Germany. The stout, branching tap-root is collected in the autumn when about three or four years old, and carefully dried. Both old and exhausted roots are excluded by the official description. The medicinal properties of the root are the same as those of the leaves; the root is used in the preparation of Atropine, Extractum Belladonnæ Liquidum, and, indirectly, of Emplastrum Belladonnæ, Extractum Belladonnæ Alcoholicum, Linimentum Belladonnæ, Suppositoria Belladonnæ, Tinctura Belladonnæ, and Unguentum Belladonnæ

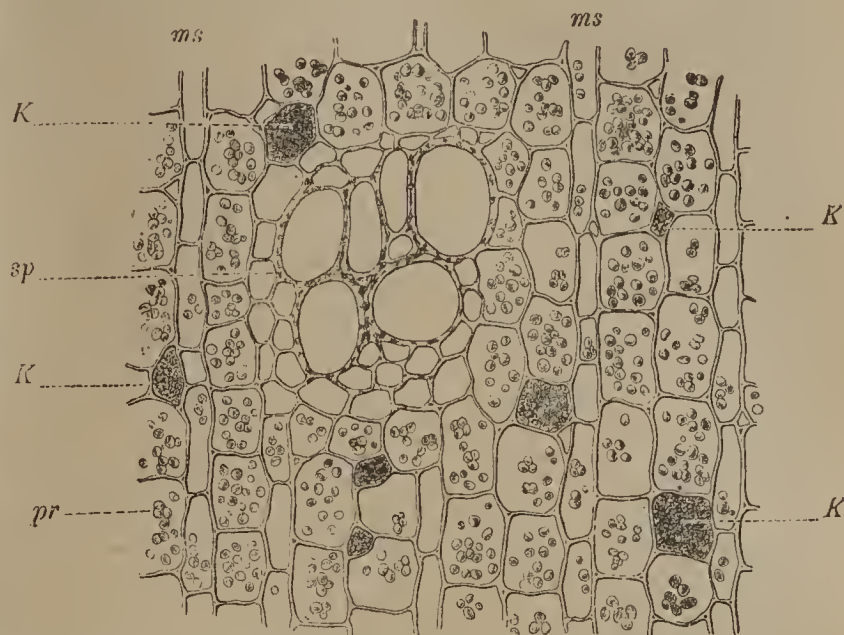


BELLADONNÆ RADIX.—A, transverse section of upper part of root; B, transverse section of young root; C, portion of young root, natural size.

CHARACTERS.—Belladonna root of good quality occurs in nearly cylindrical pieces, varying in diameter from 10 to 20 Mm., and in length from 15 to 30 Cm. or more. It is of a pale greyish-brown colour externally, finely wrinkled or striated longitudinally, and often marked with short transverse scars like liquorice and marsh-mallow roots. It differs from those, however, by frequently having a powdery or mealy surface, owing to the thin epidermis being easily abraded, and starchy matter beneath becoming detached. The transverse fracture also is short, and not at all fibrous, while the interior of the root is whitish, owing to the presence of small compound starch-grains in the parenchymatous cells of both bark and wood. Other cells are filled with numerous, very minute, sandy crystals of calcium oxalate, both those and the muller-shaped starch-grains being revealed under the microscope. A transverse section of a young root exhibits a greyish non-fibrous bark, separated by a dark cambium layer from the whitish wood, to which it adheres closely; near the cambium ring the wood contains numerous scattered dark groups of large porous vessels and fibres, which are seldom arranged in more than an indistinctly radiate manner, except near the crown of the root, where it passes imperceptibly into the rhizome and one or more rings of radiate yellowish wood may be found, as well as an evident pith.

NOTES.—The distinctive characters of belladonna root of good quality are its firm, plump appearance; the short, mealy fracture; the dark cambium line, and the manner in which the vessels and fibres are distributed. In badly dried roots the transverse fracture often appears brownish, hard, and resinous, and the epidermis is not easily abraded. Old roots are deficient in alkaloid, and should not be used; they are woody, and exhibit a prominently radiate structure. Roots collected in spring are also deficient in alkaloid; they contain sugar, and but little starch, their

outer surface is shrunken, and their interior dark-coloured and



BELLADONNÆ RADIX.—Transverse section of the woody portion showing (K) cells containing sandy crystals, (pr) parenchyma filled with starch, (sp) fibrovascular bundle, (ms) medullary rays. After Vogl.

spongy. Several roots may be mistaken for that of belladonna. That of elecampane contains oil glands, and the groups of vessels are inconspicuous; small pieces of scammony root have a very characteristic structure; marshmallow root has a fibrous bark, and radiate wood, in which scattered groups of vessels are not visible; liquorice root is yellowish internally, and possesses a characteristic sweet taste. The chief constituents of belladonna root are the alkaloid hyoscyamine and its isomer atropine. The fluorescent principle— β -methyl- α -esculetin or chrysotropic acid is also present, whilst traces of scopolamine may be found, and belladonnine and apoatropine appear to be formed in the course of isolating the more important bases. The total alkaloid present varies, as a rule, between 0.4 and 0.6 per cent., but as much as 1.0 per cent. has been found. The plant is most active when about four years old, and wild specimens are somewhat richer in alkaloid than cultivated ones.

Benzoinum.

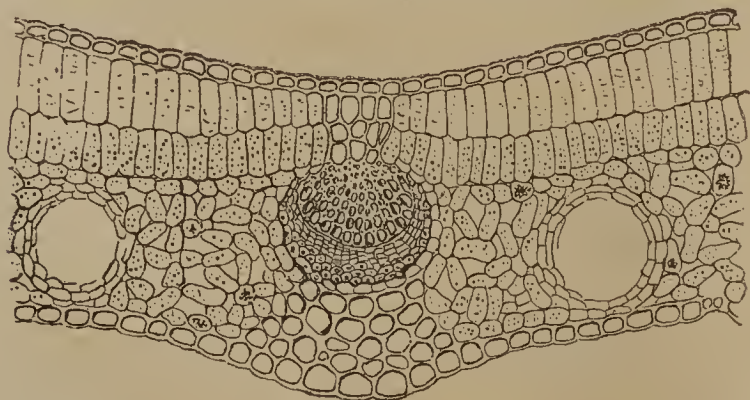
BENZOIN is a balsamic resin obtained from *Styrax benzoin* Dryand. (N.O. Styraceæ), and probably other species of *Styrax*. The only tree definitely known to produce the resin is indigenous to Java and Sumatra, and yields the variety known as Sumatra benzoin. As the tree does not at any period of its development contain special secreting cells or ducts, the resin is probably a purely pathological product, the formation of which may be induced by injury to the bark of the tree, such as is caused by the benzoin collectors hacking it with an axe. The parenchymatous cells of the medullary rays appear to become resinified first; the contents and walls of the cells of the bast parenchyma and wood are attacked next. The fluid resin exudes from the incisions in the bark or accumulates between the bark and the trunk, and gradually hardens. When quite firm the benzoin is collected and sold to Chinese traders, who soften it, by the aid of heat, and pack it in oblong boxes, together with a varying proportion of vegetable debris, and exported from the west coast of Sumatra (Padang). Siam benzoin, which is a much superior article, is collected from an unknown species of *Styrax*, growing in the province of Luang Prabang, on the Mekong River. Other varieties are the non-official Penang and Palembang benzoin, both of which are collected in the south-east districts of Sumatra. Preference should be given to Siam benzoin for making pharmaceutical preparations, as the Sumatra variety rarely answers the B.P. requirements. Benzoin possesses expectorant, styptic and anti-septic properties; it is used for preparing Acidum Benzoicum, Adeps Benzoatus, Tinctura Benzoini Composita, and Unguentum Cetacci

CHARACTERS.—Siam benzoin may occur in flat or curved (concavo-convex) tears, or in masses. The tears vary considerably in size, but rarely exceed 5 Cm. in length and 12 Mm. in thickness. The shape of the curved pieces is due to the resin accumulating between the bark and trunk of the tree. The tears are brittle but soften when warmed and, when further heated, give off fumes of benzoic acid. They are opaque and milky-white internally, but they are usually covered with a coating of yellowish or reddish-brown resin, which increases in thickness with age, probably as the result of chemical changes brought about by oxidation. Block Siam benzoin consists of small tears, more or less closely cemented together by a glassy reddish-brown, transparent or translucent resin, the proportion of which increases with age. Siam benzoin is characterised by its agreeable odour, recalling that of vanilla, and is almost entirely soluble in solution of potassium hydroxide, or in 5 parts of 90 per cent. alcohol, yielding only about 1 to 2.5 per cent. of insoluble residue, and not more than 1.5 per cent. of ash. Sumatra benzoin occurs only in masses consisting of white tears imbedded in a dull reddish-brown or greyish-brown opaque resin, and having an odour recalling that of storax. It is soluble in 90 per cent. alcohol, to the extent of 70 to 80 per cent. only, but should not yield more than 1.5 per cent. of ash. Penang benzoin also has the storax odour, and is sometimes called Sumatra, but it is easily distinguished by its fused and glassy appearance when fractured. Palembang benzoin is a mixture of resin and woody matter, and is probably of similar origin to Penang benzoin.

NOTES.—The distinctive characters of Siam benzoin are the bold tears and vanilla-like odour; of Sumatra benzoin, the dull appearance of the resin in which the tears are imbedded, the storax-like odour, and the presence of cinnamic acid. Siam benzoin is said to contain no cinnamic acid, but about 38 per cent. of benzoic acid, partly free, and the remainder combined with the two alcohols—benzo-resinol and sia-resinotannol—of which the resin mainly consists; it also contains 0.15 per cent. of vanillin, and 0.3 per cent. of an oily, aromatic liquid—probably an ester of benzoic acid. Sumatra benzoin yields about 18 per cent. of benzoic acid, and 20 per cent. of cinnamic acid, both of which are partly free and partly combined with two alcohols—benzo-resinol and resinotannol; it also contains 1 per cent. of vanillin, and traces of benzaldehyde, styrol, styracin, phenyl-propyl cinnamate, etc., all of which tend to modify its odour. The presence of cinnamic acid is indicated by the evolution of benzaldehyde (bitter almond odour) when a little powdered Sumatra benzoin is boiled in acidulated solution of potassium permanganate.

Buchu Folia.

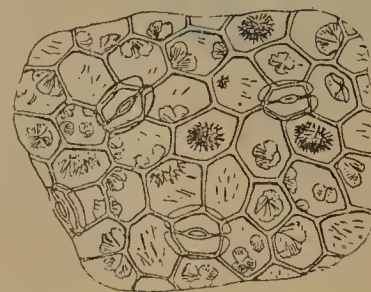
BUCHU LEAVES, the "short buchu" of commerce, are obtained from *Barosma betulina*, Bart. and Wendl. (N.O. Rutaceæ), a small shrubby plant which is indigenous to Cape Colony. They are collected while the plant is flowering and fruiting, then dried, and



SECTION OF BUCHU LEAF, showing the sub-epidermal mucilaginous cells swollen in water. After Planchon and Collin.

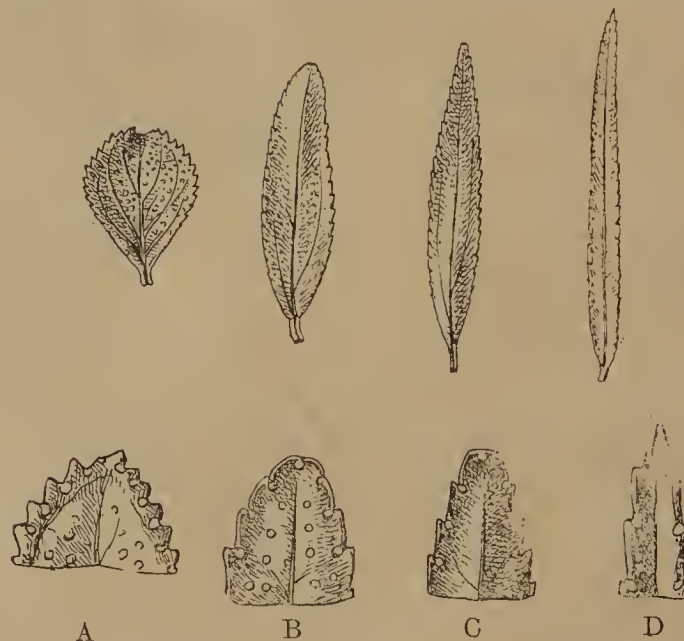
exported from Cape Town. The leaves possess tonic, stomachic, diuretic, and diaphoretic properties; they are used for preparing Infusum Buchu and Tinctura Buchu.

CHARACTERS.—Buchu leaves are roundish (rhomboid-obovate) in shape, from 12 to 20 Mm. long, pale green or yellowish-green in colour, rigid and brittle when dry, but cartilaginous when moist. The surface of the leaves is free from hairs (glabrous), finely



LOWER EPIDERMIS, showing crystals of hesperidin and sphaeraphides. After Planchon and Collin.

wrinkled below, and with small wart-like prominences above owing to the elevation of the epidermis by subjacent oil-glands. The margin shows numerous minute sharp teeth (denticulate), and the apex is blunt and recurved. On examination with a lens, by transmitted light, numerous oil-glands are distinctly visible, especially near the margin of the leaves, one being situated near the base of each indentation. A transverse section of a leaf exhibits an epidermis of five or six-sided tabular cells, containing yellow amorphous masses or spherocrystals of hesperidin; the thick, inner walls of those cells are rich in mucilage, and swell in the presence of water. The odour of buchu, which is particularly marked when the leaves



LEAVES, natural size, and tips of same, enlarged. (A) *Barosma betulina*; (B) *B. crenulata*; (C) *B. serratifolia*; (D) *Empleurum serrulatum*.

are crushed, is reminiscent of a mixture of peppermint and black currant; the strong and aromatic taste is due to the presence of a volatile oil.

NOTES.—The distinctive characters of buchu leaves are their roundish shape and recurved apex, the distribution of the oil-glands, and the characteristic odour and taste. Bearberry leaves are spoon-shaped, rounded at the apex, and destitute of oil-glands. The leaves of *Empleurum serrulatum* and of other varieties of buchu differ from those of *B. betulina* in shape, margin, distribution of oil-glands, absence of diosphenol, etc. Buchu leaves should yield about 1.45 per cent. of volatile oil, containing about 30 per cent. of the crystalline substance—diosphenol—which is probably the most important constituent of the drug. Other constituents of the leaves are the mucilage and hesperidin, a yellow crystalline substance which forms the spherocrystals, but has no marked physiological action.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

PHOTOGRAPHS OF BRITISH PLANTS.

J. C. Shenstone exhibited at a recent meeting of the Linnean Society a collection of seven hundred photographs of British flowering plants, to show what could be accomplished by means of the camera in the direction of botanical illustration. He contended that photography was the only means by which the lines and masses of our flowering plants, as truly characteristic as the less subtle characters by means of which botanists group and arrange plants into orders, genera, and species, could be readily reproduced. He explained the various technical processes and apparatus necessary for successful plant photography, and alluded to the difficulties inseparable from the photography of plants in their natural habitats, etc. His remarks were illustrated by means of lantern slides.

APIGENIN, APIIN, AND VITEXIN.

A. G. Perkin points out that, by the action of nitric acid on apigenin under varied conditions, four nitro-derivatives have been obtained: mononitro-apigenin, $C_{15}H_9O_5(NO)_2$, orange-yellow needles, m. p. about 302° , somewhat soluble in alcohol; trinitro-apigenin (a), $C_{15}H_7O_5(NO_2)_3$, yellow needles, m. p. about 296° ; trinitro-apigenin (b), yellow needles, m. p. $245-246^\circ$, and tetranitro-apigenin, $C_{15}H_6O_5(NO_2)_4$, almost colourless needles, m. p. $243-244^\circ$. With the exception of the first mentioned, all dissolve with difficulty in the usual solvents. In preparing the mononitro-compound, dinitro-*p*-hydroxybenzoic acid was obtained as a decomposition product, a further proof that apigenin does not contain a catechol group (*Trans. Chem. Soc.*, 1897, **71**, 805). Tetranitro-apigenin appears to be identical with the compound, $C_{15}H_6O_5(NO_2)_4$, obtained from vitexin (*Trans. Chem. Soc.*, 1898, **73**, 1026), and as the decomposition products of both colouring matters are identical, vitexin must be a derivative of apigenin. The formulæ $C_{21}H_{20}O_{10}$ and $C_{21}H_{19}O_{10}(C_2H_3O)_7$ are now assigned to vitexin and acetylvitexin, and it is suggested that vitexin is a stable glucoside of apigenin, and that a like constitution may also apply to scoparin (*Proc. Chem. Soc.*, 1899, **15**, 123), which, according to this view, is a glucoside of a luteolin monomethyl ether. Apiin, $C_{27}H_{32}O_{16}$, the glucoside of apigenin occurring in *Apium petroselinum*, is not converted by dilute nitric acid into nitro-apigenin, but into nitro-apigetrin, $C_{21}H_{21}O_{11}NO_2$, a yellow, crystalline powder very sparingly soluble in the usual solvents. This is the nitro-compound of a new glucoside, apigetrin, which differs from apigenin in containing but one sugar group. By prolonged digestion with dilute hydrochloric acid, it yields the above mononitro-apigenin.—*Pr. c. Chem. Soc.*, **16**, 44.

CONVERSION OF PHENOLIC ACETATES INTO BENZOATES.

F. Bodroux finds that phenyl acetate may be converted, almost quantitatively, into benzoate, at ordinary temperatures, by the action of benzoyl chloride and zinc dust. Benzoyl chloride, 15 Gm., is introduced into a capacious flask, and a few Gm. of zinc dust added. The mixture gradually develops heat, and in a few minutes violent reaction takes place, with the abundant evolution of hydrochloric acid. When reaction ceases, the product solidifies in a few hours into a crystalline mass of impure phenyl benzoate. This solidification may be hastened by agitating with a dilute solution of potash. Recrystallised from dilute alcohol, phenyl benzoate separates out in large prismatic crystals, melting at $69^\circ C$. The same reaction may be obtained with the acetic esters of thymol, and of paracresol, but beta-naphthol acetate does not undergo the same conversion.—*Bull. Soc. Chim.*, **23**, 54.

NEW SALINE INJECTION MATERIAL.

By employing a minute quantity of sodium saccharate as an ingredient in saline injection solutions, A. Schiekling finds that the value of the injection is greatly increased, since that salt combines with the free carbon dioxide of the blood, being converted into sodium carbonate and sugar. The toxic gas is thus eliminated, as the course of the natural physiological process. The proportion used is 0.03 per cent. of sodium saccharate, and 0.7 per cent. of sodium chloride. With this injection fluid, good results were obtained even where the ordinary physiological salt solution had failed, and no deleterious effects were observed to follow its employment. Care was taken that the sodium saccharate was pure, containing neither free sodium hydrate nor free sugar.—*B.M.J. Epit.* 1, 1900, 19, after *Therap. Monats.*

CUPRENE, A NEW HYDROCARBON.

By passing a current of pure acetylene gas over reduced copper or bright copper filings, in a tube heated at first to about $180^\circ C$, after a time the metal is observed to swell, and eventually to entirely fill the tube; if a little of this substance be spread in a thin layer in a tube and again heated to $170-250^\circ C$ in a current of acetylene, a further great increase of volume takes place, a yellow bulky solid is formed, consisting of matted filaments, resembling amadou in appearance. This is the new hydrocarbon, which, according to Paul Sabatier and J. B. Senderens, has the empirical formula C_7H_8 , and has been named cuprene. It is practically non-volatile, decomposes above $400^\circ C$, yielding empyreumatic products, and leaving a solid carbonaceous residue. Cuprene is insoluble in all solvents; sulphuric acid is without action upon it in the cold, nitric acid slowly attacks it, forming nitro-compounds.—*Comp. rend.*, **130**, 250.

COLOURING PRINCIPLES OF TANNIN MATTERS.

A. G. Perkin states that the colouring matter of the leaves of *Arctostaphylos uva-ursi* (bearberry) and *Hæmatoxylon campechianum* (logwood) is quercetin, which is accompanied by a second substance, probably myricetin, to which the green colour of its alkaline solutions are due. Gallotannic acid occurs in some quantity in the latter leaves. The leaves of *Rhus metopium* contain gallotannin, myricetin, and a trace of quercetin, but the stem of this plant, unlike *R. cotinus*, and *R. rhodanthema* is devoid of colouring matter. The sparing solubilities of acetylmyricetin and dibromoquercetin have been employed for the separation of myricetin and quercetin. The leaves of *Robinia pseudacacia* contain a feeble colouring matter, acacetin, $C_{16}H_{12}O_5$, which yields an acetyl derivative, $C_{16}H_{10}O_5(C_2H_3O)_2$, colourless needles, m. p. $195-198^\circ$, and on fusion with alkali phloroglucinol, *p*-hydroxybenzoic acid, and a trace of protocatechuic acid. Acacetin contains one methoxyl group, on removal of which a colouring matter, $C_{15}H_{10}O_5$, results, having the reactions of apigenin. It is thus probably an apigenin monomethyl ether. The leaves of *Myrica gale* and *Coriaria myrtifolia* contain respectively myricetin and quercetin. Although a relationship frequently exists between the tannin and the colouring matters of the same plant (*Trans. Chem. Soc.*, 1897, **71**, 1138), there is no rule on this point, for exceptions are somewhat numerous.—*Proc. Chem. Soc.*, **16**, 45.

NOMENCLATURE OF EGG ALBUMINS.

A. Panormof finds that the number of different albumins contained in the eggs of birds is considerable. He therefore proposes to distinguish these by a definite system of nomenclature, the name being derived from that of the animal, while the suffixes "in," "inin," and "inidin," indicate respectively the albumins insoluble, sparingly soluble, or readily soluble in ammonium sulphate solutions. Thus, pigeons' eggs contain an insoluble amorphous albumin "columbin," and sparingly soluble crystalline albumin "columbinin."—*Bull. Soc. Chim.*, **24**, 93, after *Journ. Soc. Physiol. Chim.*

THE TANNIN VALUE OF MALABAR KINO.

BY DAVID HOOPER.

Among the exudations belonging to the class of kinos, the most important is that obtained from *Pterocarpus marsupium*, a tree more abundant than anywhere else in the Malabar district of the Madras Presidency. Its value depends upon its comparative purity and its great solubility in water and in alcohol, and, for these reasons, the drug has for several years held a place of honour in the British and other Pharmacopœias. The astringency of kino is universally acknowledged, and kino-tannic acid has been shown to be the principal ingredient, but there is an absence in chemical and pharmaceutical works of experimental data having for their object the standardisation of the commercial drug and its preparations.

The only recent attempts to determine the tannic acid in kino were performed by Messrs. Will and Branch.* The results were obtained by a potassium permanganate process, which is now almost entirely superseded; and the absence of any reference to the amount of water in the samples is an important omission in the paper. At any rate the figures, representing one half the drug as tannic acid, have not been confirmed, and are not in accord with my experience of its composition.

In Southall's 'Materia Medica,' edited by Mr. John Barclay, the percentage of kino-tannic acid is returned at from 70 to 75 per cent., but it is not clear from the context whether these proportions include gallic acid, kinoic acid and pectin.

The subject attracted my attention more than two years ago when a decoction of the bark of *Pterocarpus marsupium* was sent from Coorg for its valuation as a tan liquor. The solid matter of the red coloured decoction consisted almost entirely of pure tannic acid. Following up the inquiry, a specimen of the bark of the tree was obtained from a reliable source, and this was submitted to examination. The powdered air-dried bark yielded to water, at 60° C., 7 per cent. of extract. This was a low proportion, but on treating it with hide powder the percentage of tannin was found to be 77.1.

When kino exudes from the tree it is a thick red liquid of such a strength that 100 C.c. affords 50 Gm. of dry kino. During the process of evaporation the drug breaks up into the peculiar angular fragments by which it is known in commerce. The hide powder process was used in the determination of the following nine samples of kino. They were all collected by Forest officers, and although not all from Malabar, they were obtained from the official botanical source.

	Water.	Tannin.	Non-tannins.	In-soluble.	Ash.	Tannin in Dry Substance.
1	15.3	79.1	4.1	—	1.5	93.2
2	14.6	82.4	1.6	0.4	1.0	96.5
3	14.9	78.4	4.6	1.0	1.1	92.1
4	15.7	79.0	3.8	—	1.5	93.7
5	14.7	79.5	4.2	—	1.6	93.2
6	15.7	79.6	1.1	1.3	2.3	94.4
7	13.5	76.4	4.0	4.0	2.1	88.3
8	15.1	70.0	11.5	1.5	1.9	82.4
9	12.2	70.4	10.6	5.1	1.7	80.2

The astringent character of Malabar kino is very marked according to these results. Eliminating the last three, which were derived from the Central Provinces, and collected as an experiment, the yield of tannic acid in the dry substance is over 90 per cent.

The only quantitative test for kino in the present British Pharmacopœia, that not less than 80 per cent. should be soluble in boiling water, is quite consistent with the above results. The 80 per cent. of extractive matter, together with 15 per cent. of water natural to the kino, would leave a margin of 5 per cent. for insoluble impurities.

* *Chemist and Druggist*, July 9, 1898, p. 57.

The above tests were made on fresh specimens of dried juice, and it is probable that this accounts for the superiority of the products just reported upon. The gelatinisation of tincture of kino is supposed to be due to a molecular alteration of the tannic acid, whereby it becomes insoluble in diluted alcohol.

An insoluble tannin is similarly liable to form in the kino on prolonged storage or exposure in a dry state.

THE MATERIA MEDICA OF THE SOCIETY'S MUSEUM.*

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

Curator of the Pharmaceutical Society's Museum.

SENNA LEAVES.

Cassia acutifolia, Del.—The specimens in the Museum represent to some extent the history of the drug in English commerce during the last fifty years. In 1842 the quality of the drug was so inferior, and it was so frequently adulterated with argel leaves, that a protest was made by Mr. Jacob Bell (*Pharm. Journ.* [1], 2, p. 63, and as a result of Dr. Christison's experiments (which showed that argel leaves caused griping without being purgative) the use of Alexandrian senna was almost given up in Edinburgh, the Tinnevely being substituted. A threat to boycott the Alexandrian drug by refusing to purchase it led to an improvement in the quality which, with a few intermissions, has continued to the present day, the senna being now sorted to a certain extent before leaving the Egyptian ports of shipment.

The Museum specimens consist of:—(1) Alexandrian senna as imported in 1842, of very inferior quality, containing discoloured leaves, leafstalks, pods, argel leaves, dirt, etc. (2) Alexandrian senna of 1899 importation. (3) Ditto, with the dust removed, or "Dust out." (4) Ditto, with the small and broken leaves removed by sifting or screening. (5) Ditto, "Hand-picked," consisting of the finest leaves. The hand-picking is usually done at home by the children of the employes at the wholesale houses. The term "Elect" is sometimes applied to the finest samples of the drug after one or more siftings into leaves of different sizes, but which have not been hand-picked. (6) Small senna removed from No. 4. (7) Argel leaves, argel flowers, and pods removed from No. 1. The argel leaves are now rarely or only at long intervals found in Alexandrian senna, and the pods and flowers not at all. The leaves appear to be added at an Egyptian central depôt for the purpose of giving the senna a better odour, since they are bitter, not purgative, and do not cheapen the senna, *P.J.* [1] 8, p. 400; 9, p. 25-31; [2] 10, p. 196. The argel leaves are easily recognised by their minutely wrinkled surface and the equal base of the leaf, senna leaves being always unequal at the base and having more prominent lateral veins than the argel leaves, and being thinner in texture. Of the other so-called adulterants none practically occur. Specimens of each, viz., *Tephrosia apollinea*, *Colutea arborescens*, *Coriaria myrtifolia*, and *Globularia alypum* are to be found in the Reference Museum and in the Society's Herbarium. *Globularia alypum* is said to have appeared once in Germany as a substitute as "Wild Senna." *Pharm. Journ.* [1] 16, p. 426. The leaves of *Colutea* and *Coriaria* have never been noticed in senna in this country, and *Tephrosia apollinea* has only been found as an extremely rare accidental mixture to the extent perhaps of a leaflet or two in 1lb. of senna. The histological differences of all these leaves are given in the *Pharm. Journ.* [4] 2, p. 481-484, by E. Latour. The relative value of the different grades of Alexandrian senna is as follows:—The sifted and "elect" senna are about twice the value of the crude drug, and the hand-picked three-and-a-half to four times its value. The siftings, or small senna, is worth about half the value of the crude drug. Judging from the prices, the powdered drug is probably made from the sifted drug or from the siftings, according to price. (8) Senna pods. The use of senna pods, although well known to the Arabian and mediæval physicians, who preferred them

to the leaves ('Pharmacographia,' 2nd ed., p. 217), has only been revived of late years (*Lancet*, July 27, 1889, p. 164). The infusion is said to be milder in odour and flavour and slower in its action, but equally effective, *Pharm. Journ.* [3] 20, pp. 164, 281, 394.

According to the Consul at Suakin senna is there sorted into picked leaves, broken leaves, and pods. The pods are exported chiefly to Trieste, and are used for imparting a gloss to silk fabrics. Although the senna plant grows wild freely all over the Eastern Soudan, the best quality comes from near Rowayyah, and inferior kinds from Sinkat and Erkoweit, *Pharm. Journ.* [3] 24, p. 10.

CASSIA ANGUSTIFOLIA, Vahl.—This plant yields the cultivated or Tinnevelly senna, the Bombay or East Indian senna, and the Arabian, Mecca, or Aden senna, although sometimes the last name is given to the leaflets of another species, *C. holosericea*.

The specimens in the Museum consist of:—(1) East Indian senna from Dr. Pereira's collection, consisting of leafstalks, leaflets, and discoloured leaflets; it is a very inferior drug. (2) Tinnevelly "hand-picked," consisting of the finest leaflets of the cultivated plant, free from seed, stalks, and discoloured leaflets. (3) "Aden senna, small," imported in 1898, of excellent quality, resembling Tinnevelly, but consisting of smaller and narrower leaflets, free from stalks and discoloured leaflets. (4) Pods. Besides these, which are all commercial specimens, there are in the Reference Museum, (5) a specimen of Arabian senna, containing stalks and pods and discoloured leaflets, from Aden, presented by D. Vaughan, and of (6) Somali or African senna, resembling Bombay senna in the longer leaflets, green and discoloured, and leafstalks. The hairs are said to be more numerous and the epidermal cells smaller in Alexandrian than in E. Indian senna, and the stomata round in the Alexandrian but oval in the E. Indian senna, *Pharm. Journ.* [4] 5, p. 5. Usually four to six grades of Tinnevelly senna are kept by wholesale druggists, differing in value according to size, colour, freedom from leaflets, etc.; they are obtained by sifting the leaves through sieves of different meshes.

CASSIA HOLOCERICEA, Fresenius.—The leaflets of this species, which are shorter, smaller, and more obtuse, and much more hairy than those of Alexandrian senna, have occasionally been met with in Arabian and Alexandrian senna, but in March, 1892, were offered in London in a separate bale, with Mecca senna, but fetched only a nominal price. Mr. J. Moss, however, experimented with them, and found them equally effectual with the Alexandrian drug, but that they did not produce griping, *Pharm. Journ.* [3] 22, p. 874.

CASSIA OBOVATA.—The leaflets of this species were at one time mixed with the Alexandrian senna, and were official in the British Pharmacopœia in 1867, but do not now occur in it. They are occasionally offered in the London market. The specimens in the Museum include: (1) Leaflets imported as Suez senna in 1899. (2) Senegal senna, from Dr. Pereira's collection. (3) Cultivated senna from Barcelona. The leaflets vary considerably in size in these specimens, the Senegal senna having leaflets nearly twice, and the Barcelona nearly four times as large as the Suez senna. The leaflets of *Cassia obovata* have the reputation of being less active than those of *C. acutifolia*. In powder they can be recognised by the papillose cells of the lower epidermis, *Pharm. Journ.* [4], 9, pp. 470-478. Other specimens of this species from Cape Colony, Porto Rico, and from Madras occur in the Reference Museum. It is interesting as being stated to be the original senna introduced by the Arabs into Europe, and cultivated in the sixteenth century in Italy, France, and Spain. The only other species in the museum, of senna used as a purgative, is the *Cassia marilandica*, a specimen of which is in the collection of the United States materia medica in the Reference Museum. The leaves of this species are not unlike those of *C. obovata*, but are thinner, and are characterised by the upper epidermis having no stomata, epidermal cells with sinuous walls, and by the absence of hairs, *Pharm. Journ.* [4] 2, p. 484, Fig. 17.

THE RARER COPAIBA BALSAMS AND MECCA BALSAM.*

BY K. DIETERICH.

Angostura, Bahia, Cartagena, Maracaibo, Maturin, East Indian (Gurjun), Para, West African (Illurin), and Mecca balsams have been examined. The method of analysis adopted was as follows:—

(1) *Determination of acid number.*—1 Gm. of balsam is dissolved in 30 C.c. strong alcohol and titrated with semi-normal alcoholic potash with phenol-phthalein as indicator. The number of C.c. semi-normal KOH \times 28 = acid number.

(2) *Determination of saponification number.*—1 Gm. of balsam is treated in a flask with 20 C.c. semi-normal alcoholic potash and 50 C.c. petroleum ether (boiling point, 60-70° C). This is allowed to stand for 24 hours at ordinary temperatures and then titrated, after dilution with strong alcohol (not with water), with semi-normal H₂SO₄, phenol-phthalein being the indicator used. The number of C.c. semi-normal KOH used up \times 28 = saponification number.

(3) *The ester number* is obtained by subtracting the acid number from the saponification number.

The following are the results obtained:—

ANGOSTURA BALSAM, three samples.

	(1)	(2)	(3)
Acid number	{ 79.52 80.70	{ 75.87 76.32	{ 83.00 83.50
Ester ,,	{ 16.24 17.38	{ 16.07 16.19	{ 8.36 7.84
Saponification number	{ 95.76 98.08	{ 91.94 92.51	{ 91.36 91.44

BAHIA BALSAM, TWO SAMPLES.—The first was undoubtedly pure, the second probably adulterated.

	(1)		(2)	
Acid number	64.19	64.25	81.09	81.27
Ester ,,	1.76	2.60	5.08	6.05
Saponification number	65.95	66.85	86.17	87.23

CARTAGENA BALSAM, three samples.

	(1)		(2)		(3)	
Acid number	49.00	49.4	62.30	62.67	87.75	88.23
Ester ,,	56.20	57.17	41.15	40.90	4.55	4.67
Saponification number	105.20	106.57	105.45	103.57	92.30	92.90

MARACAIBO BALSAM, two normal samples and one (3) five years old.

	(1)		(2)		(3)	
Acid number	91.10	92.43	77.16	77.30	90.82	92.03
Ester ,,	7.70	6.39	9.85	11.08	18.26	17.59
Saponification number ..	98.80	98.82	87.01	88.38	109.08	109.62

MATURIN BALSAM.

	(1)	(2)
Acid number	78.52	82.73
Ester ,,	12.86	9.19
Saponification number	91.38	92.02

EAST INDIAN (GURJUN) BALSAM, two samples.

	(1)		(2)	
Acid number	10.8	10.98	10.64	10.77
Ester ,,	14.00	14.37	14.83	15
Saponification number	24.80	26.35	25.47	25.77

PARA BALSAM, two samples.

	(1)		(2)	
Acid number	49.47	49.92	61.62	61.82
Ester ,,	15.15	18.06	9.06	8.89
Saponification number	64.62	67.98	70.68	70.75

WEST AFRICAN (ILLURIN) BALSAM, one sample.

Acid number	58.74	59.33
Ester ,,	9.62	9.62
Saponification number	68.36	68.95

* From the *Pharmaceutische Centralhalle*, 40, 311. Abstract.

MECCA BALSAM.—Two samples were examined, the first pure and fresh, the second old and resinified, smelling of turpentine.

	(1)		(2)	
Acid number.....	39.84	39.96	60.77	61.37
Ester „	101.10	101.39	81.90	82.66
Saponification number..	140.94	141.35	144.67	145.03

The first balsam was a very thin fluid of very pleasant odour, and clear yellow colour, the second was a cloudy, thick fluid, and had an unpleasant turpentine odour.

COMMERCIAL CALCIUM LACTOPHOSPHATE.

BY THOS. S. BARRIE.

Lactophosphate of calcium is usually obtained in lumpy masses somewhat resembling a very coarsely granulated effervescent citrate. It is very acid, hygroscopic and dissolves partially in water leaving a more or less abundant residue. In the course of certain experimental work it became necessary to examine carefully the sample in stock, and afterwards two other samples were obtained and examined also. A qualitative examination was first made, when each sample was found to be a mixture of calcium phosphate, calcium lactate, and free lactic acid. The free acid only dissolved part of the phosphate, the remainder of the phosphate constituting the residue already referred to. That the acidity was due to lactic acid was proved by extracting same with ether and allowing the latter to spontaneously evaporate. The residue was oily in appearance, was acid to taste, dissolved readily in water and gave odour of aldehyde when treated with potassium permanganate.

The quantitative examination included the following, viz.:—Determination of acidity reckoned as lactic acid; determination of total calcium phosphate; determination of total calcium oxide; determination of hygroscopic water.

The free acid was determined by normal soda solution, with and without the removal of the insoluble phosphate. Concordant results were obtained in both cases. The total calcium phosphate was determined by standard solution of uranium nitrate. It was at first considered necessary to separate the calcium phosphate from the other substances present; but, as a result of many experiments, it was seen that very closely agreeing figures could be obtained without separation at all. The total calcium oxide was determined by precipitation as oxalate from acetic acid solution and titration of the well-washed oxalate with normal potassium permanganate. The hygroscopic water was determined by exposing in a desiccator over sulphuric acid for forty-eight hours. In the accompanying table the percentage of calcium lactate is shown. This value was obtained by subtracting from the total calcium oxide the amount in combination as phosphate and calculating the remainder into calcium lactate. The third sample was received wrapped in paper only, and was kept in the desiccator some days before examination.

	No. 1.	No. 2.	No. 3.
Free Lactic Acid.....	44.8	40.8	35.8
Calcium Phosphate.....	12.3	17.0	15.1
Calcium Lactate	41.0	42.2	49.9
Moisture.....	1.8	0.6	—
	99.9	100.6	100.8

COLOUR-TEST FOR SAFFRON.—Cæsar and Loretz advocate as a test for saffron that 0.3 Gm., macerated with 300 C.c. of water for several hours, should give a solution, which, when diluted 1:1,000 should give a distinct colour. This test requires a greater tinctorial power than that of the Ph. G.—*Pharm. Cent.*, 40, 611.

A PRESCRIPTION RECORD.*

BY R. J. WESTERMAYR.

I submit a sample page, reduced in size, of my prescription record, that my system may be readily understood in its simplicity. I have used it now for four years and would not do without it; it has served its purpose admirably, and every day attests over again its manifold practical value.

Annual Number.	Date.	Number of Prescription.	Name of Physician.	Nature of Prescription.	Prescriptionist's Initial.	Value.	Total Value to Date.	
7046	Jan. 1	47344	Miles.	Salve.	W.	45	\$2113.80	
47	"	23	Bard.	Mixture.	W.	35		
48	"	24	Lyon.	Eye drops.	W.	25		
49	"	23444	Miles.	Suppos.	R.	50		
50	"	25	Lathrop.	Liniment.	R.	45		
51	"	26	"	Pills.	R.	25		
52	"	27	"	Wash.	R.	50		
53	"	28	"	Ear drops.	W.	25		
54	"	41340	Morrow.	Paint.	W.	20		
55	"	41342	"	Plaster.	W.	25		
56	"	41341	"	Tablet.	W.	50		
57	Jan. 2	29	Martin.	Capsules.	B.	50		
58	"	30	"	Inhalant.	L.	25		4.70
								\$2118.50

On January 1 of every year I begin an annual record of prescriptions, giving each prescription, whether original or refilled, its "annual" number apart from the regular prescription number which it of course bears, as do all prescriptions. These "annual" numbers are put in the first column of my record, as will be seen by referring to the accompanying illustration; the date goes in the second column; the regular prescription number in the third; the name of the physician in the fourth; the nature of the prescription—that is, whether liniment, eye drops, or pills—in the fifth; the initial of the compounder in the sixth; the price in the seventh; and the total daily prescription receipts in the last. Whenever a prescription is compounded, whether for the first or successive time, it is *always* registered in this manner. It takes but a minute, and is of the greatest value.

Among other things, this record shows you at a glance how many prescriptions you have prepared since the first of the year up to date. By comparing this number with the number compounded during the same time the year before, you can tell at once whether your prescription business is falling off or increasing. You can tell how the business of the two years compares in money values. You can tell, if you choose, what the relation is between original and refill prescriptions.

Should a customer want a prescription repeated, but does not remember its number or the date of its compounding, he can generally give at least some idea regarding the price, the doctor's name, the approximate time, and whether liniment, pills, salve, or eye drops. With this aid the chances are that you will locate the prescription by running over the record; if not at the first trial, then almost surely at a second one. I know from my long experience that I lose but very few prescriptions from being unable to locate them.

Then, too, the data as to prescriptionist's identity, the price, etc., etc., are often useful when the price is in dispute or when any one of a number of other things may be in question. This furnishes an absolute record of every detail concerning not only original prescriptions, but every refilled prescription as well.

At first sight the system may look complex, and perhaps it may seem that it consumes considerable time; but upon adoption it

* From the *Bulletin of Pharmacy*.

will be found most simple indeed, and to consume no time worthy of mention.

For this record I use an ordinary single-entry account book, simply making one extra column by drawing the upright line between "number of prescription" and "name of physician."

PRACTICAL NOTES AND FORMULÆ.

Ointment for Gonorrhœa.

Cacao butter, 100; yellow wax, 2 to 6; silver nitrate, 5; balsam of Peru, 2; mix. To be used on a metal sound; four applications are often sufficient to effect a cure.—*Formulary of Bull. Gen. de Therap.*

Steresol and Adhesol.

Steresol is a varnish composed of shellac, 270; benzoin, 10; balsam of tolu, 10; phenol, 100; oil of cinnamon, 6; saccharin, 6; alcohol, 90 per cent., to produce 1,000 fluid parts. It is used as an antiseptic dressing for the skin or the mucous membrane. Adhesol is less viscous, and contains alpha-naphthol in place of phenol. It is composed of copal resin, 35; benzoin, 3; alpha-naphthol, 0.3; balsam of tolu, 3; oil of thyme, 2; ether, 100.—*Formulary of Bull. Gen. de Therap.*

Grafting Wax.

Melt together resin, 3, and beeswax, 1. For use remelt in a glue-pot, the water jacket of which will retain it in a workable consistence for a considerable time, and, at the same time, prevent it from being overheated to a point dangerous to the scions. For hot climates, the proportion of resin should be increased to 4 to 1 of wax.—T. Tidmarsh in *Gard. Chron.* [3], 26, 420.

Remedy for Apple Tree Canker.

A strong solution of cupric sulphate, 1:50, sprayed from a knapsack machine on the affected trees in the autumn will destroy the canker fungus (*Nectria ditissima*) in its conidia and spore stage. The spray should be directed for some time on the affected parts, and should be repeated once or twice during the winter. A warm spray of sulphate of iron, 1:10, would also be of value if applied in the autumn and winter. It would at the same time remove lichens and mosses, which harbour fungi and insects, and injuriously affect the trees.—*Garden*, 56, 440.

Palatable Quinine Mixture for Children.

W. J. Greanelle finds the following mixture readily taken by children:—(1) Quinine hydrochloride, 5-10 gr.; alcohol, 1 fluid drachm. (2) Oil of cinnamon, oil of anise, of each 30-40 minims; magnesia, *q.s.*, water, 1 fl. ounce. Rub down together, let stand for some hours and filter. Mix 1 and 2 and add simple syrup, 3 fl. ounces; carmine or cochineal solution, 5 drops. Dose, one to two drachms.—*Pediat.*, 8, 560.

Florida Water.

Lavender oil, 7.5 Gm.; Lemon oil, 7.5 Gm.; Bergamot oil, 7.5 Gm.; Neroli oil, 3.75 Gm.; Clove oil, 3.75 Gm.; Rose oil, 6 drops; Melissa oil, 1.8 Gm.; are dissolved in alcohol (90 per cent.), 880 Gm.; allowed to stand for some time, then filtered through magnesia after addition of distilled water, 180 Gm.—*Pharm. Post*, 32, 721.

Formalin Mouth Wash.

Formalin (4 per cent.), 25, is dissolved in alcohol (90 per cent.), 500; tincture of benzoin, 100; tincture of myrrh, 25; peppermint oil, 1.5; anise oil, 1; cinnamon oil, 0.5; powdered cochineal, 1, are added, the last being rubbed down with spirit. The mixture, after standing for 1 to 2 days, with frequent shaking, is filtered. For use, one tablespoonful is added to a medium-sized glass of water.—*Pharm. Post*, 32, 721.

NOTES ON QUININE,

WITH A BRIEF HISTORY OF THE BARKS FROM WHICH IT IS DERIVED.*

BY H. A. MARTIN.

The precise period and manner of the discovery of the therapeutic power of cinchona bark are enveloped in mystery. No undoubted proofs have been handed down to show that the aborigines of South America had any acquaintance with the medicinal properties of the bark, as even to-day they do not look upon cinchona bark with a favourable eye, although they adhere tenaciously to their traditional customs.

The modes of discovery of its remedial power are of a very fabulous character. One told by Geoffrey (1855) is that an Indian was cured of an ague by drinking at a pool into which some cinchona trees had fallen; another, related by Condamine (a French explorer), is that the Indians observed that the American lions, when ill with ague, eat the cinchona bark! Lions are not found, however, in the cinchona forests, though the puma has been met 15,000 feet above sea level. A third, mentioned by Humboldt, and considered to be less improbable, is that the Jesuits accidentally discovered the bitterness of the bark, and tried an infusion of it in tertian ague.

Although Peru was discovered in 1513, and submitted to the Spanish yoke by the middle of the century, no mention has been found of the febrifuge bark with which the name of the country is connected earlier than the commencement of the seventeenth century.

Humboldt (1807) declares that at Loxa (founded by the Spaniards in 1546) the natives would rather die than have recourse to what they consider so dangerous a remedy, although it seems probable, nevertheless, that they were aware of its virtues, but would not impart that knowledge to their conquerors, whom they looked upon with dislike and suspicion.

About the year 1638 the wife of the Viceroy of Peru, Luis Gerónimo Fernandez de Cabrera y Bobadilla, fourth Count of Chinchon, having been attacked with fever, the corregidor of Loxa, Don Juan Lopez Canizares, sent a packet of powdered bark to her physician, Juan de Vega, assuring him of its efficacy in the treatment of "tertiana." The remedy was tried, and fully bore out its reputation, and the Countess Ana was cured. Upon her recovery she caused to be collected large quantities of the bark, which she brought to Spain with her, and gave away to those sick of fever upon her husband's estate. It thus came to be called Countess's powder (Pulvo de la Condessa, or Pulvis Comitissæ), and was long known to druggists and in commerce under this name.

The introduction of Peruvian bark into Europe is stated to be about 1640—that is, about the time that Countess Chinchon returned to Spain—but Sebastian Badus gives an extract from a letter of a Spanish physician, D. Joseph Villerobel, from which it appears that it was imported into Spain in 1632, though no trial was made of it until 1639.

Chifflet, physician to the Archduke Leopold of Austria in 1653, says, "Among the wonders of the day many reckon the tree growing in the kingdom of Peru, which the Spaniards call Palo de Calenturas—*i.e.*, *Lignum febrium*. Its virtues reside chiefly in the bark, which is known as 'China Febris,' and which, taken in powder, drives off the febrile symptoms." He further states that during the last few years the bark has been imported into Spain, and from thence sent to the Jesuit Cardinal de Lugo at Rome. From this it acquired the names of Jesuits' bark, Pulvis Patrum, Pulvis Cardinalis de Lago, etc., as these worthy fathers used to distribute it to the poor in Cardinal de Lugo's palace.

The drug began to be known in England about 1655, so says Sir G. Baker, in a paper published in the Medical Transactions of the College of Physicians of London, 1785.

The *Mercurius Politicus*, one of the earliest English newspapers, contains in several of its numbers for 1658 (which are to be found

* Read at a meeting of the Chemists' Assistants' Association, on February 8, 1900 (see *ante*, p. 167).

in the British Museum), a year remarkable for the prevalence in England of an epidemic, intermittent fever advertisements offering for sale "the excellent powder by the name of Jesuits' Powder," brought over by James Thomson, merchant, of Antwerp.

Dr. Robert Talbor, afterwards Sir Robert Talbor, was one who powerfully contributed to the diffusion of the new medicine, but he by no means intimates his method of cure depended upon the use of the bark; no doubt he was wise, as he kept his remedy a secret. His reputation increasing, in 1678 he was appointed physician-in-ordinary to Charles II., and in 1679, the King being ill of tertian fever at Windsor, Dr. Talbor cured him by his secret remedy. He acquired similar favour in France, and Louis XIV., having purchased his secret for 2,000 louis d'or, a large pension, and a title, ordered the publication of his method of cure, which appeared accordingly by Nicholas de Blegny, surgeon to the King. This was immediately translated into English under the title of "The English Remedy, or Talbor's Wonderful Secret for Curing of Agues and Fevers," and was known in France as such.

From that time Peruvian bark seems to have been recognised as the most efficacious remedy for intermittent fevers, although previously to that bitter controversy had taken place as to its value in fevers, one Dr. Colmenero, a Professor of the University of Salamanca, declaring that ninety sudden deaths had been caused by its use in Madrid alone.

It first appeared in the London Pharmacopœia of 1677 under the name of Cortex Peruannus.

In memory of the great service to humanity performed by the Countess of Chinchon, Linnæus in 1742 named the genus which yields Peruvian bark, "cinchona," but, unfortunately, the great botanist was misinformed as to the exact spelling of her name whom he desired to honour, and spelt it "cinchona," omitting the first "h." It was still more unlucky that Linnæus died before the error was pointed out and corrected.

The variety which cured the Countess was Linnæus's *C. officinalis*.

SOURCE.

The British Pharmacopœia gives quinine as the sulphate of an alkaloid obtained from the bark of various species of cinchona and remijia.

I will first deal with cuprea bark. Messrs. Howards and Sons, to whom I am greatly indebted, both for information and the kind loan of specimens exhibited, told me that fifteen years ago cuprea was imported, but when the bark from the East Indies began to come in freely the price dropped, and it no longer pays to import cuprea; furthermore, it contains a very low percentage of quinine, and no manufacturer would think of using it for quinine-making; and the cupreine which it does contain is of no commercial value. Cupreine is, however, of scientific interest, because it is the only chemical compound from which quinine is believed to have been prepared.

Of cinchona barks there are about thirty-six species, but only half furnish commercial barks. These were obtained from South America, their native home, but no idea of cultivating them out of that country was thought of until the forests looked like being exterminated by the reckless system of bark cutting; in various localities many of the trees were entirely destroyed. The idea of cultivating them was introduced by Ruiz in 1792; by Fée, in Strasburg, 1826; by Fritze, in Java, 1837; and by Miquel in 1846, and many other Dutch botanists and chemists. Royle, in 1839, pointed out the suitability of various parts of India, particularly the Neilgherry Hills, and argued indefatigably in favour of the introduction of the tree. It was not until 1852 that an impulse was given to the project of cinchona planting, when in a report addressed to the East India Company, he pointed out that the Government of India were then spending more than £7,000 a year for cinchona bark, in addition to about £25,000 for quinine.

The Dutch were the first to make important attempts at cinchona cultivations, and under the auspices of the Colonial Minister, Pahud

(Governor-General of the Dutch East Indies), a botanist was despatched to Peru to obtain seeds and plants. The mission was successful, but the plants reached Java in a very unsatisfactory condition, and therefore did not approach expectations, as by unforeseen circumstances only 167 were reared out of the 400 specimens brought from South America.

A variety of cinchona was named Pahudianha by Howard for the zeal shown by the Colonial Minister, but, unfortunately, this variety is not of much value.

Mr. Markham, though not a professed botanist, but having a knowledge of the country and people, the languages of both Spanish and Quichua, and possessed of all the zeal, intelligence, and forethought for such an expedition, offered his services to the British Government, which were accepted; and he, with the assistance of four others—Richard Spruce, G. J. Pritchett, John Weir, and Robt. Cross—started from Islay in March, 1860, to procure seeds and plants. (A Mr. Ledger also started very soon after, independently, and to this latter gentleman we are indebted for the most valuable variety of cinchona bark.) After passing through many vicissitudes of difficulty and danger, such as the hostile attitude of the inhabitants, jealousy of governments, insalubrious climate, and want of roads, these four succeeded in bringing or sending plants to their respective destination—viz., India. The first district tried was the Neilgherry Hills, and so rapid was the propagation that in September, 1866, there were more than one and a half millions of cinchona plants on the Neilgherry Hills alone.

Ceylon also took up the cultivation of the bark tree, and great success was obtained—so much so that Ceylon bark was put on the market, but for some reason or other no great amount of it is now to be found on the market.

The plantations of Java, started in 1854 by Hasskarl, succeeded under Junghuhn's management extensively, and have continued to do so ever since. It is rather significant that Java, whose first attempt at cinchona cultivation was nearly a failure, is now at the present time the largest bark-producing district.

The cultivation of cinchona has also been carried out at a great many other places, but not to any considerable extent.

The bark used by manufacturers for the preparation of quinine is the *Cinchona calisaya* var. *Ledgeriana*, which contains more crystallisable quinine than any other.

Mr. Markham, in his valuable history on Cinchona, says:—"This variety was named after a Mr. Ledger, who collected the seeds of this valuable variety from South America, and who thereby enriched the value of both the Indian and East India plantations, but, strange to say, the financial expenditure entailed upon procuring these seeds far exceeded the sum obtained by their sale, and consequently he lost heavily. I twice endeavoured to obtain him a suitable recompense from the Government of India, but in both cases I was refused. It is unnecessary that I should give further expression to the indignation I feel at the injustice with which *those* (he referred to his other assistants as well) have been treated who have done an inestimable service to mankind." "If," he goes on to say, "the people of England, and still more the people of India, are contented that this should be the requital for such service, there is nothing more to be said."

In addition to this Ledger's calisaya from Java, there is some calisaya occasionally comes into the market from South America, whilst *Ledgeriana officinalis* and *succirubra* are still imported from Ceylon and India, though in very much smaller quantities than was the case a few years ago.

The Ledgerian calisaya variety yields from 9 to 10.5 per cent. quinine, with 10½ and 11½ per cent. of total alkaloids.

The official cinchona *succirubra* yields about 5 to 6 per cent. total alkaloids, half of that being quinine; it is however the best bark for yielding the greatest amount of total alkaloids—that is quinine, quinidine, cinchonine, and cinchonidine.

A report of the Indian Government, 1892-3, is very interesting. It states that nearly all of the existing trees are of the pure quinine-

yielding variety—viz., Ledger's calisaya, which shows a vast difference to the time when first introduced, as at that time succirubra was cultivated, not for the sake of its quinine, but to provide a cheap febrifuge for the people. The report also stated that when all the red bark trees were used up only Ledger variety would be cultivated. The produce of the factories in Bengal and Madras for the year was 6,980lb. of febrifuge and 10,175lb. quinine sulphate. The quinine produced, it goes on to say, is now sold to public institutions and Government offices at one rupee per oz., whilst the febrifuge is sold at ten annas per oz.

Eight hundred and thirty-five thousand doses of quinine were put up during the year, each containing five grains, each dose bearing simple instructions in one of the vernacular languages. They are put up in the gaol department, and issued to local postmasters, who for a small commission retail them to the public at one pice (one farthing) per dose.

The harvest of bark was 423,000lb. during 1892-93.

The effect of cultivation upon the cinchona alkaloids is very interesting, and at the same time very extraordinary, sometimes doubling and trebling the quantity; they are increased by the processes of mossaing, coppicing, or shaving.

I will just touch upon them briefly.

MOSSING.—This process was introduced by Mr. McIvor in 1863, and consists of cutting strips of the bark from the tree (eight years old) alternately—and laying in the open places thus caused damp moss—binding the same to the tree by means of some fibre. Not only does this increase the amount of alkaloids, but also increases the quantity of bark also. The object is to exclude light and air, which seems to favour the growth. It is repeated in from six to twenty months and goes on until the tree has reached its maximum yield, which is in about eight to twelve years' time.

COPPICING.—This consists of cutting down trees either close to the ground, or within a short distance of it, and of allowing one or more of the crop of shoots which rises from the stumps to grow, they in their turn being cut down together or one by one. This was introduced in 1866, but is not so favourable as the mossaing process.

SHAVING.—This process, known as Neven's, has been carried out in Ceylon, and is done by spokeshaves, simply shaving the outer bark away only.

First shaving yielded equal to 1.96 per cent. quin. sulph.

First renewal „ „ „ 5.76 „ „ „

Second renewal „ „ „ 7.05 „ „ „

There is more cinchonidine, however, increased with the quinine in this instance.

DISCOVERY OF QUININE AND OTHER ALKALOIDS.

It was not until the beginning of the present century (1810) that Gomez, of Lisbon, first succeeded in obtaining active principles of cinchona. He treated an alcoholic extract of the bark with water, added caustic potash, and crystallised the precipitate from alcohol. The basic properties of the substance thus obtained, which he named *Cinchonino*, were observed in the laboratory of Phénard by Houton Labillardiere, and communicated to Pelletier and Caventou. Shortly before that time Sertürner had asserted the existence of organic alkalis, and the French chemists, guided by that brilliant discovery, were enabled to show that the cinchonino of Gomez belonged to the same class of substances. Pelletier and Caventou, however, speedily pointed out that it consisted of two distinct alkaloids, one of which they named *Quinine* and the other *Cinchonine*. These worthy chemists in 1827 were awarded by the Institut de France the Montyon prize of 10,000 francs for their discovery of 1820.

Quinidine was discovered by Henry and Delondre in 1833 and *Cinchonidine* in 1847 by Winckler; whilst *Quinamine* was not discovered until 1872, by Hesse.

In 1802 Sequin concluded that as the active principle of cinchona was precipitated by infusion of nutgalls, it must be gelatin, and therefore proposed the use of, and employed, clarified glue as a febrifuge in intermittents!

(To be continued.)

BRITISH PHARMACOPEIA, 1898. INDIAN AND COLONIAL ADDENDUM.*

INDIAN SECTION.

13. **EMBELIA.**—Both *E. ribes* and *E. robusta* occur in commerce mixed, and they both contain the active principle (embelic acid) according to the investigations of Warden. The suggestion, therefore, to use both in making the preparations of the drug is good. We recommend the simple powder—pulvis embelice—in doses of 1 to 4 drachms as a valuable anthelmintic against tapeworm. We are preparing a liquid extract, but our report on its efficacy must be postponed.

14. **EXACUM.**—We agree that *E. tetragonum* (N.W. and C. India), *E. bicolor* (Nilgiris, S. India), *Andrographis* (plains all over India), *E. pedunculatum* (plains all over India up to 3,000 feet), and *Swertia corymbosa* (Nilgiris, S. India), and *Swertia affinis* (hills in Vizagapatam), may be used interchangeably, according to locality and convenience. Except *Andrographis*, they all belong to the Gentian family.

(Note.—We sent for a supply of *Swertia affinis* (Clarke), syn. *Ophelia elegans* (Wight), from the Vizagapatam district (Jeypore Zemindary), and we obtained a specimen which is practically indistinguishable from the official *Swertia chiretta*. A sample will be sent to you next mail if possible.)

[To provide for the suggested interchangeableness has been found to be difficult. Moreover, the Pharmacopœia Committee has been advised on good authority that simple bitters, indigenous to India, are sufficiently represented by the official *chiretta* and the *andrographis* of the Draft Addendum. Will the Madras reporters please further advise?]

15. **GOSSYPII RADICIS CORTEX** is official in the United States Pharmacopœia, and has a great reputation in America as an emmenagogue. Dymock alludes to it as “an undoubted emmenagogue.” Strength, 2 ounces of root bark to 1 pint of boiling water, the whole boiled down to one-half. We have made inquiries, but the fresh active plant will not be available for some months. We shall then get preparations made and submit results in a subsequent communication.

[The plant is said to be common in India and Ceylon. Bidie says “Ergot often deteriorates in the tropics.”]

16. **JASMINUM.**—The fresh flowers are undoubtedly lactifuge when applied locally in appropriate cases. We cannot at present mention any preparations as advisable, but recommend the official recognition of the fresh flowers. (Note.—A description of the flowers will follow next mail.) The flowers are available in March to May. We shall prepare a juice, and perhaps other compounds, and obtain further information regarding the plant.

17. **KALADANA.**—All medical men of standing here have experience of this drug. It is very commonly used by natives as a purge. We agree that the best preparation is the compound powder, prepared in a similar way to that of jalap, with ginger and cream of tartar, as in the Indian Pharmacopœia. The proportions to be the same. The resin, “Pharbitisin,” and the tincture are also very active, and may be officially recognised; the resin in doses of 5 to 8 grains, and the tincture $\frac{1}{2}$ to 1 fluid drachm. The tincture should have the same strength, namely, 4 ozs. of powdered seeds to 1 pint of alcohol (70 per cent.). The extract of the Indian Pharmacopœia may, as Dr. Bidie says, degenerate, as it is really a mixture of an alcoholic and an aqueous extract, and may therefore be excluded, considering the efficacy of the other preparations.

[The official recognition of kaladana (*Ipomœa hederacea*) was strongly recommended by Dr. Bidie.]

18. **MUDAR.**—The official name, for the reasons stated, should be “*Calotropis*.” It has lately been under investigation, but the results are not yet officially announced. The drug is an old and

* Concluded from page 189. The notes within brackets are by the Editor of the Indian and Colonial Addendum, Dr. John Attfield.

well-established one in reputation, and its tonic and emetic properties are well known. The powdered root-bark is an alterative tonic in 3 to 10 grain doses, and emetic in 30 to 60 grain. A tincture was investigated by the Indian Drugs Committee, and was found to possess the same properties as the powder. Its strength is 2 ounces to the pint, and its dose $\frac{1}{2}$ to 1 fluid drachm.

[Bidie, Van Dort, and other authorities in India and Ceylon are in favour of the official recognition of *Calotropis*.]

19. MYLABRIS has been in use in Indian Government Medical Stores in making preparations similar to those of cantharides, whose place it practically takes in the manufacture of emplastrum at all events, the most universally used of cantharides preparations in this country. The *Mylabris cichorli* is the beetle in most use, and we recommend its being made the official one, and not the *Mylabris phalerata*. The name mylabris should of course be applied to all preparations made from the Indian beetle, the word cantharides being restricted to compounds actually made therewith. On account of the similarity between the two beetles, similar preparations of the Indian one may be officially recognised with similar strength.

[South African authorities desire the official recognition of *Mylabris bifasciata*.]

20. MYROBALANUM.—The fruit is extremely common: besides being aperient in action, it possesses an astringent principle, and we think some doubt would arise regarding the exact effect of a decoction administered internally. Results might differ. Natives use the drug as a purgative, but in combination with other purgatives. The two ointments are the preparations to which we attach most importance, one with opium, the other without, as in the Indian Pharmacopœia.

[In India and Ceylon this drug appears to possess close pharmacological resemblance to rhubarb, and to be both as useful and as indefinite in regard to active principle.]

21. OLEUM AJOWAN.—We agree that this volatile oil has a special value of its own. The drug (chiefly the fruit) is in universal use throughout South India as a carminative in all bowel complaints, such as diarrhoea, colic, cholera, etc. It has a great reputation for producing a feeling of warmth and exhilaration and relieving the sinking and fainting feeling which accompanies bowel disorders.

[All authorities in India and Ceylon appear to be agreed regarding the usefulness of this oil.]

22. OLEUM GRAMINIS CITRATI.—As a stimulant carminative this oil may be officially recognised for its own merits.

[Bidie and Van Dort state that it is largely produced and used for medicinal purposes in Ceylon. Indian authorities appear to be agreed as to its value.]

23. SAMADERA is widely distributed on the West Coast, Malabar, and Ceylon, but it probably is not sufficiently readily attainable in the various bazaars in the Presidency to warrant its official recognition for the present. In this connection please see note at end on *Azadirachta* (the Neem Tree).

[Van Dort states that the root-bark is used in Ceylon. *Samadera* is not strongly recommended by any of the authorities in India and Ceylon.]

24. SAPPAN contains a fair amount of tannic and gallic acids, and it has been used in Government depôts for some years instead of logwood. It is very widely distributed, and we think a decoction similarly made to that of *hæmatoxyli lignum* might be officially recognised.

[Van Dort speaks favourably of sappan, and states that it is largely exported from Ceylon.]

25. SWERTIA—*Vide supra*, No. 14, *Exacum*. ["Not represented in our Ceylon flora."—Van Dort.]

26. THUS INDICUM.—We have no special knowledge of this substance. The emplastrum *piciis* is little used in this country. Later we propose experimenting with a local substance "gondah-

birozah," which is said to yield a useful equivalent of Burgundy pitch. The Bombay Medical Stores manufacture it, and we shall refer to them subsequently.

[The pharmacy of this so-called Indian frankincense, "Gunda Barosa," according to Bidie, would seem at present to be insufficiently definite to warrant the official recognition of it as an Indian equivalent of *Thus americanum*.]

27. TINOSPORA.—A very old-established drug. The root and stem should be collected in the hot season when the bitter principle is most abundant. The tincture should be made in the same way as that of *calumba*, strength 4 ounces to the pint. The strength of the infusion should be 1 in 10. The liquor *concentratus* might be officially recognised if the results of our present experiments will stand the tests detailed in the preface to the British Pharmacopœia of 1893, p. xvii.

[Van Dort states that the plant is very common in the central and southern provinces of Ceylon, and that as a drug it is very popular in fever and dyspepsia.]

28. TODDALIA.—Also a well-known drug with a considerable reputation as an aromatic tonic, comparable to *cusparia*. The tincture is made in the ordinary way—strength, $2\frac{1}{2}$ ounces to the pint; infusion, 1 in 10 of boiling water, and straining. With regard to the liquor *concentratus*, the same remark applies as in No. 27. We are conducting experiments, some of the preparations already being under observation.

[Van Dort states that in Ceylon *toddalia* is very abundant, and is very commonly used as a bitter tonic.]

29.—TYLOPHORA is a very abundant plant, and of well-established reputation as the equivalent of *ipecacuanha*. It is emetic, diaphoretic, and anti-dysenteric. Kirkpatrick's evidence on this point is pretty well conclusive. With regard to the preparations, we find we must for the present confine ourselves to recommending that the powder [of the leaf, *Ed.*] alone should be officially recognised. Later, we hope to submit results of experiments showing whether any liquid preparation has the active principle of the drug.

[All medical authorities in India and Ceylon agree that this drug is worthy of official recognition.]

30. VALERIANA INDICA.—As far as we can make sure, this Indian valerian possesses the same strength in volatile oil and valerianic acid as the *Valeriana officinalis* of the British Pharmacopœia. An ammoniated tincture of the strength of 4 ounces to the pint, and prepared like the official tincture, may be officially recognised.

[All Indian authorities appear to be agreed respecting the desirability of official recognition of this drug. Perhaps the Madras Committee will be good enough to forward a botanical and general description.]

Appendix.

The Madras Committee considers that in any list of Indian drugs which it is in contemplation to recognise officially, the following should find a place:—*Azadirachta indica* (the common neem tree), *Alstonia scholaris*, and *Gynocarpia odorata*. These are indeed of much greater repute than many of those already detailed. In what way they were originally omitted from our 1894 report I have now forgotten. That report made no pretence of finality, and the committee anticipated further references and investigations before it could be looked upon as a settled list of representative well-known native Indian drugs.

(a) *Azadirachta indica* is of considerable repute among the natives of South India, who utilise every part of the tree for medicinal purposes. As being of greatest value it is the bark of the wood we recommend to be official. It is a bitter tonic and has excellent properties similar to those of quassia. Natives indeed make neem cups, like we make quassia cups, in which they pour water for producing a stomachic drink. We shall experiment as before with a liquor *concentratus*. The tincture and the infusion

should be official, of the same strength and mode of preparation as quassia.

(b) *Alstonia scholaris*.—A well-known astringent tonic of much value. A tincture and infusion should be official:—Tincture, 2½ ounces to the pint, and infusion, ½ ounce to 10 fluid ounces. Drachm and ounce doses respectively. Same remark applies with regard to the liquor concentratus as before.

(c) *Gynocardia odorata*.—The seeds of this yield chaulmoogra oil of very well-known value in leprosy. It is administered both internally and externally. The evidence regarding its utility is considerable. Most medical men who are engaged in treating lepers place considerable trust in this oil. It is alterative also in other chronic skin diseases and in tubercular eruptions. The ointment might be official (Indian Pharmacopœia), its composition being, the oil 1 part, hard paraffin 4 parts, soft paraffin 5 parts. The oil itself might be made official, not the seeds. "Oleum Gynocardiaë." The oil is given in doses of 4 minims, increased gradually to from ½ to 1 fluid drachm.

RESPECTING ACACIE GUMMI.

1A.—*Anogeissus latifolia* (Wall) is a gum-yielding tree of considerable repute. The gum is said to be double the strength of gum acacia in viscosity. It would make an admirable equivalent for the official gum acacia in making mucilages. The tree occurs throughout India except north of the Ganges. The gum may be obtained in any quantity, nearly free from admixture with other gums and from adulteration. It occurs as clear white or straw-coloured elongated tears, adhering into masses sometimes honey-coloured, and is gathered from outside of the bark of the larger branches of the trunk. It has a glassy fracture, and is quite transparent internally and free from cracks. With water it forms a nearly colourless mucilage, quite colourless in the case of the finer qualities of the gum. It possesses a faint characteristic odour. We recommend the official recognition of this gum as a strong equivalent of gum acacia. Preparation, mucilago gummi indici, 2 ozs. of gum, in small pieces; rapidly rinse with a little distilled water; dissolve in 6 fluid ozs. of distilled water in a closed vessel; strain.

[In the Addendum Report, page 8, the question was raised as to the sufficiency of this one gum alone for official galenical use in India. Bidie says that this is the best of all the Indian gums for pharmaceutical purposes. It is similarly commended in Pharmacographia Indica. Unlike other Indian gums, it appears to be collected and sold in the unmixed condition.]

TESTING TOLU BALSAM.—Gehe and Co. point out that the requirement of the German Pharmacopœia, that this balsam should be hard, gives rise to a great deal of adulteration with colophony. They find also that, as a rule, about 25 per cent. of the balsam is soluble in carbon disulphide, and though others have reported to have found as much as 80 per cent. soluble, they doubt if these samples were pure. They advocate the inclusion of the following characters in the forthcoming New German Pharmacopœia: "The resinous balsam of *Toluifera balsamum* is a brownish yellow or brownish red viscous or hard mass, transparent in thin layers, with an aromatic odour, and pleasant, sharp, somewhat acrid taste. It is soluble in chloroform and in rectified spirit; also in caustic potash solution, diluted with four volumes of water. Carbon disulphide dissolves not more than 30 per cent. on heating for half-an-hour at 30-35° C. The residue, after evaporation of the CS₂, should give a blood-red-colour with sulphuric acid."—*Pharm. Central.*, 40,269. [The value of carbon disulphide as a solvent for cinnamic acid in testing this balsam was pointed out by J. O. Braithwaite in 1895, and has been confirmed by Spilsbury and Joyce. See *P. J.* [4], 10, 93. See *P. J.*, [4], 1, 145, and [4], 307.]

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

A Healthy Expression of Opinion.

The letter by Mr. John Taylor, of Bolton, in last week's Journal has redirected my attention to the superlatively excellent paper by that healthy-minded pharmacist, which appeared in the issue of the previous week. There was a freshness about that production, which should appeal particularly to those of us who feel bored to death by the continual repetition of the stale arguments which find so much favour with the shrieking, hysterical individuals who seem to imagine that the inscription of one's name on the Register of Chemists and Druggists ought to assure the possession of a kind of divine right. Granted that the registered chemist has had to work hard to attain his peculiar position, and that in so doing he has been compelled to expend much energy, time, and money; but what has he done more than many professional men who have not half the chance of self-protection he has, and have to wait a much longer time than he before they can expect to secure any adequate return for the much greater outlay upon their education and professional training? As a tradesman the pharmacist is better protected at the present moment than anyone else who depends to any extent upon buying and selling for the means of livelihood; on the professional side he is quite as well protected as medical men and dentists, and if he can only secure the absolute restriction of his statutory titles to duly qualified individuals he will have improved upon their position. To all who are despondent and also inclined to reflect despairingly upon the future of pharmacy I would commend a careful and sympathetic perusal of Mr. Taylor's decidedly healthy expression of opinion. He is no idealist; but, on the other hand, he is not afflicted with the hopeless pessimism which troubles so many in our ranks to-day, who are less disposed to help themselves than to wait upon a special providence in the shape of an unwilling Government.

The Government Position.

For that, as it happens, is the position at the present moment. To those who are capable of reading with understanding—to say nothing of ability to read between the lines—the first and second paragraphs in last week's "Political Gossip" should sound the knell of the hope, based on desire, which has urged that nothing but a direct appeal to an all-benevolent Government is required to insure the speedy putting up of the shutters at every establishment where the business of a chemist and druggist is carried on by a company of unqualified persons. We now learn, in the first place, that Mr. Ritchie, the Minister in charge of the Companies Bill, is inclined to resent the inclusion in that measure of any clauses dealing with pharmacy, medicine, dentistry, or midwifery. He thinks, and I agree with him in that respect, that questions concerning professional qualification should be dealt with in measures specially promoted to regulate professional practice. Inasmuch, however, as the pharmacy and medical clauses have found place in the Companies Bill and, to some limited extent, have begun to seem at home there, the President of the Board of Trade is not unwilling to proceed with them so long as he is not unduly worried with regard to the matters to which they refer. That is to say, Mr. Ritchie, while objecting, on principle, to the regulation of pharmacy, medicine, etc., by means of a Bill originally intended only to safeguard the interests of shareholders in limited companies, is prepared to submit to the retention of the two clauses which particularly interest pharmacists on condition that he is not pressed to amend them in any way. But he declines to entertain the idea of suppressing company trading in pharmacy, and insists that there can be no more menace to the safety of the community in a company pharmacy, if regulated as proposed, than in the branch establishment of a registered chemist who runs a dozen shops.

The Evil of the Branch Shop.

In so doing, it seems to me—and must seem to many other pharmacists—Mr. Ritchie has struck at the root of most of the evil which has come upon pharmacy in these latter days. The so-called “widow’s clause” has been blamed for much; but it has not been responsible for all the difficulties that have interposed themselves in the path of pharmaceutical progress. The branch shop is undoubtedly the curse of the drug trade and, even if in charge of a duly registered manager or assistant, it is then only less mischievous than under other circumstances. Someone has recently pointed out that a professional qualification cannot be divided—that is to say, the holder of the qualification cannot, at one and the same time, be exercising a proper supervision over the conduct of affairs at more than one place of business. How much greater, then, must be the difficulty of supervising the business carried on at six or a dozen different establishments? So far as strictly professional duties are concerned the thing is a physical impossibility, whatever may be done in connection with purely trading concerns. In fact, it could not be regarded as an unreasonable thing if Parliament were to insist that no professional qualification should be permitted to cover the exercise of the functions of the profession in question unless the actual holder of the qualification were present and controlling the operations carried on. Pharmacists, therefore, who prefer to dissipate their energy or diffuse their qualification over more than one place of business need not be greatly surprised if, after regulating company pharmacy, the Government should next turn its attention to the stricter regulation of what I and other pharmacists are accustomed to regard as the only legitimate pharmacy. The idea will doubtless not commend itself to some; but the risk that it may be realised before long is not small, and the obvious moral is that there must be a closing together of our ranks to repel the present attack, otherwise we may shortly have to fight much nearer home, on ground not of our own choosing.

Awaiting the Word of Command.

As a matter of fact, I have a strong conviction that the pharmacists of Great Britain are spoiling for a fight. They have talked and listened about an unchanged and apparently unchangeable subject until they are tired of talking and listening. Signs of the prevailing restlessness may be perceived in the recent decision of the Executive Committee of the Federation of Local Pharmaceutical Associations—by the way, why not call it the Chemists’ Federation?—to issue a statement of reasons why the pharmacy clause in the Companies Bill should be opposed. I think it is rather unfortunate that the Federation officials could not see their way to recommend the local associations to plump for such an amendment of the clause as would prohibit the use of chemists’ titles by companies and also restrict to duly qualified individuals the compounding and dispensing—if not the sale—of poisons, but the too painfully manifest lack of agreement on the subject which prevails in pharmaceutical circles generally cannot fail to be reflected in all our representative bodies. I make bold, however, to advise everyone who finds it in his power to act on the initiative of the Federation, to have no scruples about the matter, but to bring what pressure he can to bear upon his representative in Parliament, in the hope that the latter may be persuaded to do what is right and fair for pharmacy and leave us to work out our own salvation—as we must in any case set about doing in the immediate future. It will be preferable to reform our own affairs rather than have them reformed compulsorily on cut and dried lines laid down by unsympathetic souls who know naught of the progress of pharmacy and care less. But if we desire to cry “Hands off!” we must be prepared to follow up that defiance with vigorous action, and none will rejoice more than I to see such action taken. Meanwhile it is well to note that Mr. Balfour has stated that further consideration of the Companies Bill may be expected before Easter, and that we are already in Lent!

LETTERS TO THE EDITOR.

The Federation and the Council Election.

The comments of “An Ordinary Pharmacist” and Mr. Hyslop upon my remarks at Stoke appear to require a disclaimer from me of any intention to propose that this Federation should take upon itself the work of a caucus. For general information I may mention that at the meeting of the Executive Committee held last week no action in any way connected with the election of members of Council was proposed or even discussed. If the matter were of sufficient general interest I could explain what I had in mind, as a possible course to suggest in certain circumstances, but I was careful to state that what I did say was personal and not on behalf of the Federation. Every member of the Executive Committee realises that his position requires that he should not endeavour to carry out his own personal views or the views of a section, but that the business of the Federation should be conducted in accordance with the wishes of the Associations which constitute the organisation.

Liverpool, February 27, 1900.

JOHN SMITH,

Chairman of the Federation.

The Society’s Examinations.

I am following with interest the correspondence relating to the examinations, and hope the discussion will continue for some time. I have been much struck with Mr. J. Rutherford Hill’s paper in last week’s Journal on the “Statutory Functions of the Pharmacist,” especially with the fact that “the Society was the first to provide a laboratory course of instruction in practical chemistry,” and I heartily endorse his statement “that we ought to develop this side of our Charter rights and, by a suitable examination, grant a certificate that would be recognised as fitting the holder thereof to fill any State appointment as a trained chemist or public analyst.” This naturally raises the question, “What is the object of our examinations?” Is it simply to qualify a body of men to dispense and retail scheduled poisons, or is it to produce men thoroughly proficient in chemistry, physics, and botany, both theoretical and practical, to say nothing of the special subjects of materia medica and pharmacy? If the former, then the Minor is amply sufficient; if the latter, then I am afraid nothing short of a two or three years’ curriculum will be sufficient; but it seems to me absurd to compel every chemist’s assistant to become a scientific pharmacist. There would therefore appear to be room for two grades—those who wish to be simply trading pharmacists and those who wish to become scientific pharmacists. At present the candidate who passes the Major gets little satisfaction for his trouble. I can well remember when I had passed my Major examination, after six months’ hard study, my father’s opinion was that he did not think it worth the trouble, worry, and expense, seeing that it neither fitted me for an analyst’s post, nor conferred any degree or other advantage beyond the purely educational, and that is the reason why so few go forward to it. I am of opinion that the Society should examine for and grant the legal or qualifying certificate, but that it should be necessary for those who wish to take a higher qualification to produce evidence that they have studied for three years at some university or college, of which time part can, of course, have been employed in preparing for the qualifying examination; also that a degree in pharmacy be granted by the universities, equivalent to B.Sc., fitting the holder to undertake analysis of food and drugs, or to act as a skilled chemist in the preparation of the finer chemicals. Now that “commercial education” is being taken up by the universities, it is surely time that pharmacists, through their Society, affiliated themselves with the universities unless they are content to see all the finer work pass entirely out of their hands.

February 21, 1900.

“BETTER LATE THAN NEVER.” (22/51)

Wanted, A Chemists' Club.

In support of Mr. C. E. Pickering's letter in last week's issue, I wish to express hearty approval of the idea of a Chemists' Club. Why cannot we, as chemists, unite and make this matter a success? We are, I believe, in most matters pertaining to aggressive lines very much behind. From a trade standpoint we are not to be compared with our neighbour the energetic, enterprising draper or grocer—or, from a *professional* point, we make no social strides like the lawyer or doctor. In fact, we are all an enigma in commerce and society. By all means let us have a Chemists' Club worthy of the name, and decidedly let us avoid any trashy or quack advertisements being plastered on the walls or even allow any cases of so-called pharmaceutical products taking up any valuable space. Their presence only reminds us of the "shop." I strongly advocate a good-class club on thoroughly good lines. But when country chemists come to town, don't you "Cockneys" look them up and down as if they were some curiosities; yea, botanical monstrosities. Take them by the hand, and to them show all good things they want to see and know. After all, we are but brother "pills," heir to all diseases of flesh and ills.

Newport (Mon.), February 26, 1900.

BENSON HARRIES.

Chemists and the Companies Bill.

I wrote a four-page letter last week to Major Rasch, the M.P. for this division, asking him to oppose the second clause in the Companies Bill now before Parliament, and the enclosed brief reply came to hand this morning.

Grays, Essex, February 27, 1900.

A. DYSON.

[ENCLOSURE.]

"House of Commons,

"February 26, 1900.

"MY DEAR SIR,—I have yours to hand; also from Mr. Guy. I fancy the clause may be strongly opposed.

"F. C. RASCH."

Suggested Standards for Drugs.

I have read with great interest Mr. Moor's able paper, and also your paragraph on the above subject in this week's Journal. In common with my neighbour chemists I have recently received a visit from some official of the Camberwell Vestry, who informed me that the B.P. is the legal standard, and, therefore, I should be liable to prosecution if I supplied him with any article that did not comply with the B.P. requirements. He particularly mentioned camphorated oil and pure magnesia. Now, I contend that unless B.P. preparations are asked for, the retailer is at liberty to use his own judgment in what he sells; it is only right and necessary that the B.P. should be regarded as a standard for dispensing, in order to promote uniformity and, thereby, avoid confusion, which doubtless is the intention of the Medical Council. The weights and measures have been legalised by Act of Parliament, therefore the same rule should apply to the B.P. It is quite time the Pharmaceutical Council took the matter in hand, and I would suggest circularising the different vestries so as to put an end to ignorant officials' intimidation and prosecutions, which cause a great deal of vexation and annoyance, in addition to the expense to the parties concerned. Moreover, a representation coming from a public body would be considered, whereas individual protests are simply treated with contempt.

East Dulwich, S.E., February 26, 1900.

F. W. SANDY.

Strychnine Hydrochloride and Potassium Arsenate.

Referring to my paper on "Strychnine Hydrochloride and Potassium Arsenate," at page 184 of the Journal, permit me to make a slight addition and correction which, owing to the exigencies of a special issue, you did not receive in time for last week. After "crystallisation" in line 13, insert "3.805 Gm. of powdered crystals, heated

for an hour to near 300° C., cooled in a desiccator and weighed, had lost 0.399 Gm., equal to 10.5 per cent., showing reduction to metarsenate $KAsO_3$, which requires a difference of 10 per cent.; and this confirms Mr. Lothian's result." Under characters and tests "1 per cent. when heated to 300° F." should be "0.1 per cent."

Edinburgh, February 26, 1900.

J. RUTHERFORD HILL.

Spiritus Ammoniae Aromaticus.

It has apparently escaped the attention of Mr. White and others who were present at the Evening Meeting on February 13, that the strength of the test solution of barium chloride now official differs from that of the '85 B.P. in being slightly stronger, as it contains *one* part by weight in ten parts by volume, instead of *one* part and ten parts by volume of water as formerly. (B.P., 1885, p. 482.) Therefore a slight increase has been made, not only in the quantity but also in the strength of the solution.

Newcastle-on-Tyne, February 23, 1900.

F. R. DUDDERIDGE.

Re "Many Mickles."

Let Mr. C. Edward Sage take Solomon's advice, and "with all his getting, get understanding," to know a proverb and the interpretation, or the easier advice to "drink water from his own cistern," for the Scots' well is evidently too strong for his constitution. Using an unknown tongue is wandering in a dark wood, and he has fallen, not among thieves, but along with a goodly company of his fellow countrymen, and it is only we—Scots who cannot see a joke—that see the joke in "Many mickles make a muckle." How he interprets mickle, or how it is a trite saying I know not. This I do know, that mickle means not little, but much or big, and muckle is synonymous with it; hence "many mickles" only make a "muck," not a muckle. It is a ridiculous and nonsensical saying which was made in England for the use of Englishmen, and, like the use of goff for golf, is given the go-by in Scotland with the laugh of derision. Truly if a little knowledge is dangerous, a little ignorance proves a veritable fly in the ointment, but he teaches best who himself is willing to be taught, and I hope Mr. C. Edward Sage will take it not amiss to be told how to do better and speak sense. "Giff-gaff maks guid friens," which being interpreted means that the interchange of gifts cementeth friendship.

Edinburgh, February 24, 1900.

"SCOTS WHA HAE" (22/4).

* * * Mr. Sage will doubtless accept the above reproof in a spirit of due humility—realising forcibly, as he now must, the danger of meddling with unknown tongues, and the enormity of quoting uncouth dialects.—[Ed., P.J.]

Uragoga Ipecacuanha.

Inquiries having been addressed to me concerning the plant which is indicated by the above name in the MS. of the new German Pharmacopœia, it would seem that there is doubt as to the plant intended, whether Brazilian or Carthagena or some other ipecacuanha. It may be useful, therefore, to explain that it is only another name for *Cephaelis ipecacuanha*, Rich., or *Psychotria ipecacuanha*, Stokes. It affords an instance of the difficulties that arise when a definite system of nomenclature is not universally adopted. It has been agreed by most botanists that the priority of names should date from the year of publication of the first edition of the 'Species Plantarum' of Linnæus, *i.e.*, 1753, as being by far the most convenient date. A few botanists, however, prefer the earlier date of the first edition of the 'Genera Plantarum' of Linnæus, *i.e.*, 1737. The name Uragoga was apparently founded as a generic name by Linnæus on the ipecacuanha of Marggraf. In 1759 Linnæus described the genus *Psychotria*, and this being the earliest date after 1753, ipecacuanha is now placed in that genus, in the 'Kew Index,' in the British Pharmacopœia, and is used by most botanists, the name being earlier than *Cephaelis*, which was given by Stokes in 1788. But Professor Baillon, of Paris, preferred to go back to an earlier date—*viz.*, that of the 'Genera Plantarum' of Linnæus in 1737, and revived the genus *Uragoga*, naming the plant *Uragoga ipecacuanha*.

But it may be hoped, that although this name appears in the MS. of the German Pharmacopœia that it will not be allowed to appear in the final proof. Uniformity and the endeavour to lessen difficulties was the cardinal principal of Linnaeus' work, and it is contrary to the teaching of the great botanist to sacrifice clearness to what may be regarded as pedantry.

London, February 26, 1900.

E. M. HOLMES.

ANSWERS TO QUERIES.

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

MAPONITE (W. B.—38/31).—We are unable to inform you what is the composition of the substance.

CACAO BUTTER SUPPOSITORIES (C. F. J.—39/22).—You should be able to procure them from any firm of wholesale druggists.

GUIDE TO THE PRELIMINARY EXAMINATION (C. B. M.—39/24).—The book you mention is published at 42, Cannon Street, E.C.

ADULTERANT OF HYDRASTIS (S. J. L.—39/15).—It is the rhizome of *Asarum canadense*, L. (N.O. Aristolochiaceæ), Canada snake root.

PREPARATION OF ARSENIC (A. S.—39/12).—If the preparation contains arsenic it must be dealt with in accordance with Part 1 of the Poisons Schedule.

ELECTRIC BATHS (F. H. R.—39/18).—We are not acquainted with any, but you might get what you require at the Camden Turkish Baths, 11a, Kentish Town Road, N.W.

GLYCERINUM ACIDI BORICI (S. J. L.—39/16).—The combination of the boric acid and glycerin is not completed until the water is removed by evaporation to the extent described in the monograph.

ASSAY OF TINCTURE OF OPIUM (S. J. L.—39/14).—It would certainly appear from your results that the allowance for solids was too large. Why not write a note on the subject suitable for publication in our columns?

PRESCRIPTION DIFFICULTY (B. G. K. C.—37/25).—The prescription you send is a bad one. The lime soap is not soluble or miscible with the water subsequently added, and always separates in lumps, whatever order of mixing is adopted.

MECHANICAL SHAKER (S. J. L.—39/17).—It must be a question for yourself to decide whether you need one or not. The instrument to which you refer was made by Messrs. Baird and Tatlock, London, but you can obtain a similar article from any dealers in chemical apparatus.

INACCURATE SCALES (J. T.—39/21).—You are liable to a fine if you have in your possession any unjust weights, measures, scales, etc., and we should advise you to send the inaccurate scales to be adjusted and restamped. It is a good plan to have all scales re-adjusted every year.

ELIXIR SENECIO (J. P. S.—39/20).—A fluid extract of senecio has been used in medicine, and there is a homœopathic tincture, but we cannot find any published formula for an elixir. Have you

applied to Messrs. Parke, Davis and Co., 21, North Audley Street, London, W.?

SOLUTION OF LACTIC ACID (W. E. M.—38/23).—We think the prescriber intended a 5 per cent. of pure lactic acid—not the Acidum Lacticum of the Pharmacopœia. The density of such a solution would differ only slightly from that of water, so that no serious variation would result from making the percentage by weight or measure. The ambiguity, however, still remains, and is chiefly due to the fact that the prescriber himself seldom understands the true meaning of his prescription and the various interpretations which may be applied to it.

BRITISH PHARMACEUTICAL CONFERENCE, 1900.

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LONDON: SATURDAY, MARCH 3, 1900.

CHEMISTS AND THE COMPANIES BILL.

THE Federation of Local Pharmaceutical Associations has prepared for the instruction of members of Parliament a statement of reasons for amending Clause 2 of the Companies Bill (see p. 243). The reasons given are practically identical with those suggested to our readers in last week's Journal (see p. 200), but they are prefaced by a concise explanation of the existing position and, in conclusion, it is urged that—while companies should not be allowed to use chemists' titles—persons without a competent practical knowledge of a chemist's business should not be permitted to exercise any control over the compounding, dispensing, and even retailing of poisons. Last, but not least, the attention of the recipient of the statement is directed to it in a forcibly worded letter which is intended to be signed by the sender—either the president of a local association, a local secretary of the Pharmaceutical Society, or any individual chemist. In that letter it is pointed out that the Pharmacy Act, 1868, which at present regulates the business, is admittedly defective in many respects, but that the registered chemists of Great Britain—whilst fully prepared to assist in any reasonable revision of the Statute, preferably by means of a Bill amending the Pharmacy Act—are strongly of opinion that the amendment now proposed by the Government is both unjust to them and of such a nature as inevitably to compromise the public safety. With the object, therefore, of preventing an injustice and of averting what—in the judgment of those best fitted to form an opinion on the subject—would be nothing less than a public calamity, the attention of members of Parliament is directed to the accompanying statement, and they are invited to do their utmost to secure the substitution of a modified clause in place of Clause 2 of the Companies Bill.

Copies of the letter are being sent, we understand, to every local pharmaceutical association and local secretary in Great Britain with a request that it may be signed and despatched to the members of Parliament for the respective districts. Copies of two modified clauses are also being sent and it is suggested, by the Executive Committee of the Federation, that one of those clauses should be adopted and members of Parliament be requested to do their utmost to secure the substitution of the selected clause in place of Clause 2 of the Companies

Bill. With regard to the two suggested clauses, it may be stated that one summarises the policy of the "no surrender" party, whilst the other combines the views of those who are willing to acquiesce, so far, in the proposal of the Government as to allow companies to carry on the business of a chemist and druggist, provided that such business is controlled by a qualified directorate and conducted in every shop by a legally qualified person. Thus, suggested Clause 2 (A) provides that:—

2 (A). No company may use the description of a pharmaceutical chemist, or chemist and druggist, or any other title implying registration under the Pharmacy Act, 1868; and no company may carry on the profession or business of compounding, dispensing, or retailing poisons; and if any company contravenes this enactment it shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which the contravention happens.

The effect of this clause would be to protect both titles and practice to an extent that would not be possible by simply including registered chemists in Clause 3 of the Companies Bill, for Clause 3—relating to medicine, surgery, and dentistry—is designed only to restrict practice and does not protect titles. This draft clause, therefore, may be strongly commended to the attention of registered chemists, and if some eight or ten thousand of them were to send copies of the Federation statement, with Clause 2 (A) included, to their parliamentary representatives, a powerful effect should be produced.

It would have been well if the Executive Committee of the Federation could have seen its way to avoid putting forward the second suggested clause, as the effect of having two distinct, and to some extent conflicting, policies advocated by registered chemists must be in great measure unsatisfactory. For in Clause 2 (B) the principle of legally qualified ownership is definitely abandoned, and it is provided that—

2 (B). No company may carry on the business of retailing, dispensing, or compounding poisons, unless the business is controlled by directors, each of whom is registered under the Pharmacy Act, 1868, and unless such business is conducted, in each place where it is carried on, by an individual qualified in accordance with that Act, whose name is conspicuously posted outside the premises and printed upon all labels used in the business; and no company may use the description of a pharmaceutical chemist or chemist and druggist, or any other title implying registration under the Pharmacy Act, 1868; and if any company contravenes this enactment it shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which the contravention happens.

But the main principle—*i.e.*, the restriction of chemists' titles to individuals registered under the Pharmacy Act, 1868—is supported by both the suggested clauses and, though 2 (A) and 2 (B) are diametrically opposed with regard to the qualification of the proprietor of the business, both would have the effect of preventing the exercise of control over the compounding, dispensing, or retailing of poisons by incompetent and legally unqualified persons.

ANNOTATIONS.

THE COUNCIL ELECTION is sufficiently near for the pharmaceutical electorate to begin thinking about the choice of suitable candidates to contest the seven vacancies created by virtue of the Pharmacy Acts Amendment Act of 1898, and it is highly desirable that each elector should become conversant with the salient points of the bye-law regulating the election. Any member of the Society who is entitled to vote—that is to say, any person on the current roll of membership, not being an honorary or a corresponding member—has the privilege of nominating another member for the office of councillor or auditor. Those who desire to exercise this privilege must, not later than the eighteenth day of March, give to the Secretary a signed notice stating the name and the address of the person or persons it is desired to nominate, and must send the same so that it may reach the Secretary on or before the date above specified. No form of nomination is required, and there is no restriction as to the number of members a duly qualified nominator may put forward as candidates. Within two days after the date fixed for the close of nominations the Secretary has to communicate with each candidate, inquiring whether he or she (for it is quite legitimate for lady members to be nominated) will accept office if elected, and in default of a written reply being received before the end of the month of March, intimating readiness to accept office if elected, such nominees will be deemed unwilling and ineligible to stand for the election. The net result of those formalities is reported to the Council at its April meeting, and a list of candidates willing to undertake the duties of representation is thus obtained, from which, in due course, voting papers are prepared. The process of reforming the Council, at any rate to the extent of one-third of its membership, is thus by no means a complicated one. All that is necessary is first to catch your candidate, and then see that he is duly nominated before March 18. Fate, the Secretary, and the electors, will do the rest.

OF THE RETIRING MEMBERS OF COUNCIL, all of whom are eligible for re-election, the addresses of two only are found in London, one each in Scotland and Wales, and three in the North of England. Altogether, at the present moment, eight members of the Council hail from the metropolitan district, and no other resides nearer to London than Salisbury, Birmingham, or Norwich. It is somewhat absurd, therefore, to find a Scottish member of the Society writing to a trade paper which can have no legitimate interest in the matter, to assert that "most of the men who sit on the Council at the present time are London men, or men not far from London." More than that, his statement is untrue, and its publication is hardly likely to improve the chances of any Scottish candidates at the approaching election. It is well known that the total strength of the Society in Scotland will not alone suffice to return a single member of Council, but at the present time the members of the Society are content to be represented by two Scotchmen. If, however, candidates from any particular district are to be opposed because they reside or carry on business in that district, Scotland may fare much worse than London at the approaching Council election and, on that principle, it is even conceivable that Scotland might, sooner or later, be left without a direct representative at all.

BUT EVERY MEMBER OF COUNCIL represents the whole of Great Britain, and not any particular town or district; so long as the best men available are elected, it is quite immaterial whence they come. It would be well, perhaps, if a much larger proportion of the members of the Society could be prevailed upon to offer their services to their fellow-members. Indeed, no better system could be contrived for educating chemists regarding their duties and responsibilities than to compel them to take a fair share in the work of organisation and administration. But it is greatly to be feared that difficulty would be experienced in finding sufficient new

candidates annually to replace the seven retiring members, assuming that to be considered desirable by any important section of the constituency. Rumour has it that an attempt is to be made this year to run seven candidates, whose chief qualification shall be that they have never previously served on the Council; but if that can be done once, how many times can the experiment be repeated? As a matter of fact, there is too great a disinclination on the part of members of the Society to take a proper share in the work of administration, and, though it would be a matter for general congratulation if seven new and suitable candidates could be induced to stand for election in May next, it seems too much to expect that to happen every year. Moreover, bearing in mind the results of previous elections, it will be surprising if so many as two of the retiring members of Council are rejected this year after offering themselves for re-election.

THE REFERENCE TO THE WHEELDON CASE in last week's Journal (see p. 200) was not quite accurate, the decision in that case being attributed to the House of Lords instead of the Court of Queen's Bench. But, inasmuch as leave to appeal was refused by Justice Hawkins—speaking on behalf of Baron Pollock and himself—and as no further steps were taken, the judgment in the case was as final in its effects as a decision of the House of Lords would have been. It is interesting at this juncture to recall the fact that, in the opinion of Baron Pollock and Justice Hawkins, the intention of the Legislature was expressly to provide against the business of a chemist and druggist being left in charge of an unqualified person, by insisting upon one uniform qualification for every person who should sell poisons, whether on his own account or for any other person. It was considered by those judges that the object of the Legislature would be defeated if the selection of an assistant who was to be entrusted with the sale of poisons were left to the discretion of the employer, without regard to any qualification. Of course, the fact that an assistant is legally qualified does not relieve the employer of his civil liability to any person injured by the neglect of the assistant; but, so far as the provisions of Section 15 of the Pharmacy Act are concerned, an assistant who sells poison—having been held by the House of Lords to be the person actually responsible under the Pharmacy Act—would be liable to a penalty for an offence under that Section. If, however, the transaction were personally supervised by an employer who is a registered chemist, the entire responsibility, under Section 15, would then fall upon the employer. So far as limited companies are concerned, they are at present quite outside the operation of Section 15, and, consequently, not responsible for offences under that section committed by their managers or assistants, whether legally qualified or not. In the event of Clause 2 of the Companies Bill becoming law as it stands that position would not be altered; it would still be physically impossible for companies to supervise the acts of their managers or assistants, and the protection afforded to the public would thus be much less in the case of companies employing qualified managers or assistants than in the case of individual keepers of open shop for the sale of poisons. That would be especially marked in cases of neglect to conform with Regulation 3 for the dispensing and selling of poisons.

"CHEMISTS' ADULTERATION" is the heading of an editorial note in this week's *Medical Press*; but the case under the Sale of Food and Drugs Acts which has attracted the attention of the writer of the note is only one more instance of the ignorance or unfairness of that organ towards chemists. The case is reported at page 241 of this week's Journal, and the defendant, as there stated, is not a registered chemist. Further, the inaccurate writer on the staff of our contemporary may do well to note that the British Pharmacopœia is not a good standard for the purity of drugs; it may also be suggested to him that the fact of an offence being committed by a person who is not a chemist hardly justifies the publication of baseless innuendoes against those who are properly described by that title. But it was ever thus in the *Medical Press*.

A NEW USE FOR THE TOAST is seen by the *Preston Herald* in Mr. Gifford's curious and inaccurate speech (see *ante*, p. 217) at the annual dinner of the North-East Lancashire Chemists' Association, recently held at Blackburn; but we fail to see, as does a writer in that journal, that "a revolution will be effected by the same event in that conception which holds that public dinners are invariably succeeded by benignant proposals and endorsements in those who partake of them." The bulwark of conventionality has undoubtedly been broken down in many ways in recent years, but untruthful assertions are not likely to supplant correct statements of fact, or even compliments, in our day. The Preston oracle is of opinion that "a little more candour, and less humbug, would disperse a good deal of that somnolency which prevails at many business functions of this kind, and cause them to be regarded more with the idea of pleasure than a duty to be performed," but the utterance of falsehoods hardly comes within the definition of "candour," whilst "humbug" is surely an imposition under fair pretences, such as were manifested by the erratic speaker whom the *Preston Herald* seems so anxious to honour. Let us have more candour by all means, so long as the truth is not masked; on the other hand, a little transparent humbug is preferable to gross impertinence and utter lack of decency in public speech.

THE STAMPING OR MARKING OF GLASS MEASURES was brought up for consideration by a deputation from the Corporation of the City of London, which waited upon the President of the Board of Trade a few days ago, complaint being especially made of the competition which appears to go on among local authorities. It was pointed out that under the Act of 1878 there was a special schedule of charges, and it was expressly enacted that those should be the charges, "and no others, and no discount shall be allowed," but certain authorities, more particularly in Northumberland, have allowed discounts where the stamping took place upon the manufacturer's own premises. That was found to militate considerably against the trade of London, and the London County Council considered it expedient, with a view of keeping the trade to London, that it should enter into competition, and it did so by reducing the charge from 1s. to 6d. The Board of Trade, however, intimated to the County Council that it was illegal to charge only one-half of the statutory fee. The County Council then agreed to revert to the old charge, but shortly after determined to make no charge at all, but instead to charge 4½d. per dozen on glass measures for unpacking and repacking. That, the Corporation contended, was an evasion of the Act, but the County Council could not be got to obey the Act strictly, the principle assigned therefor being that it was absolutely necessary in order to keep the trade to London and to enable the Council properly to compete with other authorities. It was now urged that for the protection of British industry it would be far better not to have such a system, because foreigners were able to import their glass measures and get them stamped by the County Council merely at the cost of this packing charge, whereas if they had to pay the statutory fee the British manufacturer would undoubtedly be able to hold his own. The number of glass measures brought to the City to be stamped had dwindled down very much, so the grievance was a very substantial one to the Corporation. It was therefore earnestly hoped that the Government would, by an amending Act or otherwise, secure uniformity of practice and of fees throughout the United Kingdom. Mr. Ritchie, in reply, said there was no doubt that it was a very unsatisfactory and a very inconvenient thing that within the area of London there should be two different scales of fees, because, after all, it came to that. He should not like to say whether the position of the County Council was legal or otherwise, but there was certainly something more to be said for the County Council's present position than if it had charged a reduced fee. If the contention of the City was right there was no necessity for new legislation on the subject. If some general Bill on weights and measures were required in the

public interest it might be comparatively easy to put this question of the stamping of glass measures into such a Bill; but he was not aware that there was any such public demand, and, therefore, he could not undertake any legislation on the subject. However, he would address a communication to the London County Council, drawing attention to the representations made to him by the City authorities.

THE NATIVE DRUG PLANTS OF THE UNITED STATES involve the expenditure of millions of dollars annually in their collection, but, according to the United States Secretary of Agriculture, the commercial extermination of some of the most useful species is already threatened. He states that the Pan-American Medical Congress has recently submitted to him a proposition to co-operate with the Department of Agriculture in a technical and statistical investigation and classification of American drug plants. By accepting that proposal, it is thought the cordial assistance of an influential association of learned physicians will be secured in a research of which the need has long been felt. As quoted by the *British Medical Journal*, the Secretary of Agriculture, in urging the appropriation of ten thousand dollars to enable his Department to co-operate in this investigation, asserts that encouragement will thus be given to each of the other American nations—all of which are represented in the Pan-American Medical Congress—to proceed with a similar investigation of their own medical flora, whilst furnishing a basis for the remunerative employment of much land and many people, and stimulating the great growth and growing trade in drugs between the countries of North America and South America.

THE BRITISH PHARMACEUTICAL CONFERENCE GENERAL COMMITTEE for the London meeting now includes the names of eighty-one gentlemen, and the Hon. Secretary to the local Executive Committee asks us to state that he will be glad to receive the names of any others who are willing to join the General Committee. He also sends a first list of subscriptions (see p. 236) to the B.P.C. Entertainment Fund, the total of which now exceeds two hundred and sixty pounds. Those who have not yet intimated the amount of their subscriptions are asked to communicate with the Hon. Secretary, Mr. William Warren, 24, Russell Street, Covent Garden, W.C.

THE POISONING CASES AT CRUMPSALL WORKHOUSE, particulars concerning which were published in the *Pharmaceutical Journal* for December 30 last, have been reported upon by the Visiting Committee of the Crumpsall workhouse. It is stated that there appears to be no doubt that the fatality arose from a mistake having been made by one of the dispensers when refilling a bottle labelled spirit of nitrous ether, that having, through an inadvertence, been filled from a stock jar containing a preparation of strychnine. At the same time, the committee is satisfied that existing arrangements for the dispensing of medicines for the sick inmates are such as are calculated, with the exercise of reasonable care, to prevent the occurrence of such mistakes as that alluded to, and it is stated that no serious mistake of the kind has been known to have occurred before at the workhouse. A sub-committee has, however, made a thorough investigation into the existing arrangements at the dispensary, and suggests that special cupboards be set apart for storing bottles containing poisons, and that two dispensers be required to be present when dealing with poisons intended for patients. An inspector of the Local Government Board, who was present at the meeting at which the foregoing report was presented, said that he went to Crumpsall workhouse shortly after the occurrence referred to. As a result of inquiries he made, he was satisfied that great care had always been taken to prevent accidents taking place. It seemed to him absolutely inexplicable how such a blunder could have been made. Ultimately, the report and suggestions were adopted by the Manchester Board of Guardians.

POLITICAL GOSSIP.

THE GOVERNMENT is continually being questioned as to its intentions, and no dilatory lover could be more pestered by an anxious parent than the Leader of the House is by impatient or suspicious M.P.'s. Mr. J. Bryce (S. Aberdeen) and Sir J. Brummer (Northwich) jointly and severally invited Mr. Balfour, on Friday, the 23rd ult., to reveal the Ministerial plan of campaign in reference to the Companies Bill, and the response to that invitation is highly satisfactory in so far as it shows that the official intentions towards the question of company reform are perfectly honourable. In fact the Government honestly proposes to proceed with the Bill at the earliest favourable opportunity, and hopes to take the second reading before Easter. Furthermore, endeavours will be made to give at least three days' notice of the date on which that stage will be taken—a graceful acknowledgment of the importance of the subject and of the wide interest felt in the proposed amendment of company law. Whilst few will share Mr. Balfour's optimistic estimate of parliamentary progress, all chemists will agree that it is essential no more time should be wasted in minutely differentiating the merits of rival schemes of pharmaceutical salvation; the leaders and the led should, in fact, now emerge from the self-generated "company" fog which has enveloped them for so long, and set about the serious work of defensive preparation.

TOO MANY COOKS, especially when they are all active and zealous, may be depended upon to effectually spoil any meal, and similarly there is some fear that pharmacy may suffer in Parliament through the gratuitous meddling of a number of pharmaceutical chefs whose zeal is more to be commended than their judgment. It is not a very exhilarating thing when interviewing a member in the Lobby to find that the apostle of how not to do it has already captured that member and supplied him with arguments which are plausible and specious enough to render his mind unreceptive to higher considerations. Most abominably active, too, are these same apostles—just as the bandsman with an ill-tuned cornet always possesses abnormal lung power—and their effect upon the average M.P. is distressing. What with journalistic circulars, Federation circulars, and independent missives from individual chemists; members are being made sick of the pharmaceutical aspect of the Company question, and by the time the Pharmaceutical Council makes up its mind to put its political influence into operation the House will most likely have become quite lethargic and indifferent to the subject. Perhaps this is not realised by chemists and druggists as it should be; if it were, there would not be such a feverish anxiety to be active at all costs, irrespective of eventualities. Petitions for alteration of the Companies Bill are likely to be favourite methods of letting off political steam. One has already been received from Bolton, and as petitioning is a comparatively harmless form of relief it may be commended to the attention of those who feel they must do something or burst.

THE BOARD OF EDUCATION created by last Session's Board of Education Act is to be assisted in its work by a Consultative Committee, the functions of which were prescribed by the Act, and some anxiety is being manifested by educationalists as the time for constituting the Committee draws near whether the right men will be appointed. On behalf of the member for Oxford University (Sir W. Anson) a question was put to Sir J. Gorst on the 23rd asking whether universities and other bodies concerned in teaching would be invited to nominate persons for appointment on the Committee. The Vice-President of the Council seemed quite shocked at the idea of utilising the accumulated experience of respectable teaching bodies in such a direction, and answered

with a curt "No." He further stated that the Committee would be constituted by an Order in Council which would also provide for the appointment of subsequent members. Sir William Anson also elicited that regulations or terms of reference under which the advisory duties of the Committee are to be discharged will not be submitted to the criticism of the House. The Order in Council constituting the body will alone be open to observation during its month's stay on the Table. There is no chance of the "tail wagging the dog" here, for it is evident that the Committee is to be kept well under, and will only be required to advise when it is asked to do so, and then strictly on the particular matter referred to it. Mr. Yoxall (Nottingham) has tried his hand at drawing Sir John, but failed to get more than an assurance that suitable persons would be chosen.

DEPARTMENTAL ENLIGHTENMENT is a rare thing to meet with, and should be noted whenever found; hence, the Medical Department of the Admiralty deserves some commendation. In the course of his speech introducing the naval estimates, Mr. Goschen is reported to have said that hitherto medical officers had to supply their own instruments, and, as a consequence, these instruments and drugs, which are so essential for the welfare of the sailors, have not been carried in sufficient quantities. The Medical Department has thought it to be a duty to change that condition of affairs; hence some increase in the amounts asked for on account of *personnel*. We know that a very reasonable attitude prevails also at the Admiralty in reference to the status of Naval dispensers, and the old disposition to regard them as rather inferior to good stokers has almost entirely died out. Sir Walter Foster gave in his testimony to the intelligent working of the department, and praise from Sir Walter is praise indeed, when medical matters are involved.

ENGLISH NEWS.

IMPERIAL COLLEGE OF CHEMISTRY.—The students attending this College visited the South Metropolitan Gas Works, on February 14, the party being conducted throughout by Mr. Duckham, assistant engineer, who described the various processes most graphically. The distillation of the coal by the old and new variety of retorts was of great educational interest; the charging and drawing processes being accomplished by compressed air in the one case, and gravitation in the other. The gas passes from the retorts up the ascension pipes into the hydraulic main, where a large amount of the tar and ammonia contained in the crude gas is caught. From these mains the gas passes into the condensers, where it cools, and thence it is pumped by the exhausters through the purifying plant, which consists of:—1. "Livesey" washers, which take out the remainder of the tar and soluble impurities; 2. Tower scrubbers which remove the remainder of the ammonia from the gas. 3. Purifiers, three, charged with lime, removing the carbon dioxide and sulphur, whilst the two charged with oxide of iron remove the sulphuretted hydrogen from the gas. All of the ammoniacal liquor is converted into sulphate of ammonia, and the sulphur recovered by means of "Claus" sulphur kilns. The making of Prussian blue having been studied, the students presented Mr. Duckham with a handsome silver card case. Mr. Frederick Davis proposed a vote of thanks, and the proceedings then terminated.

SOUTH LONDON SCHOOL OF PHARMACY.—On Monday, February 26, the staff and present students of this school dined together in the Empire Hall of the Trocadero Restaurant, having been invited thereto by Dr. Muter on the occasion of his birthday and to celebrate the thirty-second anniversary of the school. In giving the usual loyal and patriotic toasts reference was made to the fact that several of the students had gone to the Front as Imperial Yeomen and in the Hospital Corps. Dr. Muter's health was pro-

posed by the Rev. S. Bache Harris, Vicar of Kennington. During the evening a presentation of a gold waistcoat-pocket card case was made to Dr. Muter as a souvenir of the occasion, and, after the toasts, a smoking concert was given by the musical students.

SHEFFIELD COLLEGE OF PHARMACY.—On Shrove Tuesday the students of this school, by kind permission of Colonel J. Bingham, J.P., visited the works of Messrs. Walker and Hall, electro-plate manufacturers. The manufacture of spoons, forks, soup ladles, dish covers, carvers, tea and coffee pots, were shown in detail. The electro-depositing of copper, silver, and gold, the electricity generated by specially constructed dynamos. Some real ivy leaves and berries were silver-plated, as well as some real lace for ornamental purposes. The embossing and chasing of presentation cups, etc., by skilled artisans were much admired. In the afternoon the Handsworth nurseries were visited. The choice selection of orchids was much in evidence, several varieties being explained by the superintendent. The croton, fern, and azalea houses next received attention. The whole day's outing proved most instructive.

NORTHAMPTON CHEMISTS' ASSOCIATION.—At a recent meeting of the Northampton chemists, the initial steps were taken to form a chemists' association for the town and district, and after the business was concluded Mr. Mayger, the senior chemist of the town, very kindly invited his brother chemists to a dinner. This took place on February 22, when over twenty chemists and assistants partook of a most excellent repast. Mr. Mayger expressed regret that two or three gentlemen were unable to be present through illness, amongst the number being the energetic local secretary—Mr. John Bingley, Mr. G. C. Druce, M.A., of Oxford, spoke of the pleasure it afforded him of being present; being an old Northampton chemist, and having a great affection for the old town, he was always glad to renew acquaintance with his friends there. The usual toasts were proposed and honoured, that of the Queen being most enthusiastically received. Speeches and songs followed, and a most enjoyable evening was spent.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.—A meeting of the Executive Committee of the North-East Lancashire Chemists' Association was held at the "White Bull" Hotel, Blackburn, on Friday night last, Councillor Critchley presiding. The recommendations of the Federation in the matter of the Companies Bill were considered, and it was resolved not to entertain any other policy than that represented by the Federation's first resolution.—Councillor Shorrock, Mr. Wells, and the Secretary were appointed a deputation to wait upon Sir Harry Hornby, Bart., M.P., Sir William Coddington, Bart., M.P., and Mr. J. Rutherford, M.P., to request their support in the direction indicated. Messrs. J. Booth and Percy Bean were afterwards added to the deputation, and it was stated that an interview with Sir Harry Hornby had already been arranged.—Mr. Wells, referring to the Association's agitation in favour of making operative the Act of 1868, said the time had evidently arrived when the reactionary forces would prove too strong for them, and they must either give up the struggle or put their backs against the wall for a more determined fight. The latter alternative meant that they must run a candidate of their own for election on the Pharmaceutical Council, and he moved that a general meeting of the members be called for March 6, with a view to inviting Mr. R. Lord Gifford, their secretary, to consent to nomination.—Mr. W. Holt seconded the motion. He remarked that at their recent dinner one of the members of the Council said he did not see why the Association should not have a representative on the Council, while another said it was within their power to make the Council what they required it to be. Another reason, and a stronger one to his mind, was that it would be a pity to allow the persevering and painstaking work of Mr. Gifford to fail of its effect.—The proposition was supported by Councillor Shorrock and others, and carried with enthusiasm.

NORTH OF ENGLAND SCHOOL OF CHEMISTRY AND PHARMACY, NEWCASTLE-ON-TYNE.—On Tuesday evening, February 20, the past and present students of this school met in Simpson's Café for a social gathering, also to give a send-off supper to one of the late students, Mr. J. T. Hogarth, who recently qualified from the school, and has volunteered for active service with the 1st V.B. Northumberland Fusiliers. The Principal of the School, Mr. F. R. Dudderidge, occupied the chair. After supper a purse of gold was presented to Mr. Hogarth, on behalf of the students, by Mr. G. F. Merson, former principal of the School, who in suitable terms wished Private Hogarth God-speed and a safe return. The remainder of the evening was devoted to music and recitations, the following gentlemen contributing:—Songs by Messrs. Dudderidge, J. Duncan, and McPhail; violon solos by Messrs. J. G. Duncan and Stevens, a recitation by Mr. Shadforth, and a 'cello solo by Mr. J. S. Hill; Messrs. J. Duncan and Hill also taking the place of accompanists. A very enthusiastic and enjoyable evening was appropriately ended by the singing of the National Anthem.

QUOTING FROM WHOLESALE DRUG LISTS.—At a recent meeting of the Brecon Board of Guardians a letter was received from a local firm of chemists, Messrs. Meredith and Stanton, who forwarded the wholesale price list of Messrs. Hodgkinson, Clarke, and Ward, in response to Board's advertisement for the supply of drugs for the workhouse. Messrs. Meredith and Stanton pointed out that it was difficult to submit samples, but they were prepared to charge the Union according to the figures on the price list, and the quality of the drugs supplied would, they added, be the highest.—The Clerk said that what was sent was their wholesale drug list. The firm said they were prepared to accept wholesale prices.—It was pointed out that carriage would be saved in this way.—The Rev. W. Williams, one of the members, remarked: I have had some experience in the matter of tenders. I have had it from a chemist in the town that the wholesale price list which chemists send out is no guide whatever to the actual cost. The discounts are so large to the retail dealer that you can form no idea of the actual cost.—Another gentleman inquired whether the prices submitted were subject to a further discount!—Mr. George, one of the other members, asked how it was to be expected that a firm could pay rates and taxes if they supplied the Union at a loss of the carriage. The Board wanted the penny and the cake.—Eventually the tender of Messrs. Meredith and Stanton was accepted.

SALE OF CAMPHORATED OIL.—At Lambeth Police-court on Thursday, February 22, Thomas Tyrrell, described as a chemist, of Southampton Street, Camberwell [The name Thomas Tyrrell does not appear on the Register of Chemists and Druggists, 1900.—Ed. P.J.], was summoned, at the instance of the Camberwell Vestry, for selling camphorated oil which was not of the nature, substance, and quality of the article demanded by the purchaser, inasmuch as it was certified by Dr. Frank Teed, the public analyst, that it contained 80 per cent. of mineral oil, whereas the British Pharmacopœia required that camphorated oil should be made in the proportion of one ounce of camphor dissolved in four fluid ounces of olive oil. Dr. Teed also stated that the proportion of camphor was about 2 per cent. below the mark.—For the defence it was stated that the defendant kept two kinds of camphorated oil, one for retailing, and the other for use in rheumatic liniment. They both stood on the same shelf, and the defendant, who was old and near-sighted, served the inspector from the wrong bottle.—Mr. Hopkins regarded the case as a bad one, and ordered the defendant to pay a penalty of £20 and costs.—At Worksop Police-court on Wednesday, February 21, Richard Chambers, was charged with selling camphorated oil which was not in accordance with the British Pharmacopœia.—Inspector Crabtree, who proved the case, stated that he had pur-

chased the whole of the camphorated oil the defendant had in stock, and he thought the defendant was not so responsible as the wholesale house that supplied the oil.—Defendant's wife stated that the traveller for the firm from which the oil was purchased had visited her on his ordinary journey a few days prior to the case coming before the Court, when he stated that the oil supplied was not up to the requisite strength. Other customers had been notified of this, and oil had been returned, but they had omitted to notify her.—The Bench fined the defendant £1, and expressed the hope, in the interests of the public, that defendant would sue the wholesale firm in the County Court for damages sustained, the inspector having promised to give evidence.—At Swadlincote Police-court on Tuesday, February 20, Samuel Kirby, grocer, Overseal, was fined £1 1s., including costs, for selling camphorated oil containing 35 per cent. of mineral oil. The Chairman stated that the Bench did not think defendant had wilfully broken the law, and pointed out that he had his remedy against the wholesale dealer.

SALE OF OLIVE OIL.—Ernest Scruby, grocer, Minster, was fined £4 by the Ramsgate magistrates on Tuesday, February 20, for supplying cottonseed oil when olive oil was asked for.—Defendant pleaded that he had purchased the stock-in-trade of the shop in bulk, and did not know whether the oil was olive oil or not.—The Bench informed him that it was his business to know.—The Police Superintendent stated that the county police had received orders to take frequent samples of oil, there having been numerous complaints as to the oil sold as "olive."

OVERDOSE OF CHLORODYNE.—On Monday, February 19, the Wigan Borough Coroner held an inquiry touching the death of a woman named Sarah Crook. The deceased had been in the habit of taking chlorodyne, and on the previous day she was found in a comatose condition, having taken an overdose. A verdict of "Death by misadventure" was returned.

POISONING BY PRUSSIC ACID.—An inquest was held at Nottingham on Friday, February 23, with respect to the death of Fred Lumby, chemist and druggist and sub-postmaster, at 46, Arkwright Street, Nottingham.—Evidence was given to the effect that deceased had been unwell for some time past, and had been worried about the post-office business. On the previous Tuesday night he had no sleep, and on Wednesday morning complained of his head and chest. Later the same day he was found in his bedroom suffering from prussic acid poisoning.—The jury returned a verdict of "Death from prussic acid poisoning," but were of opinion that there was not sufficient evidence to show the circumstances under which it was administered.

OVERDOSE OF COCAINE.—An inquest was held at Dalton Parva on Friday, February 23, touching the death of Edith Walker (22), wife of John William Walker, farmer, who died suddenly on Tuesday, February 20. The husband stated that deceased had been in the habit of taking cocaine for some time past. About 3 o'clock on Tuesday morning he heard a noise, and found her on the bedroom floor insensible. He sent for Dr. Knight, but she died about 3.30 a.m. There was a paper labelled cocaine on a stool near the bed, and it had apparently been purchased at Rotherham.—Dr. Henry Ernest Knight, surgeon, said about two years ago deceased complained of toothache, and he prescribed cocaine. He had no idea she had taken any since. He saw her the previous Monday afternoon, and she was then well and cheerful.—The jury returned a verdict that death was due to an overdose of cocaine, administered by herself without felonious intention.

SCOTTISH NEWS.

THE EDUCATIONAL INSTITUTE PRELIMINARY EXAMINATIONS.—In connection with the reference in last week's Journal to the alterations which take place after July in the registration of pharmaceutical students, it is of some interest to notice that the Educational Institute of Scotland has already begun to move in the direction of providing facilities for earning the necessary certificates. In the new 'Calendar,' just issued, intimation is made that arrangements are in progress for conducting the general knowledge examinations for the certificates required by the Pharmaceutical Society. What is proposed is that pharmaceutical students will be admitted to the Medical Preliminary Examinations under exactly the same conditions and on the same terms as medical students, and certificates will be granted stating what subjects they have been successful in passing. The fee for the examination is one pound, and candidates may take the whole six subjects at one time or as many as they may wish to take. Hitherto the Institute Medical Preliminary Examinations have only been held in Edinburgh and Glasgow, but it is intended to have centres in Aberdeen, Dundee, and Dumfries, so that the whole country will be embraced. The first examination after July will be held in September of this year, English and Latin on September 18, arithmetic and algebra on September 19, and Euclid and French (or German) on September 20. The syllabus gives the following particulars:—English: Including dictation, composition, parsing, and derivation. Shorthand is accepted as an alternative to questions in derivation. Latin: Grammar, translation into English from Cæsar de Bello Gallico, Book IV., and Virgil, Æneid, Book VI., lines 1-402: and translation of passages from authors not specified; and composition in Latin. French (or German): Including grammar, translation from English into French (or German), and French (or German) into English. No authors are specified in modern languages. Arithmetic: The common rules and vulgar and decimal fractions. Algebra: Up to and including simple equations. Euclid. Books I.—III., with deductions. Full particulars of the examinations will be advertised in due course.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION.—This Association held a highly successful smoking concert in its rooms, 100, West Regent Street, on Friday, February 23. Mr. J. P. Taylor made an efficient Chairman, and an exceptionally bright programme of songs, musical selections, etc., was rendered with ability and acceptance. Owing to the indisposition of Dr. Coull, of Edinburgh, it was announced that his lecture on "Stereo-Chemistry," due on March 2, would be postponed until March 9 or later.

IRISH NEWS.

PHARMACEUTICAL SOCIETY OF IRELAND.—At an evening meeting held at 67, Lower Mount Street, Dublin, on Monday, when Mr. J. Smith occupied the chair, a lecture was delivered by Mr. J. N. Laird, B.A., Trinity College, on "Some facts about the Distribution of Plants." The lecture was illustrated by a number of beautiful limelight views, and the lantern was worked by Mr. E. H. Hanley, B.A., a friend of the lecturer. Mr. Laird, having introduced the subject of his discourse in a few well-chosen words, referred to the geographical and geological distribution of plants and to the mechanical methods made use of plants in aiding growth. He explained some of the principles which governed such distribution, and referred at some length to the depression of land caused by human structures, submerged forests, and coral islands, and instanced a number of cases in connection therewith. Stratified and volcanic rocks, and their respective functions in the distribution of plants, were spoken about, and the principles of change of organisms due to physical surroundings commented on. The theory of the survival of the fittest was instanced by the struggle

for existence which was continually going on in the animal and plant world. Plant distribution was best studied in islands, there being a restricted area and definite boundaries, with a much smaller number of species and genera than in continents. Their peculiar species and groups were well defined and limited in range. Their relation to other lands was often simple, and they exhibited certain influences on the forms of life which continents did not show, and were altogether simpler than the continental species. The study of island plant life was accordingly preferable to continents. Oceanic islands and continental islands were differentiated, and the total absence of warm-blooded animals on the former commented on. Ancient continental islands and mammals came next under notice. The lecturer carried his hearers through the Azores, and said of 480 phanerogams and ferns extant 440 were found in Europe. Forty other species were of a peculiar kind, but were allied to the European species. The dispersal of seed was next referred to, and the speaker showed how a single seed could populate an entire island. Seeds could be carried enormous distances by the agency of wind, birds, sea-water, etc. The seeds of oats, capsicum and potato grew after a hundred days' immersion in water. Most of them, however, sank after a few days' immersion. Of twenty-two land birds in the Azores one half of them were fruit eaters. The transmission of seeds on birds' feet and in excreta was referred to. Six and three-quarter ounces of mud on the edge of a pond, being carefully treated under glass, gave 537 plants. The composition of Azorean plants was compared. Forty-five had pappus or winged seeds, sixty-five had very minute seed, thirty had fleshy fruits such as were greedily eaten by birds, and eighty-four were glumaceous plants, all of which were well adapted for wind and water. There were no trees or shrubs in the Azores with large or heavy fruits. Such trees as the oak, chestnut, hazel, etc., were unknown. The Galapagos were next described, and the flora thereof dwelt upon for some time. The lecture, which occupied about two hours, was throughout of an interesting and instructive nature, and at its conclusion a hearty vote of thanks was accorded to the lecturer.

FOREIGN NEWS.

DARK RAYS DESTROY BACTERIA.—It appears to be well proved that the rays of the ultra-violet end of the spectrum—the chemical rays—have the property of destroying bacteria, also that they may produce inflammation of the skin and penetrate it. These facts are likely to prove of great importance in medicine. Dr. Finsen, a Danish physician, concluded some time ago that the skin inflammation in small-pox was due to increased sensitiveness to the chemical rays, and on excluding these rays by placing the patient in red light, he greatly diminished this painful effect. Sunburn and X-ray burns seem to be due to a concentration of the actinic rays. Dr. Finsen has now taken advantage of the bactericidal property, and in cases of skin diseases due to microbes, instead of excluding the chemical rays, he concentrates and cools them by a special instrument. His experiments thus far have been chiefly applied to lupus, with which he has had such success that any failure throws doubts on the diagnosis, about three hundred and fifty cases having been treated.

AN ILLEGAL DRUG.—Monsieur P—, analytical chemist, has just had a "mauvais quart d'heure" with the judges of the Tenth Correctional Chamber, who convinced him (or at least made the attempt) that a specialty called "Stéréol," whose base was alum, and which was destined to form antiseptic solutions, was illegal, since he was exercising pharmacy. He declared upon his prospectus that "Stéréol" was capable of destroying other germs than microbes, and might fill equally as well the prescriptions of Malthus as those of Pasteur. In his defence he argued in vain that the use of his tablets constituted a measure of hygienic precaution and not medication. Failure to bring the judges to his way of thinking cost him 500 francs.

FEDERATION OF LOCAL PHARMACEUTICAL ASSOCIATIONS.

A meeting of the Executive was held at Law's Hotel, Surrey Street, London, W.C., on Monday, February 19, at 10 a.m., when all were present. Messrs. J. SMITH (Liverpool), Chairman, Currie (Glasgow), Thompson (Birmingham), Peck (Cambridge), and Jas. Cocks (Plymouth), Hon. Secretary and Treasurer.

Suggestions for Discussion, etc.

It was decided that the following recommendations regarding subjects for discussion, etc., should be forwarded to local associations and local secretaries of the Pharmaceutical Society:—

(1) Oppose Clause 2 of the Government Companies Bill adopt one of the two following resolutions, and interview members of Parliament, soliciting their support, furnishing copies of printed reasons at the same time:—

(A) To protect chemists' titles, and make it illegal for companies of unregistered persons to keep open shop for selling poisons, as in the case of individuals.

(B) To protect chemists' titles, insist that drug companies should have a qualified directorate, and that the business shall be conducted by a qualified person, whose name shall be conspicuously posted over the shop or place of business.

(2) Discuss the disadvantages of ordering in prescriptions B.P. preparations under fancy names, with the view of pointing out the same to local medical men.

(3) Discuss the advisability of approaching the Poor Law authorities, that in filling future vacancies for dispensers under their control, candidates holding the qualifying examination of the Pharmaceutical Society only should be eligible.

(4) Discuss, and forward to the Secretary of the Federation, as to whether chemists should be included in any future Bill introduced into Parliament dealing with the regulation of hours of business in retail shops.

(5) Seeing the efforts now being made to increase the membership of the British Pharmaceutical Conference, we commend its objects and advantages to the Local Associations.

(6) The Federation suggests for discussion the desirability or otherwise of holding the Society's Annual Meeting during the meeting of the British Pharmaceutical Conference.

The Companies Bill.

In connection with the recommendation (1) to oppose the Companies Bill, the Secretary, acting on the instructions of the Executive Committee, has sent a circular letter to all local associations and to the local secretaries of the Pharmaceutical Society, giving a statement of reasons for amending Clause 2 of the Companies Bill, together with copies of two suggested clauses, one of which is to be selected and sent with the circular to the local member of Parliament. It is suggested that copies of the letter should be signed by the president of each local association and by each local secretary of the Pharmaceutical Society, also by as many individual chemists as possible, the signed copies to be dispatched—with the selected draft clause enclosed in each case—to the members of Parliament for the respective districts, who should also be interviewed on the subject if possible. The Secretary further requests that the letter should be utilised as promptly as possible, and asks to be informed at once how many additional copies can be put to profitable use. Individual chemists can obtain copies of the circular letter and suggested clauses by applying to the Secretary of the local association for the district, to the nearest local secretary of the Pharmaceutical Society, or to Mr. James Cocks, 8, Edgcombe Street, Stonehouse, Plymouth.

Rules and Questions for Local Associations.

The following rules are recommended by the Executive Committee for conducting committees and small associations:—

1. Its objects are the cultivation of mutual trade interests and social intercourse (and educational where possible).
2. A member shall be elected annually as chairman, and another as secretary and treasurer.
3. Meetings will be held as required, the holding of which shall be at the discretion of the chairman and secretary, or at the written request of any two members.
4. At a meeting, the membership of which is under ten members, two shall form a quorum, and from ten to twenty members, three shall form a quorum.
5. The amount of the annual subscription shall be 2s. 6d., or the expenses of the year equally divided.
6. The members should try and arrange for an annual dinner or supper, also an excursion in the summer, to the latter ladies should be invited to attend.

The following questions of a personal nature were sent to the various associations:—

1. Would you kindly forward the numbers of your Association?
2. Please elect your delegates for the Federation before the end of the Session.

CHEMISTS' ASSISTANTS' ASSOCIATION.

On Thursday, February 22, at 73, Newman Street, London, W. Mr. F. W. GAMBLE, President, took the chair at a meeting of this Association, when Mr. R. E. LOWNSBROUGH communicated some

NOTES ON ENTOMOLOGY.

In his introductory remarks, he said the chemist had many calls made upon him to view the "insect world" with a greater regard and more esteem than the majority of people. The dislike, often aspiring to hatred, for such members of that group of animals as bugs, fleas, mosquitoes, wasps, earwigs, and black-beetles offered to the enterprising chemist the opening to earn an honest coin; a commercial prospect in the direction of insect powders, fly-catchers, sticky or otherwise, in every variety, moth crystals and papers, phosphor paste for the benefit of black-beetles, remedies for mosquito and gnat bites, anodyne for bee-stings, wheat dressings for the agriculturist to protect his seeds from their many enemies, tobacco sheets and arsenical washes for the horticulturist to wage war on plant lice, sheep dips for the farmer, concoctions for the fruit grower to protect his trees from the onslaught of the larvæ of many moths. Those were some of the chemist's business calls. In their student days they acquired a knowledge of cochineal, cantharides, *Blatta orientalis* the cockroach, *Apir mellifica* the honey-bee, gallflies, those coccidæ which produce "lac," which is largely used in the manufacture of sealing wax and varnishes. They studied the aid rendered by insects in the cross-fertilisation of flowers, and the unwilling assistance given to the nourishment of fly-catching plants such as the sundew, butterworts, and Venus fly-trap. Other connections might also be quoted, but he thought the foregoing would suffice to form an excuse for offering a paper on entomology, a branch of natural history that was very extensive, divided into many groups, giving ample scope for investigation. His attention had chiefly been devoted to the group to which butterflies and moths belong, but it was not his intention to adhere to any one group, but to give a short sketch of insect life generally. He then went on to define an insect as an invertebrate animal, which possesses a head with mouth parts, eyes and antennæ, a many-segmented body with six legs (three pairs) on the segments immediately following the head, and, when mature, having either one or two pairs of wings. Having described the various parts, he stated that no insect possesses any bones, their outer covering being horny, taking the place of a skeleton, and to that the muscles are attached. Neither have they any lungs; the breathing being effected by means of tubes, usually eighteen in number, placed

along the side of the insect, the terminations being known as spiracles. The eighteen tubes give rise to 236 smaller tubes, which branch and divide into all parts of the insect's body, hence the reason why insects are so soon overpowered by strong fumes, such as chloroform, ammonia, cyanide, etc. Those were the general characteristics of insects, but of course they had many variations, and these Mr. Lownsbrough proceeded to describe, mentioning another distinguishing feature of a true insect, viz., that it passes through four distinct periods of life, (1) the egg period; (2) the larval or masked period, better known as the caterpillar stage; (3) the pupal or enshrouded period, or chrysalis stage; and (4) the imaginal or perfected period. He then dealt with the thirteen different orders into which the insect world is divided, describing the characteristic features of the various classes of insects during the four stages of their existence, giving a brief outline of their habits, food, etc. At the conclusion of a most entertaining paper, which was illustrated by numerous specimens of the beautifully decorated butterflies and moths, and of the less attractive, but none the less interesting, beetle family, flies, etc., the author said he had endeavoured to put before those present some views of the great scenes in insect life, with the hope that they might see in them some gain beyond that of business, that as they walk by woodland path, or over wide expansive moor, by murmuring brook or placid lake, they might find some pleasure in reading nature's secrets.

The PRESIDENT having congratulated Mr. Lownsbrough on his intensely interesting paper, a short discussion followed; a hearty vote of thanks to the author bringing the meeting to a close.

ROYAL INSTITUTION.

A lecture was given on Friday, February 23, by Professor JOHN H. POYNTING, D.Sc., F.R.S., on

RECENT STUDIES IN GRAVITATION.

By the law of gravitation every particle of matter attracts every other particle of matter with a force that is proportional to the product of their masses, inversely as the square of the distance between them, and in the direction of a straight line joining their centres. Soon after Newton formulated this law an experiment was made to determine the mass of the earth by observing the angle of deflection from the vertical of a plumb-line hung in position near a mountain. It was, in other words, an attempt to determine the mass of the earth in terms of that of the mountain. Chimborazo was the mountain chosen, but, from various causes, the result was not quite accurate; the climatic conditions were unfavourable, inasmuch as observations were made at different points of the compass, and so the apparatus might be working at one station in a snowstorm and at another in a storm of sand. Then again, the mass of the mountain was only approximately determined, chips were taken from the sides, their specific gravity taken, and a complete survey of the mountain was made.

The next attempt to determine the mass of the earth was made by Cavendish. His result has been verified in recent times by Boys, who used a similar apparatus to that of Cavendish, but with the dimensions reduced to gain exactness. Then a German worker took infinite pains to devise an apparatus wherein air currents might be reduced to a minimum, by obtaining a partial vacuum (one two-hundredth part of an atmosphere). This worker, living in the country, far from towns, made his own apparatus, and obtained the same result as Boys—viz., that the earth has a mean density 5.527 times the density of water.

The author has given considerable attention to this subject, and has obtained the figures 5.49 as his result. He considers 5.5 to be the correct result, as nearly as is possible to determine it.

Newton said that the mass of the earth would prove to be five or six times what it would be if it consisted only of water;

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.

At a meeting of the above Association, held on Wednesday, February 21, the PRESIDENT, Mr. F. Maitland, in the chair, a discussion took place on

THE COMPANIES BILL.

The CHAIRMAN considered that pharmacists should most vigorously oppose Clause 2 of the Bill and strive to obtain a new Pharmacy Act. There was such a diversity of opinion among chemists on the subject that he believed it would be impossible to alter the proposed clause so that it would be workable and satisfy all. The Pharmaceutical Council, to which they naturally looked for their policy, had not yet made up its mind, and it would be simply waste of time and effort to approach Parliament unless chemists were perfectly unanimous in the matter. It would be a great pity if, for lack of combination and agreement among themselves, this opportunity for strong opposition should be allowed to slip by pharmacists.

Mr. J. DAVY TURNER proposed that the Association should recommend that the clause affecting chemists be most strenuously opposed, and that the resolutions passed at a previous meeting be confirmed—viz., (1) that chemists' titles should be protected; (2) that it is illegal for unregistered persons to keep open shop for the sale of scheduled poisons. He thought the one thing all were agreed upon was the necessity of fighting for the protection of titles. It was indeed a crisis in their history as chemists when they were called upon to do this. Every effort should be made to oppose the clause in this Bill which gives the right to unqualified persons to assume the title of chemist and druggist or pharmaceutical chemist.

Mr. C. T. WEARY, in seconding the resolution, suggested that it was highly important, in connection with any clauses suggested, that they should remember the old adage, "Do not put all your eggs into one basket." The two main suggestions were:—First, that a company should not call itself a pharmaceutical chemist or chemist and druggist under any circumstances; and, secondly, that a company shall not keep open shop for the sale of scheduled poisons. Would it not be wise to embody these two suggestions in two clauses instead of one, so that in case of the second being lost chemists would still have a chance of saving their titles?

Mr. J. COCKS, in replying to a question respecting the policy of the Federation, said that whatever the individual opinions of the Executive Committee of that body might be, it was distinctly opposite to its policy to dictate what should be done, its object being to ascertain and collect the opinions of local associations and act accordingly.

Mr. W. H. WOODS considered the protection of chemists' titles a vital necessity, and looked upon the qualified directorate as a thing that should be strongly opposed. He would oppose the proposed clause *in toto*, in the hope that a new Pharmacy Bill doing justice to the craft might be introduced.

Mr. C. J. PARK said that he could only repeat the remarks which had fallen from him on a former occasion, that in addition to the protection of their titles they should endeavour to present an unbroken front, and demand that it should be unlawful for companies to sell or dispense medicines containing any of the scheduled poisons. He was of opinion that it was contrary to both the interests of the public and the craft that company trading in this respect should be permitted, and in the case of certain firms of registered chemists—who had converted their concerns into limited liability companies for the sake of convenience, chiefly because they were doing a wholesale business in addition to the retail portion—he thought they should be dissociated.

The resolution was then put to the meeting and unanimously carried.

MIDLAND PHARMACEUTICAL ASSOCIATION.

A well-attended meeting of the members of the above Association was held at Mason College, Birmingham, Mr. JEFFREY POOLE presiding, on Thursday, February 22, at which Mr. H. W. JONES, Coventry, delivered a lecture on

THE RISE AND DEVELOPMENT OF MODERN PHOTOGRAPHIC PROCESSES.

The lecture was illustrated with a fine series of lantern slides and examples of paper prints, showing the various processes in use or now obsolete. A short account was given of the state of knowledge relating to light and its action on salts of silver previous to the year 1777, the year when Scheele first made out that under light action silver chloride lost chlorine in the darkening process. Boulton and Watt, of Birmingham, in 1799 produced "sun pictures," but left no account of their method; and the early work of Wedgwood and Davy and others was alluded to. The first experiments of Nièpce with bitumen, and Daguerre with silver plates coated with iodine films, were discussed in relation to the final production of the first practical process of Daguerreotype. An early negative by Fox Talbot's process and a print from the same were both thrown on the screen as illustrations of Fox Talbot's work, the result of which was the production of negatives in the camera capable of indefinite multiplication as positive prints. The collodion process was next explained, and examples prepared by the lecturer, showing the difference between positives and negatives, were shown in the lantern, along with a series of views printed by the collodion process. The evolution of the modern dry plate through the progressive stages of collodion emulsion processes was discussed, and attention drawn to the fact that a Birmingham company produced the first commercial dry collodion plates by the process of Dr. Hill Norris as far back as 1856. Finally collodion as an emulsifying medium was practically abandoned in favour of gelatin, first suggested by Dr. Maddox. Bennett, Stuart Wortley, and Mansfield improved the emulsion by suggestions for heating the gelatin compound, which they found added unusual sensitiveness, the dry plate being practically completed in 1879. As illustrating the effect of heat, photo-micrographs prepared by Mr. Jones were projected from the lantern, and showed the difference in size and physical condition of the particles of bromide of silver forming the sensitive surface of slow and rapid plates. As examples of the extreme rapidity of modern dry plates, slides were shown of flying bullets taken by the spark process of Prof. Boys, flashes of lightning, and the positive discharge of the induction coil. Mr. Jones also showed X-ray slides; an example of lace, the image of which had been produced in his own dark-room entirely by the light of phosphorescent bacteria; "pressure lines," resulting from pressure brought to bear on the plate, and showing on development an action similar to that resulting from light; and the "chemical image," the result of the action of peroxide of hydrogen, evolved by zinc, printer's ink, and other substances, as determined by Dr. Russell's experiments. The use of the modern dry plate to the astronomer was illustrated by slides of the moon taken in various phases, whilst its employment by the naturalist was exemplified by a series of bird studies taken from life with the aid of the tele-photographic lens. As additional examples of photography prints by various methods were displayed on the lecture table, and slides by the pigment or carbon process were thrown on the screen, showing the various tints that could be produced. In illustration of attempts made to produce photographs in colours, an account was given of the three-colour method of producing transparencies by Mr. Sanger Shepherd's process, and a fine set of slides in natural colours, photographed from nature by the inventor, was shown.

At the close of the lecture, Mr. Jones was cordially thanked.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.

A meeting of this Association was held at the County Restaurant, Bradford, on Tuesday, February 27, when Mr. H. G. ROGERSON presided over a fairly large gathering. A vote of condolence having been passed and directed to be conveyed to the relatives of the late Mr. A. Foster, President of the Dewsbury Association,

Mr. GEORGE WARD, of Leeds, proceeded to deliver a lecture on

PHYSICAL TESTS OF THE PURITY OF DRUGS.

The lecturer, who illustrated his remarks with interesting references, said that very large additions had been made in the British Pharmacopœia of 1898 with regard to tests which he described as of a physical character, and they would find that the question of the solubility of different substances in a given volume was in many instances made a definite test. A number of additions had also been made with regard to the testing of solid bodies by the melting point. A great amount of care and trouble must have been devoted to the compilation of these tests, which were given in greater detail than formerly. They also had quite a novel addition, for this was the first time that the specific rotary action of a body as a test of its purity had been included in the Pharmacopœia. The lecturer proceeded to point out that alterations had been made with regard to carbolic acid, with the object of excluding more clearly than was done before the cresylic acid. It had been felt for many years that in carbolic acid a purer article might very easily be obtained. Dealing with the melting point test, Mr. Ward said that there had not been for a very long time any uniform method of taking the melting point of a substance, every operator doing it in the manner he preferred. He cited various methods, and said that the Pharmacopœia was justified in insisting upon a more definite melting point than that which formerly existed. The authorities were apparently striving after as great a degree of purity as was commensurate with the freedom of trade. They were endeavouring to obtain as pure an article as they could for medicinal purposes. Every pharmacist would recognise that his very existence as a craftsman depended upon his trying to bring his business into line with this determination. The people who had the rush and push, and who were anxious to sell at the lowest price, irrespective of quality, might supply the impure article; but let true pharmacists be determined that they would strive for purity of material, and endeavour to conscientiously discharge their duty to the medical man as well as to the patient, and, although they might have to wait a little while, there would come a time when the pure article at a reasonable price would have preference over rubbish at the lowest price.

On the motion of Mr. JACKSON, seconded by Mr. R. SILSON, a vote of thanks was accorded to the lecturer.

NEW REMEDIES.

CHLÔRETONE: A NEW HYPNOTIC.—Chlôretone, tri-chlor-tertiary butyl alcohol, has been brought forward by Houghton and Aldrich as an anæsthetic and hypnotic. Applied locally, in aqueous solution, to lacerated wounds or burns, it acts very efficiently in lessening pain, while it possesses distinct antiseptic properties. Internally, it relieves gastric pain and vomiting, and has proved specially useful in this respect, in a case of gastric carcinoma. Experiments have shown that it renders the mucous membrane of the alimentary canal insensible to irritants. As a hypnotic, it has been specially successful in cases of persistent insomnia in the aged, and in cardiac diseases with renal complications and high arterial tension. It has succeeded in many instances where morphine, chloral, and other hypnotics have failed. The usual dose given is from 6 to 20

grains, in tablets, followed by a draught of water or of milk.—*Therap. Gaz.*, **22**, 738 and 758.

PASSIFLORA INCARNATA.—Fisher has found May Pop (*Passiflora incarnata*, Lin.) a valuable sedative, antispasmodic and hypnotic; also especially useful in the insomnia of old age, spasms from indigestion in children, and hysteria, and in the restless vigil of typhoid fever. It can be substituted for opium, chloral, and bromides in many cases, and the sleep produced is more natural; the patient is easily awakened, and is not so stupid. It does not produce the unpleasant after effects which follow the use of the former hypnotics and sedatives.—*Inter. Med. Mag.*, **7**, 929.

THE THERAPEUTIC VALUE OF COLLOIDAL SILVER.—A. Schlossmann has investigated the therapeutic value of the colloidal metals, and finds that, in this form, metallic silver is a non-irritant and non-poisonous antiseptic, and is also valuable for internal medication, and that no other remedy effects such a rapid cure. He is also of the opinion that the simple solution of the pure metal should not be used, but it should be combined with albumin, the white of one egg to 200 C.c. of solution. This form should also be adopted for ointments.—*Deuts. Am. Apoth. Zeit.*, **20**, 109.

FORMALIN SPRAY-INHALATION IN PHTHISIS.—The following spray-inhalation of formalin has been found by J. Lardner Green to be useful in the treatment of phthisis, and is suggested as an adjunct to the open-air *regim*; now so widely employed in the treatment of the disease:—Formalin, 1 drachm; glycerin, 4 drachms; water, 5 fl. oz. To be used four or six times in twenty-four hours. Should there be more than usual sensitiveness in the air-passages, aromatic spirit of ammonia, 10 minims, may be added to the above mixture.—*Brit. Med. Journ.*, **1**, 1900, 139.

GUAIACOL CACODYLATE IN TUBERCULOSIS.—Barbary has given hypodermic injections of guaiacol cacodylate with good results in cases of tubercule. The dose employed has been from 3 to 5 centigrammes.—*Bull. Comm.*, **28**, 35.

SODIUM CARBONATE FOR ULCERATED LEG.—In experimenting with the dressing of sodium bicarbonate as suggested by Guéorguievski (*P. J.* [4], **8**, 214c), A. Brunner finds that, although it acts favourably, a 2.5 per cent. solution of dried sodium carbonate is even more efficacious, particularly in the case of chronic indolent ulcers of the leg. The affected part is first washed with warm sublimate solution; a layer of aseptic gauze, lightly spread with yellow vaseline, is next applied, upon which a layer of absorbent cotton, saturated in the 2.5 per cent. sodium carbonate, is placed; and finally a layer of lint, the whole being kept in place by a bandage. The dressing is removed daily. A cure will generally be effected in from ten days to one month, according to the extent of the lesion. Some patients are intolerant of vaseline, which sometimes causes eczematous eruptions. In those cases lanoline may be substituted, or the compress of sodium carbonate may be applied directly to the surface.—*Bull. Gen. de Therap.*, **138**, 794.

REMOVAL OF CERUMEN.—To remove hardened cerumen which will not yield to syringing with water warmed to 98° F., the following solution may be employed, as directed:—Sodium bicarbonate 5, glycerin 100, water 100. Six drops of this, previously warmed, are dropped into the ear three times a day, a plug of cotton being inserted after each instillation. In two days, syringing with tepid (98° F.) water is practised, and if the lump is still immovable the instillations are repeated. After the extraction the ear should be dried and a small tampon of cotton placed in the entrance and allowed to remain there for two days.—*Pract.* **54**, 117.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Calumbæ Radix.

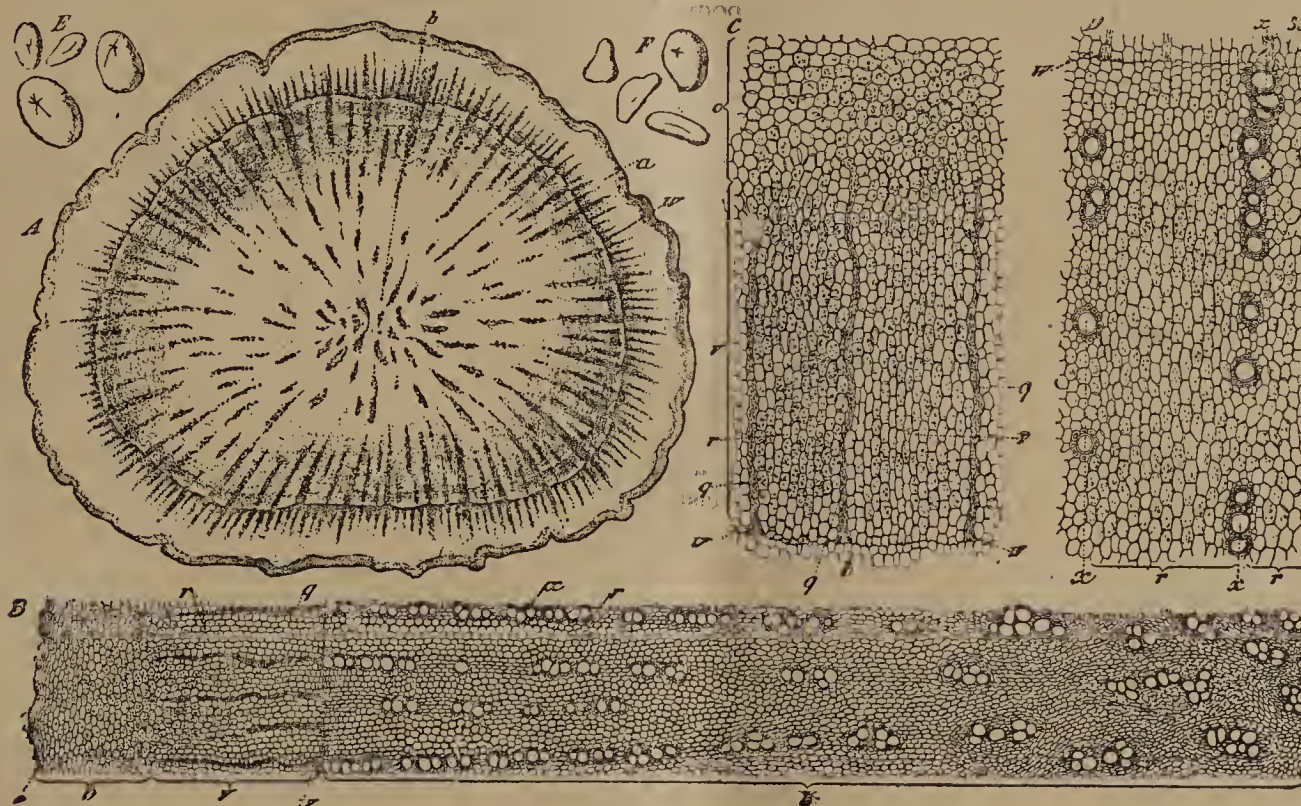
CALUMBA ROOT is obtained from *Jateorhiza columba*, Miers (N. O. Menispermaceæ), a lofty, climbing plant, indigenous to Portuguese East Africa, which produces swollen fleshy roots. Those are dug up in the dry season, cut into transverse slices, and dried. The drug is a bitter stomachic and tonic; it is used for preparing Infusum Calumbæ, Liquor Calumbæ Concentratus, and Tinctura Calumbæ.

CHARACTERS.—Calumba root occurs in irregular slices, which are irregularly circular or oval in shape, and usually from about 2.5 to 5 Cm. in diameter and from 3 to 12 Mm. in thickness, though both larger and thicker pieces may be found. They are more or less uniformly yellow in colour, break with a short starchy fracture, have a feeble, musty colour, and a marked bitter taste, due to the bitter principles the drug contains. If the dull greyish or greenish-

developed parenchymatous tissue, short fracture, and abundance of starch. The drug contains three bitter principles—columbic acid and its anhydride columbin, both of which are colourless crystalline bodies, and the yellow crystalline alkaloid berberine, to which the colour of the root is chiefly due. Much starch is also present, together with some mucilage and a fluorescent body, but tannin is absent. Slices of the stem of *Coscinium fenestratum*, Colebr. (N.O. Menispermaceæ) are distinguished from calumba by being dark yellow in colour, hard and woody, free from starch, and not depressed in the centre; slices of the root of *Frasera caroliniensis*, Walter (N.O. Gentianæ), contain tannin, and are usually smaller and thicker than those of calumba, besides being free from starch.

Cambogia.

GAMBOGE is a gum-resin, obtained from *Garcinia hanburii*, Hook. f. (Guttiferae), a tree which grows near the south-west coast of Cambodia, Siam, and on some adjacent islands, as well as in the southern parts of Cochin China. Secretory ducts filled with a yellow, milky gum-resin occur in the cortex of the tree and in the bast, the two systems being connected by transverse canals at the



CALUMBA ROOT.—A. Transverse section (nat. size). B. Transverse section, showing microscopic structure. C. Transverse section of bark. D. Transverse section of column. E. and F. Starch granules. B., C. and D. Magnified. After Berg and Schmidt.

yellow surface be shaved off with a knife the colour will be found to be much brighter inside, and the yellow tint most marked near the cork and the cambium. The circumference of the sections consists of a thin dark-brown, wrinkled, corky layer; the cork is easily separated from the yellowish-brown bark, which occupies about one-fifth of the diameter of the root, is marked with radiating lines of sieve tissue, and is divided from the central woody portion by the dark cambium line. The wood is of a lighter colour than the bark, and contains vessels arranged in narrow radially-elongated groups. The parenchymatous tissue is largely developed, and contains numerous starch-grains, both in the wood and bark; the starch-grains are mostly simple, with an eccentric or non-central hilum. The slices are usually somewhat shrunken and depressed in the centre, the greater contraction there on drying being probably due to the central tissue being less woody and less loaded with starch than the outer portions.

NOTES.—The distinctive characters of calumba root are its yellow colour, the depressed centres of the slices, the thick bark, largely

nodes. During the rainy season spiral cuts are made in the bark in a longitudinal direction, to a height of about ten feet above the ground, and the gum-resin as it exudes is received in hollow bamboos, from which it is transferred to smaller ones, in which it is allowed to solidify. After the lapse of a month the solidified gamboge is removed from the bamboos by heating the latter over a fire until they crack and peel off. The pipes of gum-resin are then allowed to harden before being further packed. The drug is exported from Bangkok and Saigon, that known by the name of the last-mentioned place being in cakes or masses which bear the impression of leaves in which they have been wrapped. Pipe gamboge is the best, and that alone is official. The drug is a powerful hydragogue cathartic and, in small doses, diuretic; it is used for preparing Pilula Cambogiæ Composita. The dose of gamboge is from 0.5 to 2 grains.

CHARACTERS.—Gamboge should be in cylindrical solid or hollow rolls or pipes, from about 2.5 to 5 Cm. in thickness and from 10 to 20 Cm. in length, the pipes being marked with longitudinal furrows

caused by ridges on the inner surface of the bamboos in which they have been dried, they are either separate or agglutinated into masses which reveal traces of the pipe formation. When broken gamboge shows a smooth, uniform, conchoidal or shell-like fracture, the freshly broken surface having a dull gloss and being of a uniform reddish-yellow or brownish-orange colour. The drug is easily reduced to a bright yellow powder, possesses little or no odour, but has a very acrid taste, due to the resin it contains. When rubbed with water a yellow emulsion is formed, the gum dissolving and the resulting mucilage holding the resin and other constituents of the drug in suspension. The resin is soluble in alkaline solutions and by successive treatment with 90 per cent. alcohol and water gamboge should be completely dissolved. Powdered gamboge should be free from added starch, the presence of that substance as an adulterant being indicated by making a decoction with boiling water, allowing to cool, and adding solution of iodine; if more than traces of starch be present, the cooled decoction turns green, the blue of the compound of starch and iodine blending with the yellow of the decoction. When incinerated gamboge should not yield more than 3 per cent. of ash.

NOTES.—The distinctive characters of gamboge are the distinct or agglutinated pipe-shaped masses with longitudinal striations and conchoidal fracture, the rich yellow colour, and the complete solubility of the gum-resin in alcohol and water used successively. The drug contains from 66 to 82 per cent. of resin (gambogic acid), 15 to 25 per cent. of gum, about 4 per cent. of wax, 2.5 per cent. of moisture, and traces of starch. The chief adulterants of gamboge are starch, sand, vegetable debris, etc., all of which are insoluble in alcohol or water (used successively), or in dilute ammonia. More than traces of starch can be detected by the iodine test; inorganic substances, if present, will increase the percentage of ash left upon incineration. Inferior gamboge is of a dark brownish colour, and breaks with a dull, rough, granular fracture, the fractured surface often exhibiting small cavities.

Camphora.

CAMPBOR is a white crystalline substance obtained from *Cinnamomum camphora*, Nees and Eberm. (N.O. Laurineæ), a large tree which grows in Formosa and Japan, whence the drug is exported to Europe. All parts of the tree contain a volatile oil, one of the constituents of which is camphor, but the drug is obtained exclusively from the wood. After the tree has been felled the wood is reduced to chips, and heated with water in a rude still. The camphor is carried over with the water-vapour, and sublimes in an earthenware dome. The crude mass thus obtained is exported to London or Hamburg in tubs and there purified by re-sublimation. The drug possesses stimulant, sedative, expectorant, and slight antiseptic properties; it is used to prepare Aqua Camphoræ, Linimentum Camphoræ, Linimentum Aconiti, Linimentum Belladonnæ, Linimentum Camphoræ Ammoniatum, Linimentum Opii, Linimentum Saponis, Linimentum Sinapis, Linimentum Terebinthinæ, Spiritus Camphoræ, Tinctura Camphoræ Composita, Unguentum Hydrargyri, and, indirectly, Linimentum Chloroformi, Linimentum Hydrargyri, and Linimentum Terebinthinæ Aceticum. The dose of camphor is from 2 to 5 grains.

CHARACTERS.—Camphor occurs in three forms—(1) in solid, colourless, transparent, crystalline pieces or "bells" of tough consistence, (2) in rectangular masses, and (3) in pulverulent masses, known as "flowers of camphor." Its specific gravity is about 0.995, varying from 0.986 to 0.996. The powerful penetrating odour is characteristic, and the pungent, bitterish taste is followed by a sensation of cold. Camphor burns readily with a bright smoky flame, it volatilises at ordinary temperatures, and it sublimes when heated, without leaving any residue. One part of camphor dissolves in about 700 parts of water, in 1 part by weight of 90 per cent. alcohol, or in 4 parts of olive oil; chloroform dissolves 4 times its weight and ether 12 parts in 7. On triturating camphor

with an equal weight of chloral hydrate or with one-third its weight of carbolic acid in crystals an oily liquid is formed; a similar result is attained by triturating it with menthol or thymol.

NOTES.—The distinctive characters of camphor are its general appearance, odour, and taste. Its composition corresponds to the formula $C_{10}H_{16}O$, and it should probably be regarded as a ketotetrahydro-cymene, its behaviour with hydroxylamine being in accordance with that view. It may be prepared artificially by oxidising camphene—a solid terpene ($C_{10}H_{16}$)—by chromic acid mixture. Crude camphor yields a yellowish oil, known as camphor oil, which is really a mixture containing safrol, eugenol, etc. Camphor which is distinctly oily or excessively brittle does not meet the official requirements.

Obituary.

ALLEN.—On February 19, William Hart Allen, Chemist and Druggist, Catford. Aged 87.

BOND.—On February 18, Henry Bond, Chemist and Druggist, Liverpool. Aged 74.

FOSTER.—On February 24, Abraham Foster, Chemist and Druggist, Heckmondwike, Dewsbury. Aged 60. Mr. Foster, who was a member of the Pharmaceutical Society, was one of the best-known and highly-esteemed chemists in the West Riding of Yorkshire. He was apprenticed to the late Mr. T. H. Gloyne, Chemist and Druggist, Market Place, Dewsbury, with whom he remained seventeen years. He then took over the business of the late Mr. T. M. Brooke, Market Place, Dewsbury, where he conducted a very successful business for nearly thirty years. Four or five years ago he removed to Robinson Street, where he also carried on the business as a wholesale druggist. It was chiefly through his influence and exertions that the Dewsbury and District Chemists' Association was formed a few years ago. He was elected first President, and continued to hold that office up to the time of his death. All movements which had for their object the improvement of the position of chemists found in Mr. Foster a warm supporter, who expressed himself in favour of the Dewsbury Association, if necessary, being represented at the House of Commons when the new Companies Bill came up for discussion. He was for three years President of the Dewsbury Tradesmen's Association, and was also President of the West Yorkshire Federated Chamber of Trade, and chairman of the directors of the Dewsbury and District Mutual Plate Glass Association. He was also connected with several companies in the locality. Mr. Foster was a Freemason, for many years being a member of the Three Grand Principles Lodge at Dewsbury, and of the Amphibious Lodge at Heckmondwike, being a Past Grand Master of the latter.

HUGHES.—On February 19, Thomas Hughes, Chemist and Druggist, Talybont, Cardiganshire. Aged 63.

LUMBY.—On February 21, Fred. Lumby, Chemist and Druggist, Nottingham. Aged 43.

MASON.—On February 16, Arthur Newton Mason, Chemist and Druggist, Handsworth, Birmingham. Aged 55. Mr. Mason was a member of the Pharmaceutical Society.

NEWTON.—On February 23, Joel William Newton, Chemist and Druggist, Salisbury. Aged 64. Mr. Newton had been a member of the Pharmaceutical Society since 1870.

RHODES.—On February 11, Frank Rhodes, Pharmaceutical Chemist, Spalding. Aged 76. Mr. Rhodes had been a member of the Pharmaceutical Society since 1849.

WOOD.—On February 24, Henry Wood, Pharmaceutical Chemist, Brentford. Mr. Wood had been a member of the Pharmaceutical Society since 1846.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

CHEMISTRY OF LAVENDER OIL.

By examining the volatile oil of lavender at different periods during the flowering of the plant, E. Charabot finds that the amount of free and of total alcohols, and also that of the free acids, diminishes until the flowers are fully expanded, while the amount of esters increases. When however, the flowers fade, the amount of alcohols increases, and that of the esters diminishes. This shows that the esters are derived directly by the action of free acids on the alcohols. Under these conditions, during the development of the plant, a portion of the linalol is converted into esters, and another portion becomes dehydrated, so both the amount of the free and total alcohol is lessened. On the other hand, as soon as etherification is completed, which is when the flowers begin to fade, the proportion of total alcohol rapidly increases. These changes are stated to take place in the chlorophyll-containing portions of the plants. The following table shows the results obtained with the oil in these various stages:—

	Sp.g.	Esters.	Free alcohols.	Total alcohols.
Flowers in buds	0.8849	36.6 per cent.	21.0 per cent.	49.8 per cent.
Flowers fully expanded	0.8854	40.4 "	16.7 "	48.4 "
Flowers fading	0.8821	39.75 "	18.9 "	50.25 "

By distilling identical quantities of the herb in the three stages of development and determining the acidity, in terms of acetic acid per litre, of aqueous distillate, the results obtained were: Buds, 0.5241 Gm.; fully expanded flowers, 0.4716 Gm.; flowers faded, 0.3846 Gm.—*Comp. rend.*, **130**, 257.

MEXICAN DRUGS.

Continuing his communication on Mexican drugs to the Brussels Royal Society of Pharmacy, Duyk describes two more, both toxic. The first "Yoyote," yielded by an Apocynaceous shrub, *The etia yocotli*, D.C., is a heart poison. The seeds contain, besides fixed oils, two toxic glucosides, tevetosin and tevetin, also a yellow colouring matter, pseudo-indican. The presence of the latter in the urine leads to detection of the poison, when taken internally. Tevetosin has been suggested as a substitute for digitalis in the treatment of cardiac disease. Externally it has been used in an ointment as an anodyne for hæmorrhoids. The second drug, *Tzompantle*, is derived from the Leguminous tree *Erytrina coralloides*, D.C., which bears poisonous seeds. These have a bright red shining perisperm, and yellow cotyledons. Altamirano has found in the extract of these seeds coraloidine, which causes convulsions; erytroidine, a powerful paralytant of the motor system; erytrosisin, an emetic; coralin and erytric acid. The extract of the seeds is suggested as a substitute for curare, and may be useful in the treatment of tetanus.—*Bull. Comm.*, **28**, 33, and *Bull. Soc. Pharm. Brux.*

NEW POMEGRANATE ALKALOID.

A liquid alkaloid from pomegranate root-bark has been isolated by A. Piccinni. In the preparation of methylgranatonine (pseudo-pelletierine) there remains, after crystallisation from petroleum ether, an oily mass, from which the author has recovered an oily alkaloid having the composition $C_9H_{18}ON$, which differs from the methylpelletierine of Tanret in that it is miscible with water. It is a tertiary alkaloid of a ketonic character, and possibly may be considered as a "nucleus homologue" of the hygrine of Liebermann and Cybulski.—*Pharm. Zeit.*, **44**, 870, after *Chem. Centralbl.*, **2**, 879.

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GROWTH OF THE POLLEN-TUBE.

B. Lidforss has made some interesting observations on the attractive force exercised by the secretion of the stigma on the pollen-tube, chiefly on *Narcissus tazetta*. No distinct influence on the growth of the pollen-tubes was exhibited by artificially prepared organic acids—formic, acetic, lactic, succinic, tartaric, malic, or citric—nor by amides, glucosides, or tannins; but the almost immediate effect of introducing into the medium a few grains of diastase was to cause a deflection of all the pollen-tubes towards the grains. The constituent of the diastase which produced this effect appeared to be the proteid. The classes of substances which attract pollen-tubes are chiefly two, carbohydrates and proteids, the most important food-materials of plants. This indicates that the movements of the apex of the pollen-tube are simply a search for food-material. Similar results were obtained with other plants.—*Ber. Deutsch. Bot. Gesell.*, **17**, 236.

RESIN IN THE LEAVES OF CONIFERS.

From a series of observations on a number of species belonging to the genera *Pinus*, *Abies*, *Picea*, and *Juniperus*, E. Schwabach states that in the young leaves the resin is formed in the resin-passages, and is from them excreted into the canal. In *Abies*, *Pinus*, and *Juniperus*, the walls of the epithelial cells do not thicken, and continue to pour out resin into the canal. In *Picea*, on the other hand, the walls of the epithelial cells begin to thicken in the first year, so that the cell-cavity often almost entirely disappears. The thickened membranes subsequently become absorbed.—*Ber. Deutsch. Bot. Gesell.*, **17**, 291.

RESISTANCE OF SEEDS TO MERCURY.

According to M. Casimir De Candolle (*Arch. Sci. Phys. et Nat.*, **8**, 517), grains of wheat which have been immersed in mercury for four years are still capable of germination, and have been found to produce normal plants.

ATROPINE IN DATURA SEEDS.

From observations made on germinating seeds of *Datura stramonium* and on growing plants, Dr. J. Thomann states that the greater part of the atropine contained in the seed is absorbed during growth, even when the culture is kept entirely free from bacteria and mould-fungi. He concludes, therefore, that the alkaloid is a reserve-food-material rather than a product of excretion.—*Bot. Centralblatt*, **80**, 461.

ENZYMES.

According to J. Grüss, the enzyme of *Penicillium glaucum* possesses the property of energetically splitting up cane-sugar, but has a less powerful action on starch and reserve-cellulose; it does not act as an oxydase. Malt-diastrase, on the other hand, does play the part of an oxydase; it acts energetically on starch, less powerfully on cane-sugar, and only very slowly on reserve-cellulose.—*Beih. z. Bot. Centralblatt*, **9**, 11.

SOLUBILITY OF COPPER IN GELATIN SOLUTION.

A. Lidof finds that when a spiral of bright metallic copper is suspended in an alkaline solution of gelatin, the liquid acquires a violet tint in twenty-four hours and becomes darker in a longer period, the copper rapidly losing weight, equivalent in forty-seven days to 3.4 per cent. When the violet solution thus obtained is heated under pressure, or is treated at ordinary temperatures with formaldehyde, it is decomposed, the precipitate thrown down being a compound of copper with organic bodies. To the formation of this soluble organic copper compound, the author attributes the so-called "biuret" reaction.—*Bull. Soc. Chim.*, **24**, 33, after *Journ. Soc. Physiol. Chim.*

DATURA ALBA (NEES) AS A SOURCE OF HYOSCINE.*

BY DR. O. HESSE.

In a paper by Frank Browne,¹ describing the medicinal use of the flowers of *Datura alba* in China, these flowers were stated to contain a considerable amount of alkaloid, having the characters of hyoscine, and yielding, on analysis, results agreeing with the formula $C_{17}H_{23}NO_3$, originally assigned to that base by Ladenburg in 1880.² Having already shown that this formula is incorrect, I was interested in making an examination of the alkaloid from *Datura alba*, and at my request Mr. Browne kindly provided me with a quantity of the flowers for that purpose. Hitherto only three kinds of *Datura* have been examined for alkaloids—viz., the indigenous *Datura stramonium*, the Indian *Datura fastuosa*, L., and the *Datura arborea* cultivated in Europe.

Geiger and Hesse obtained from the first-named plant a base which they named Daturine.³ It was afterwards found by Walz in the seeds of *Datura arborea*.⁴ Then v. Planta put forward the opinion that this datura alkaloid was identical with atropine,⁵ a view that was disputed by Schroff,⁶ Erhard,⁷ Pohl,⁸ and others; while E. Schmidt supported the identity of daturine with atropine.⁹ Subsequently Ladenburg described a sample of daturine supplied to him by E. Merck as being almost pure hyoscyamine, and another sample of crude daturine, distinguished by the name of "heavy daturine," and also obtained from E. Merck, was described as a mixture of hyoscyamine and atropine.¹⁰ When it is remembered that in the preparation of these alkaloids hyoscyamine may be very readily converted into atropine, there is not much difficulty in understanding that in one instance atropine should be found, while in another there was hyoscyamine, or a mixture of the two bases.

More recently Schutte has taken up the investigation of thorn-apple seeds,¹¹ and found that the alkaloid they contained was almost entirely hyoscyamine, with only a very small proportion of atropine and a very minute quantity of a third base that was considered to be hyoscine, and had previously been obtained from thorn-apple seed by E. Schmidt. Schutte gives this base the name of scopolamine, but it really was hyoscine.

Datura alba, which is abundantly cultivated as an ornamental plant in South Germany, was examined by Peinemann,¹² who found in the seeds, roots, and leaves, cultivated at Dresden, 0.541, 0.315, and 0.41 per cent. of alkaloid, while I found in the air-dried flowers of the plant cultivated at Stuttgart as much as 0.5 per cent. of alkaloid, and in the leaves and one-year-old stalks 0.3 per cent. The alkaloid I obtained was like that obtained by Peinemann, amorphous, and by precipitation with gold chloride it yielded a crystalline gold salt having a melting point of about 195° C. The quantity of material at my disposal was too small to admit of the exact nature of this base being ascertained, but it may be safely inferred that it consisted essentially of hyoscine, and was the same as the base obtained by F. Browne, in the state of gold salt, to the extent of 0.485 per cent., from Chinese datura flowers.

Operating upon a small portion of the flowers received from Browne, and containing 13.2 per cent. of moisture, I obtained 0.55 per cent. of alkaloid, which had the appearance of varnish, and showed no sign of crystallisation after being kept for a long time over sulphuric acid in a vacuum. I have reason to believe that the comb-like crystals mentioned by Browne (*P. J.* [4], 3, 197), were ammonium chloride.

The hydrochloric acid solution of the base was mixed with gold chloride, and the first fraction of the precipitate formed was in yellow laminae; that melted at 196° C. with considerable frothing. The second fraction had a similar appearance, and melted with decomposition at 197° C. The two fractions were mixed, and when recrystallised from hot water gave a salt that melted at 198°-199° C., and contained 30.84 per cent. gold, corresponding with the amount required by the formula $C_{17}H_{21}NO_4 \cdot AuCl_4H$, 30.63, while the gold salt of an alkaloid having the formula $C_{17}H_{23}NO_3$ would require 31.31 per cent. gold.

The mother liquor from the second fraction of gold salt gave a further precipitate consisting of granular aggregations of laminae, which, after shrinking in bulk at 187° C., melted at 195° C. with frothing, and were evidently a mixture of the gold salts of hyoscyamine and hyoscine. On evaporating the filtrate from the last precipitate a few crystals were obtained, presenting much resemblance to the atropine gold salt, and melting at 142° C., after shrinking in bulk.

From the results of this preliminary examination the alkaloid obtained from the datura flowers appeared to consist chiefly of hyoscine, probably some hyoscyamine and a little atropine. In the preparation on a large scale by a suitable method special attention required to be given to avoiding any alteration of the bases present. For that purpose the flowers were extracted with ether under a reflux condenser, and in that way four-fifths of the alkaloid present could be obtained without the addition of any basic substance. The ether solution was shaken out with dilute sulphuric acid, the acid solution again shaken out with chloroform and ammonia; the chloroform solution, washed with water and then evaporated, left the alkaloid in the state of a brownish syrup.

The partially extracted material was then moistened with a solution of sodium bicarbonate, and when extracted with ether as before it yielded a further quantity of alkaloid, which was found to be of essentially the same nature as the first quantity, so that in subsequent operations the powdered leaves were at once treated with an alkaline solution before being extracted with ether, etc. The temperature at which that operation was conducted was from 25° to 30° C.

The extracted alkaloid was neutralised with hydrobromic acid, and when the clear filtered solution, evaporated to a small bulk, yielded a tolerably abundant crystallisation, strong alcohol was added, the crystals separated, washed with alcohol, and then recrystallised from hot, strong alcohol.

The crystallised hydrobromide contained in two portions from 5.7 to 8.5 per cent. of water, and the optical rotation of each in water solution was $[\alpha]_D = -25.57$ and 25.90 .

On recrystallisation from water the salt was obtained in fine, large, perfectly colourless rhombic crystals, having the same faces as Fock¹³ observed in hyoscine hydrobromide. These crystals effloresced readily in dry air, and lost the whole of their water of crystallisation when exposed in a coarsely powdered state over sulphuric acid at the ordinary temperature. The melting point of the perfectly dehydrated salt was found to be 192° C. in Roth's apparatus.¹⁴ The loss of weight in drying was 12.69 per cent., and the quantity of silver bromide yielded by the dry salt was 20.84 per cent., these results corresponding with the formulæ $C_{17}H_{21}NO_4 \cdot HBr + 3H_2O$ and $C_{17}H_{21}NO_4 \cdot HBr$, which have already been given as representing the composition of these salts.¹⁵

For the hydrobromide containing three molecules of water the value of $[\alpha]$ ¹⁶ was then given as -22.05 ,¹⁷ consequently for the

* Abstracted from the *Annalen der Chemie*, 303, 149.

¹ *Pharm. Journ.* [4], 3, 197.

² *Annalen*, 206, 300.

³ *Ibid.*, 6, 272.

⁴ *Jährb. f. prakt. Pharm.*, 24, 353.

⁵ *Annalen*, 74, 252.

⁶ *Pharmakologie*, p. 551, 4th Edition.

⁷ *Jahrb. d. Pharm.*, 1866.

⁸ *Neue Petersburger med. Wochenschrift*, 1.77.

⁹ *Berichte*, 13, 370.

¹⁰ *Annalen*, 2.6, 290.

¹¹ *Arch. d. Pharm.*, 229, 518.

¹² *Gehe's Handeober.*, Sept., 1896.

¹³ *Berichte*, 14, 1872.

¹⁴ *Ibid.*, 29, 1775. The melting point was there given incorrectly as 181° C. but that referred to anhydrous commercial scopolamine hydrobromide.

¹⁵ *Annalen*, 271, 113. See *Pharm. Journ.* [3], xxiii., 201, 221 et seq.

¹⁶ *Archiv d. Pharm.*, 236, 13. Not, as Luboldt incorrectly states, the anhydrous salt.

¹⁷ *Ibid.*, 230, 697. E. Schmidt found for E. Merck's recrystallised hyoscine hydrobromide -25.71 .

anhydrous salt it would be $25^{\circ}66$, and for the salt now referred to it was found to be $25^{\circ}86$, so that the absolutely pure salt has a slightly higher rotatory capacity than was hitherto observed.

The watery mother liquor from which the first hydrobromide crystals had been separated were evaporated to a small bulk, and when left for some time, dried up, leaving only a varnish-like residue. The salt was therefore converted into chloride by digestion with silver chloride, and this solution precipitated in fractions with gold chloride. The first fraction was brownish, and aggregated to a reddish brown resinoid mass that was not further examined. The following fractions were crystalline, and, as they did not appear to differ, gold chloride was added until no further precipitate was formed, the whole precipitate heated being with water to the boiling point, and the solution then filtered. On cooling an abundant deposit of crystalline laminae separated, which was again recrystallised from hot water, and thus separated into three portions. The largest melted at 196° - 198° C. with frothing, and was therefore hyoscyamine salt; another melted at 156° - 160° C., and was apparently hyoscyamine salt; while a third melted at 137° C., and was obviously atropine salt. Each of these three fractions, recrystallised from hot water, were respectively found to have a melting point of 198° C. (frothing), 158° , and 138° C. Dried at 100° C. they gave respectively 30.53, 31.55, and 31.65 per cent. gold, the calculated amounts being for hyoscyamine 30.63, and for hyoscyamine or atropine 31.31 per cent.

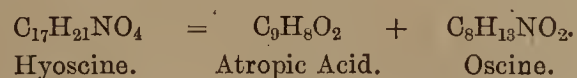
The alcoholic mother liquor obtained in recrystallising the hydrobromide from alcohol, yielded on evaporation some crystals which were washed with alcohol, and when converted into chloride gave a gold salt melting at 198° C. with frothing, and was, therefore, hyoscyamine salt. The mother liquor from the crystalline hydrobromide yielded in the same way a gold salt melting at 192° C. with some sign of frothing, and when once recrystallised from water melted at 198° - 199° C. From the mother liquor of this gold salt a few crystals were obtained on evaporation which melted at 187° and frothed at 195° , so that in the first crystallisation the hydrobromide salt retained small proportions of the alkaloids associated with hyoscyamine.

The further examination of the datura alkaloid obtained in largest amount, and of its gold salt, was then undertaken for the purpose of demonstrating that its composition was not $C_{17}H_{23}NO_3$ but $C_{17}H_{21}NO_4$.

The water solution of the hydrobromide was mixed with excess of potassium carbonate solution, and shaken out with chloroform; the chloroform solution, washed with water and evaporated, left a colourless varnish-like residue that was perfectly liquid at 55° C. This was dried at 80° C. until constant, and when analysed gave results agreeing with the formula $C_{17}H_{21}NO_4$.

The hydrobromide was converted into chloride with silver chloride and the solution precipitated with gold chloride; the gold salt thus obtained recrystallised from boiling water in large toothed laminae, melting at 198° - 199° C., with frothing, and yielding 30.56 per cent. gold.

Further proof that the datura alkaloid has a composition represented by the formula $C_{17}H_{21}O_4$ is afforded by its conversion into atropic acid and oscine, when heated with hydrochloric acid to 100° C., as shown in the following equation—



The formation of atropic acid being preceded by the formation of tropic acid.

In other respects the characters of this datura alkaloid agree with those which I have previously described as belonging to Ladenburg's hyoscyamine, and the following supplementary details may be added.

The alkaloid then referred to was obtained only in an amorphous condition, having the appearance of varnish and becoming liquid at 55° C. Meanwhile Luboldt has stated that the base named scopolamine, and described by E. Schmidt as the chief constituent of what was known as hyoscyamine, could be obtained without difficulty in crystals¹⁸. For that purpose a water solution of the hydrobromide was to be made alkaline with potash and shaken out with chloroform. The syrupy residue left on evaporating the chloroform solution was then to be dissolved in a little ether and a small quantity of water, corresponding to the calculated amount of water of crystallisation, added, the turbidity thus caused removed by the addition of a little absolute alcohol and a few crystals then dropped into the solution to promote crystallisation.

I have found that this proceeding is always effectual when applied to Luboldt's scopolamine hydrobromide, even without the addition of crystals, but when applied to the datura alkaloid now referred to no crystallisation takes place.

As the result of numerous observations extending over several months I have come to the conclusion that hyoscyamine is perfectly amorphous and incapable of crystallisation. Moreover, it is readily soluble in water, at 18° C. to the extent of 1 in 9, and even at 15° to the extent of 1 in 9.5. The solution has a strong alkaline reaction, and on the addition of concentrated potash or soda the base is precipitated almost entirely as an oily liquid.

This great solubility of hyoscyamine in water affords means of ascertaining whether the base undergoes alteration in its rotatory power when it is separated from the hydrobromide by potassium carbonate. For that purpose 1.412 gramme of the salt was dissolved in water, the solution mixed with excess of solution of potassium carbonate and shaken out with chloroform. The chloroform solution, washed with water, filtered and evaporated to a small bulk, was finally turned into a glass dish to get rid of the chloroform, and the residue dried at 55° C. The quantity of anhydrous base obtained was 0.959 gramme, as against the calculated quantity 0.970. This was dissolved in water and diluted at 15° C. to 25 C.c., so that p was 3.836 at that concentration and $t=15^{\circ}$; the value of $[\alpha]_D$ was $-24^{\circ}3$. Comparing that result with the rotatory power of the anhydrous hydrobromide under the same conditions, the result would be for the alkaloid:—

$$[\alpha]_D = -\frac{25.86}{303} \frac{384}{1} = -32^{\circ}77$$

Hence it might be thought that this result showed there was some reduction of rotatory power when the alkaloid was separated by the action of potassium carbonate. The solution was therefore evaporated down again to ascertain the actual quantity of alkaloid present in it, and this was found to be 0.886 gramme. It was then dissolved in dilute hydrobromic acid, so that the solution had a very slight acid reaction, and when diluted at 15° C. to 25 C.c. $[\alpha]_D$ was found to be $-33^{\circ}1$ with $p=3.544$, or rather more than was calculated for the alkaloid in the hydrobromide, the excess being probably due to the slightly acid condition of the solution. The solution was then evaporated at a low temperature, and it deposited fine, clear crystals of the hydrobromide, which, when dissolved in water at 15° , gave $[\alpha]_D -25^{\circ}0$ in relation to anhydrous salt. These experimental results serve to prove that when hyoscyamine is separated from its salt by means of potassium carbonate it does not undergo any alteration.

That result might also have been foreseen because the alkaline bicarbonate which was in the first instance used for separating the alkaloid must have been for the most part converted into monocarbonate by the long-continued heating to 25° or 30° C. for the purpose of extraction, and if the optical activity of hyoscyamine were really influenced by potassium carbonate the hydrobromide salt obtained would have had less action on polarised light than hydrobromide which had not been so altered. Hence it follows that when potash or soda is used in the preparation of hyoscyamine this base does not undergo any sensible alteration. That conclusion is in satisfactory

¹⁸ *Ibid.*, 230, 12.

agreement with the observation of E. Merck that hyoscyne hydrobromide obtained from henbane always has a rotatory power deviating but little from 24° - 25° .¹⁹

On a previous occasion I have shown that the commercial salt called scopolamine hydrobromide is a mixture consisting of hyoscyne salt and atropine salt. When the basic constituents of this mixture are separated and, after evaporating to the consistency of syrup, some water is added, by exposure for a time to a temperature of 5° C., atropine crystallises out, which has a composition represented by the formula $C_{17}H_{21}NO_4 + 2H_2O$, and according to E. Schmidt this inactive alkaloid is very readily formed from hyoscyne by the action of silver oxide or a little caustic soda.²⁰

Applying my experience of the preparation of atropine to the treatment of the hyoscyne obtained from *Datura alba*, I mixed a water solution of 2.5 grammes of the hydrobromide with moist silver oxide, separated dissolved silver from the filtered solution by hydro-sulphuric acid, evaporated the clear liquid, and left it to crystallise. At the same time an equal quantity of the commercial scopolamine salt was treated in the same manner. In this latter case there was very soon a crystallisation of atropine; but in the former case no crystals were formed, although the sides of the basin were rubbed with a glass rod. After the lapse of five months the experiment was given up as hopeless. For further trial a solution of 3 grammes of the hydrobromide from datura was made alkaline with sodium bicarbonate and shaken out with chloroform. After evaporating the chloroform solution the residue was dissolved in water, a drop of caustic soda added, and the whole left in the exsiccator until syrupy. It was then exposed to the air, frequently moistened with water, and stirred with a glass rod; but after the lapse of five months there were no crystals, while the commercial scopolamine salt treated in the same way yielded an abundant crystallisation of atropine in the course of a few days.

The alkaloid obtained from hyoscyne hydrobromide in both instances above mentioned was then mixed after this long exposure, and the rotatory power of a water solution determined: with $p=7.5$ and $t=15^{\circ}$ C. $[\alpha]_D$ was $-15^{\circ} 3$. In this case there had been a reduction of the rotatory power, which was probably caused by the long-continued action of light. At the same time it may be mentioned that the hydrobromide salt of this alkaloid did not undergo any alteration of its rotatory power when exposed to the action of light for the same time, either in the state of crystals or in solution. The effect produced by exposure of the free alkaloid to light will be further investigated, but it may be positively stated that under the conditions above described there is no conversion of hyoscyne into atropine.

Lastly, in regard to the relative proportions in which these bases are present in the flowers of *Datura alba* the hyoscyne amounted to 0.51 per cent. hyoscyamine to 0.03, and atropine to 0.01 per cent., so that the hyoscyne amounted to 92 per cent. of the total alkaloid present. This observation is, in my opinion, of considerable practical importance. Hitherto hyoscyne has been obtained only from henbane and from scopolia roots; from the first-named material it may be prepared with comparative ease, since it has only to be separated from hyoscyamine, which constitutes 70 or 80 per cent. of the total alkaloid, amounting to about 0.25 per cent. In the case of the wild growing scopolia root the case is different, especially with *Scopolia atropoides*, containing about 0.4 per cent. of alkaloid, of which only 0.03 is scopolamine according to Luboldt,²¹ and as I have previously shown, that is really a mixture of hyoscyne with atropine, sometimes perhaps a mixture of three different alkaloids, whose composition is represented by the formula $C_{17}H_{21}NO_4$. But how far such a mixture is admissible as a medicinal agent cannot well be determined when the action of its several ingredients is unknown. Generally speaking, good results

have been obtained with scopolamine in ophthalmic practice, but I have known the contrary to be the case, and very serious results were apprehended.

Luboldt found the rotatory power of scopolamine hydrobromide prepared by Gehe (anhydrous) $-14^{\circ} 58'$ or $14^{\circ} 97'$, while that of a similar salt prepared by G. Merck was $-13^{\circ} 47'$. Assuming that the salt consisted—as I have actually found to be the case—of hyoscyne and atropine, it would, with a rotatory power of $-14^{\circ} 97'$ contain 58 per cent. of hyoscyne salt. That would reduce the amount of actual hyoscyne in scopolia root to 0.0174 per cent., or about 4 per cent. of the total alkaloid present in that material. That circumstance alone would make the preparation of the alkaloid very difficult. In addition, the separation of hyoscyne from its isomers is practically impossible, and hence it may be understood why the commercial scopolamine salt is not pure hyoscyne. On the contrary, the flowers of *Datura alba* yield hyoscyne of excellent quality, and it is probable that the purer product from that source will supersede the mixture known by the name of scopolamine salt.

GOLD AND GOLDBEATING.*

BY G. H. C. ROWLAND.

Pharmacists are interested in the familiar goldbeater's skin, and occasionally, even yet, the once common direction to roll pills in gold leaf is to be met with. One day I met a citizen of Edinburgh who, I found, was engaged in the "art and craft" of goldbeating. Thinking some details of the process would interest pharmacists, I arranged to visit this gentleman's works, and met him for that purpose one night in one of the most historic spots of the old town of Edinburgh, and was conducted to the old Wynd, where this ancient art is still carried on.

Goldbeating is of great antiquity, being referred to by Homer (1,200 B.C.) and Pliny (23-79 A.D.). The latter states that 1 oz. of gold was beaten to 750 leaves 3 inches square, about three times the thickness of the present average. Gold was largely used by Solomon, when, doubtless, a great deal of gold leaf was used for covering purposes. The art appears to have originated among Oriental tribes, and in India is still practised under conditions involving many mysteries and great difficulties. On the coffins of the Theban mummies specimens of original leaf gilding occur where the leaves are so thin as to resemble modern gilding. The Incas of Peru appear only to have been able to reduce gold to plates which were nailed for ornamentation on the walls of their temples.

Gold-beating was confined to London in this country till well within the present century, and even yet is principally centred in that city. It was introduced into Scotland about 1860. At one time there were four goldbeaters in Edinburgh, but only two remain. The industry is declining owing to foreign competition. Gold for the purpose of beating is principally obtained from the refiners in Sheffield, Birmingham, or London, and is granular in appearance. Fine gold is commonly supposed to be incapable of being reduced to thin leaves. This, however, is not so. Its use for ordinary purposes is undesirable because of the greater cost and the fact that leaves of pure gold tend to adhere to one another. It is preferred for outside work because it does not tarnish. The Albert Memorial, in London, and some other statues are covered with pure gold. The fine gold is alloyed before using according to the colour required. There are ten degrees of colour—namely, red, pale red, extra deep, deep, citron, yellow, pale yellow, lemon, green or pale, and white. The proportions of alloy for the shades in common use are: For red, 18 grains copper to each ounce; pale gold, 5 dwt. of silver; deep or medium, 12 grains copper and 12 grains

¹⁹ *Pharm. Journ.* [4], 5, 41.

²⁰ *Archiv d. Pharm.*, 236, 59, 63.

²¹ *Ibid.*, 236, 11.

* Read at a meeting of the Edinburgh Chemists, Assistants', and Apprentices' Association. (See p 270.)

silver. Pure gold is seldom required, and the same applies to double gold—that is, double the usual thickness. The deep or medium is that mostly used. Foreign leaf is thinner than British, and contains more alloys. The chief use of gold leaf is in the bookbinding and allied trades. Picture and mirror frame makers and gilders and decorators also use large quantities. One thousand books of gold leaf were used in decorating the interior of the Edinburgh University Library. The cross on the summit of St. George's Church, Charlotte Square, is covered with double gold. A proposal was made to cover the whole dome, but the estimated cost, £1,700, caused the dropping of the scheme.

The first stage in the process of gold-beating is to melt the gold in an earthenware crucible with the requisite amount of alloy, at a temperature higher than the fusing point, so as to increase its malleability. This is then cast into an ingot 3 in long and $1\frac{1}{4}$ in. broad. When cool, the ingot is rolled between powerful steel rollers, which are gradually tightened. After it has passed through half-a-dozen times it requires to be annealed. It is then passed through the rollers twice and again annealed, and this is repeated six times. The ingot of 3 ins. has, at the end of this operation become a ribbon 20 yards long, and about the thickness of ordinary note paper. The width remains the same as extension takes place only in one direction. This ribbon is divided into two 10-yard lengths each weighing about 3 ounces, and constituting a "piece" of work for one man.

The beater marks off the "piece," and with a pair of shears divides it into 180 smaller pieces. Each of these is placed separately into a tool called a "cutch," with a piece of skin or membrane about 3 ins. square between each, and the whole is enclosed in two membranous bands. This is placed on a block and beaten for half-an-hour with a wooden hammer weighing about 17 pounds, the labour being considerably reduced by the elasticity of the skin causing the hammer to rebound. At the end of this time each piece of gold foil, originally about 1 in. square, will have extended to the edges of the membranes, and is taken out leaf by leaf, and each quartered so as to give 720 pieces.

Each of these 720 is placed in a tool called a "shoder," which is similar to the "cutch," but the skins are considerably finer and 4 ins. square. This is hammered for about two hours, until the gold again reaches the edge of the skins. The leaves are taken out and again quartered, giving 2,880 pieces.

The next tool is called a "mould," and is made up of the finest skins. A full "mould" contains 950 skins 5 ins. square, so that three such tools are required for the 2,880 leaves resulting from the previous operations.

The skins or membranes which comprise the "mould" are about double the thickness of the goldbeater's skin as met with in pharmacies. Like the previous tools, they are prepared in France from the outer coat of the cœcum or blind gut of the ox, the gut of 380 oxen being required to furnish sufficient skins for one mould. The gut is first stripped off in lengths of 25 to 30 ins., freed from fat by dipping in caustic potash solution and scraping with a dull knife, and stretched on a frame. Two membranes are glued together, treated with a solution of aromatic substances or camphor in isinglass, and coated with yolk of egg. The price of a "mould" is sometimes as high as £10 10s. It will stand years of beating before being relegated to the pharmacist to be cut up and sold as goldbeater's skin. Many substitutes have been tried for this gut, but none have been found successful.

The beating of the gold in the "mould" occupies five hours, and this is the most difficult stage in the process, the thinness of the gold leaf depending on the fineness of the skins and the judgment of the workman. At the end of two hours, when the gold is about $\frac{1}{150000}$ part of an inch in thickness, it permits the passage of a ray of light for the first time, the transmitted light being green, or, if

much silver is present, violet. Some leaves when heated transmit ruby red light. For some time at the commencement of the beating the blows are necessarily struck in the centre of the skins. This produces heat, which tends to curl up the skins, as a hot iron does in plaster spreading. This must be carefully guarded against, and occasionally the beating must be suspended for a time. As the leaves extend in size the beating is more generally distributed, and this lessens the danger of heating. At the end of five hours the leaves are taken out, and each is cut on a cushion with an instrument called a waggon, the cutting edges of which are simply split rattan canes. The usual size is about $3\frac{1}{4}$ inches square. The leaves are now ready for putting up in the familiar tissue paper books, twenty-five leaves being the usual number to each book. The leaves of the books are previously dusted with rouge to prevent the gold sticking to the pages. Transfer gold, which is used for outdoor work, is simply ordinary gold leaf pressed on to sheets of tissue paper so as to adhere, but readily coming away when pressed on to a varnished surface, thus enabling outdoor work to be carried on even in windy weather.

Between each time of using each membrane of the "mould" requires to be separately cleaned, each side being brushed with tale by means of a hare's foot. It is afterwards put in a hot press to remove damp. The degree of dryness is very important. If the membranes are not sufficiently dry the leaves of gold do not extend evenly, and over-dryness diminishes the brilliancy of the gold.

The limit to which gold has been beaten in the manner described is 1 grain to 75 square inches. Taking the cubic inch of gold as 4,900 grains, this gold leaf is $\frac{1}{367650}$ part of an inch in thickness, or about 1,200 times thinner than ordinary writing paper. One grain of silver has been beaten to 98 square inches, but, owing to difference in specific gravity, the leaf was thicker than the gold leaf. This experiment does not determine the malleability of either metal, as the means of testing it failed before there was any appearance of the limit of malleability of the metals being reached. In practice gold is not nearly reduced to such a degree of thinness as the above.

Many attempts have been made to beat gold by machinery, but without success. The practised eye and the skilled hand seem indispensable.

EXTRACTS FROM CONSULAR REPORTS.

A COPPER SULPHATE TRUST, formed by the British and American copper mine proprietors during last year, caused a rise in the price of copper sulphate; so much so, that it is stated to have created a great sensation among Italian agriculturists, who use it largely for the vines. Several substitutes are said to have been suggested, such as copper acetate, a mixture of lime and colophony, and a mixture of copper sulphate, sodium carbonate and lime; but all appear to have proved either more expensive or inefficient. A mixture consisting of equal proportions of copper sulphate and lime and a combination of sublimate and ground sulphur, equal parts, are stated to have given satisfactory results. There are a number of copper sulphate manufactories in Italy, but the demand being greater than the supply, a very large quantity is imported every year, chiefly from Great Britain.

THE CHEMICAL COMPOSITION of the sweet and salt sands of Venice, combined with some climatic influence, was at one time thought to be so essential in the manufacture of glass beads as to prohibit the possibility of them being made elsewhere than in Venice, which was formerly the only place where beads were made. Manufactories now exist, however, in France, Bohemia, and Antwerp. Still, there are at present over three thousand men employed in the industry in Venice, the exportation in 1898 being 639 tons, valued at £144,362.

THE PUBLIC PHARMACY of the Seychelles Islands it was originally anticipated would pay its way. But according to the report of Acting-Administrator Brown, the gross amount of the sales of drugs during 1898 only amounted to Rs. 1,782 85 cs., as against Rs. 2,000 estimated. The cost of maintaining the pharmacy amounted to Rs. 1,120, being the dispenser's special allowance for attending to the sales. Thus, instead of paying its way, the pharmacy was worked at a loss.

THERE IS AN EXCELLENT OPENING in Portugal for British enterprise. Such, at least, is the opinion of Mr. Harrison, commercial attaché to her Majesty's Legation at Lisbon, who states in a recent report that a Portuguese industry well worth the attention of Englishmen is the manufacture of olive oil for the European markets. Portugal is an important olive-growing country, and nearly 26,000 hectolitres of olive oil, valued at £72,000, were exported in the year 1898. The manufacture of the oil is, however, so indifferent that, in spite of the large demand for olive oil, less than 1,000 lectolitres was consumed in Europe, the rest being exported to Brazil and the Portuguese colonies. On the other hand, imported olive oil is used to a large extent in Portugal, Italian oil valued at about £6,000 being imported in 1897. Given facilities for the proper preparation of the oil, the British trade alone, it is anticipated, could be depended upon for a large consumption.

IN THE EXPORT OF GUMS AND RESINS from the Somali coast a considerable decrease is reported for the year 1898-99. At Berbera the decrease was 3,352 $\frac{3}{4}$ cwts. in quantity, and Rs. 78,977 in value, as compared with the corresponding period of the previous year. At Bulhar there was a falling-off of 395 $\frac{3}{4}$ cwts. in quantity and Rs. 9,734 in value. The decrease is alleged to be due to the falling-off of price in the ports and less demand from Europe. Gum arabic is stated to have sold at Rs. 20 to Rs. 24 per cwt., and gum myrrh at from Rs. 26 to Rs. 30 per cwt. The trade in these gums is said to be fluctuating, the supply varying with certain climatic conditions, a wet year being less productive than a dry one.

A SPECIES OF ALOE, the *Sanseveria ehrenbergii*, which grows in profusion over many parts of the Somali Coast Protectorate, produces a fibre that is used all over the country by the natives to manufacture the ropes they require for loading their canels. The qualities of the fibre have attracted attention in the United Kingdom, and it is stated that a British firm has taken the matter in hand, there being every hope that the industry will be developed.

THE IMPORTATION OF DRUGS, CHEMICALS, AND COLOURS into Servia in 1898 was valued at £52,814, or £5,035 less than in 1897. Of the total Austria-Hungary furnished to the value of £39,174; Germany, £8,247; Great Britain, £1,433. Chemicals and drugs amounted to £17,844, or £2,184 less than the previous year. Made-up drugs and medicines, £18,870, an increase on the import of 1897 of £2,146. Dyes, £16,100, a decrease of £4,997. The importation of raw colours fell off by half, the total value being £4,388. During the first nine months of 1899 the importation under the above general heading was valued at £66,733, an improvement on the corresponding period of 1898 of £29,426.

THE P. A. T. A. IS NOT REQUIRED in Servia, so far as the sale of "patent" medicines is concerned, as the Servian Government claims the right to fix the price of all such medicines sold in the country. Special attention is directed to the foregoing fact by Consul Macdonald, who also points out that in addition to "patents," the sale of made-up drugs is regulated by the internal sanitary laws of Servia, which require an official analysis and licence,

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

Possible Good out of Evil.

Looking at the matter without prejudice, one is forced to the conclusion that the Government is unwittingly doing pharmacists good service by responding with a blank negative to the request that companies carrying on business as chemists and druggists should be compelled to submit to the same legal restrictions as individuals engaged in that occupation. For such, in brief, is what our representatives have been deputed to ask the Government, after explaining the injustice of the position that a combination of individuals—who are totally devoid of the necessary qualification—may secure the practical equivalent of registration under the Pharmacy Act by forming themselves into a limited company and so putting themselves outside the law, while individuals are compelled by Statute to qualify themselves in certain ways prior to securing that registration which alone entitles them to practise pharmacy without restriction. But unanimity has been lacking among us, with the almost necessary result that our case has not been presented half so forcibly as it might have been. We have spent precious months in academic discussions as to what the Government ought to do, what would constitute an ideal state of affairs, and in deploring the assumed neglect of our predecessors. That waste of time in misapplied activity, and in doing everything but unite together to make the vigorous effort which alone is likely to prove effective in securing any remedy for existing grievances, has permitted things to come to their present pass. But now the blow has fallen, and we know that the Government is indisposed to do anything whatever in the direction of effecting the reforms we have long considered necessary. That, however, as I have already suggested, will not be an unmixed evil if the more or less immediate result is to make clearly manifest to ourselves the danger which attends disunion, and the folly of "crying for the moon" without taking practical steps to attain to the possession of that luminary, or some reasonable substitute for it.

The Parting of the Ways.

We are, as it appears to me, at the parting of the ways, and it is at present incumbent upon us to decide, in case of need, what we are prepared to sacrifice for the sake of our chosen profession—comfort, leisure, or perhaps even some of our most cherished prejudices regarding our so-called privileges and rights. It may not be amiss if, for the benefit of the younger generation, I venture to occupy a little space with a very brief statement of what the steps were which led directly to the existing pharmaceutical position in regard to legislation. It is just fifty years since the then vague and nebulous ideas concerning the establishment of a recognised pharmaceutical qualification began to crystallise and assume definite form, the immediate predisposing cause being the announcement that the Government proposed to introduce a Sale of Arsenic Bill. Such a measure became law in 1851, and during the same Session of Parliament Jacob Bell secured the second reading of the first Pharmacy Bill. That Bill proposed originally to make it unlawful for any unregistered person to exercise the business, or use the title, of pharmaceutical chemist unless he were duly registered, but when the Bill passed during the following year the restriction of the right to carry on the business was omitted, as it was held to be incompatible with the principles of free trade. A similar fate befel all subsequent attempts to restrict the dispensing and sale of medicines to duly qualified persons, and finally, of all that the leading pharmacists of the day endeavoured to secure, the protection of titles alone remained. But, in deference to public opinion, the Government was compelled to do something in the direction of restricting the sale of certain poisons, and so the Pharmacy Act of 1868 was made to serve the dual purpose of protecting the public safety in the matter of retailing poisons, and of establishing a professional

qualification. But nothing was done in the way of regulating the practice which required that qualification, and it is a great wonder to me how the Act has borne the strain of years, and endured the extreme wear and tear so long.

The Present Danger.

At present the Act seems nearer breaking down than at any previous period, its most important provisions having been interpreted in a sense that could never have suggested itself to those who drafted the measure, and serious flaws having been detected where they were never anticipated. The qualification of the individual chemist is threatened, and there is a grave risk that nothing but restriction of the sale of poisons will remain. Regarding the latter, we pharmacists need not concern ourselves in the least, for the Government will be compelled, in any event, to preserve and even increase that restriction. But the question of qualification is another matter altogether, affecting ourselves alone directly, and we must needs be prepared to fight for the retention of the position assured to us as individuals, the more especially as it bids fair to be a struggle for our very existence as a specialised class. Neither the Government, nor the medical profession, nor yet the British public, is likely to care in the least whether the value of our qualification remains what it ought to be or not; the matter, as I have just said, is almost entirely a personal one with us, and we must be prepared to bear the brunt of warding off attacks upon our position. In doing so, we must face an almost inevitable problem; we must be prepared to decide what we consider of least importance and, therefore, what we should be most disposed to sacrifice in case of extreme need. I assume, of course, that our leaders intend to act on the principle of no surrender at the outset, and only to make concessions in the last resort. But, on the other hand, I cannot conceive it as being even remotely possible that any among us is willing to agree to the wholesale surrender that would be implied by acceptance of the Lord Chancellor's clause, which now constitutes part of the Companies Bill.

A Possible Basis for Compromise.

What, then, could we afford to relinquish, assuming that we must submit to some legalisation of the existing state of things? In my opinion, the answer is not far to seek, for, as holders of a professional qualification, we can best afford to give up what accords least with the idea of professional practice and savours most of restraint of trade. Our titles must be regarded as sacred and their possession by individuals, as well as the exercise of the functions to which they imperfectly relate, as an inalienable right; our general practice, unfortunately, is in an inchoate and ill-defined condition, except as regards the sale of poisons, while that in itself cannot be regarded as being, in any sense, part of a strictly professional practice. Why not, then, attempt, if necessary, to improve our professional position at the expense of the trading side? Companies have now got such a grip upon the sale of poisons that the Government seems disposed to consider they have acquired a vested interest in that business, and if we delay much longer they will have secured an equally strong hold upon our titles. We must, in any case, beat them off in the latter respect; but if nothing less will serve, we might perhaps acquiesce in their continuing to retail poisons, so long as they were not permitted to compound or dispense. In other words, it might be expedient to relinquish the shadow represented by the restriction of the mere sale of poisons, if we could but secure the substance represented by the undisputed right to exercise our purely professional functions of compounding and dispensing medicines. Neither pharmacists nor companies would suffer appreciably if such a bargain could be struck, our position would be vastly improved, and the public would reap the benefit. Here, in fact, I think, is a basis for compromise that has not yet been presented, and it possesses a pleasant savour withal.

POLITICAL GOSSIP.

JUSTICE FOR INSPECTORS.—The point in Mr. P. Thornton's Public Health Bill seems a very reasonable one—in fact, it simply illustrates another phase of the unqualified control question. The duties of a sanitary inspector practising under the official ægis of the Local Government Board are varied, responsible, and important, ranging from curing smoky factory chimneys to prosecuting hucksters for dealing in sophisticated drugs or putrid table delicacies. He is the mainspring of the administrative machinery of the Food and Drugs Acts, the Margarine, Horseflesh, and a number of similar statutes having for their object the conservation of the national health; and it seems necessary, therefore, that he should be possessed of certain Crichton-like faculties and attainments. As a matter of fact, sanitary inspectors are required, under the Public Health Act of 1891 (applicable only to the metropolis), to have certain qualifications of a fairly high standard; yet they are subject to the control of parochial authorities constituted of men who may have very excellent grounds for not being able to appreciate activity in an inspector. Outside London the position is rather worse. Local authorities are largely composed of builders, owners of speculative house property, shopkeepers, or manufacturers, and they have absolute power to dismiss or to decline to appoint a good man—in fact, they may bluff the public by filling up the appointment with a complacent or an incompetent individual who may be trusted not to interfere unduly with vested—*i.e.*, local—interests. Mr. Thornton's plan for improving this condition of affairs is to make the provisions of the London Act of 1891 respecting the qualification, appointment, duties, salary, and tenure of office of district medical officers, applicable to sanitary inspectors all over England and Wales. Thus it would become impossible for a sanitary inspector to be removed from office by an Urban Sanitary Authority without the consent of the Local Government Board. Scotland and Ireland are already provided with safeguards in this direction, but up to the present anything has been deemed good enough for England and Wales. It is not at all a certainty that the reform is in sight now, for Mr. Thornton is only a private member, and the legislative efforts of private members are not proverbially crowned with success.

THE DANGER of a little political knowledge, more especially when it is paraded with much flourishing of self-blown trumpets, has been well demonstrated recently by a trade journal which periodically lays claim to pharmaceutical omniscience. The publication in question last week gave as a piece of "Westminster Wisdom" the announcement that Mr. T. P. O'Connor had "blocked" the Companies Bill. The honourable gentleman has done no such thing. He has, however, placed a blocking notice against Mr. Begg's Companies Acts Amendment Bill, which is by no means the same thing. The error did not end with the Parliamentary reporter, for he appears to have deluded his editor into writing a leading article on the information, and talking glibly about Government measures not being taken after twelve o'clock if they are opposed. Of course, even the Macaulayan schoolboy knows that, by the rules of the House, no Government business is ever taken after twelve unless a motion has been specially made and passed to suspend the Standing Orders. It should be pretty obvious that official Bills cannot be retarded like private members' Bills, for what becomes of the ministerial majority if ministers cannot take their own programme at the time they appoint? It is not a commendable practice to point the finger of scorn at those who show their humanity by falling into error; but, when a trade journal has a tendency to pose as the one true guide, philosopher, and friend of the trade, it appears fitting to pen a reminder that political infallibility cannot well be maintained on superficial knowledge.

DRUG COMPANIES—that is to say, limited liability concerns carrying on business as chemists—are evidently persuaded that in politics, as in love or war, nothing can be deemed to be unfair. The latest move of one of the best known of those companies is to order each qualified employee to write in his own name, and on private letter paper, to his Parliamentary representative, urging him to oppose any amendment to the Companies Bill relating to pharmacy. No one can deny the right of the directors of a company to defend their interests, but it looks uncommonly like intimidation to ask their qualified managers, with every show of spontaneity, to destroy the last vestiges of cohesion in their calling. No doubt a number of these letters have been written and despatched, for a request from a director is a thing to be obeyed unless one is prepared to undergo unpleasant consequences; but members of the House of Commons who receive such communications should know that they are utterly worthless as expressions of opinion, inasmuch as the writers are not free agents. Even the form of words to be used by the poor victims have been concocted by the managing director or his co-directors and, after having been typed and duplicated, have been served on the branch managers like so many writs. These tactics very forcibly show the ease with which Parliamentary opinion can be manufactured, but they should also reveal to members of the Society the proper means of destroying the effect of the trick; for if it can be shown to local M.P.'s that they are being used as cat-paws to capture chestnuts for "cash chemists," the smart device of the enemy will work out its own condemnation.

DR. TANNER has joined the number of those who do not like the Hon. A. de Tatton Egerton's Midwives Bill, and he has followed the lead of his friend Mr. T. P. O'Connor by placing against it a motion that it be read a second time upon this day six months. Some curious statistics have been gathered by the *Lancet* as to the attitude of medical men towards this Bill, from which it would appear that the proposals of the Member for Knutsford do not commend themselves to the professional mind. Of 6,299 practitioners who responded to the *Lancet's* invitation to express their convictions only some 1,311 are in favour of the Bill—a mere handful—whilst nearly 4,000 are agreed in thinking it unnecessary or pernicious, though they are not agreed as to what is desirable or proper. A further 600 expressed utter indifference in regard to the subject, and the remainder had various notions which made classification difficult. Evidently there is a healthy independence of thought among the doctors relative to the registration of midwives.

THE BUDGET, or, to speak by the card, the Chancellor of the Exchequer's Financial Statement in Committee of Ways and Means, was disclosed suddenly and mysteriously on Monday, after two days' notice only. The unexpected presentation of the Budget proposals was a subtle device of the Chancellor to checkmate the commercial acumen of dealers in excisable articles, who had already commenced to anticipate the increased duties to the detriment of the Revenue of the ensuing year. The new imposts are as follows:—

Income tax, increased by 4d. to 1s. in £.	
Tea	„ „ 2d. per lb.
Tobacco	„ „ 4d. „
Cigars (foreign)	„ „ 6d. „
Spirits	„ „ 6d. a gallon.
Brokers' contract notes, new tax of 1s.	

The remainder of the amount requisite to meet estimated expenditure will be raised by loan, details concerning which more properly fall within the province of journals unconnected with pharmacy. The interesting point—and it irritates as well as interests—from the pharmaceutical point of view is the reimposition of the paltry 6d. a proof gallon on all spirit distilled in the United Kingdom and on all spirit imported thereto. If the surcharge had been something tangible the retail chemist could have better met it, but

6d. a gallon is a very awkward thing to get back from a public that only buys in ounces. The following list will show the difference in the charges payable on the principal articles subject to Excise duty. The amounts on the left hand refer to last year's duties, and those on the right hand to the newly imposed duties:—

£ s. d.		£ s. d.	
0 10 10	Spirit (excise)	0 11 4	per proof gal.
0 10 10	Spirit (customs).....	0 11 4	per proof gal.
0 17 3	Perfumed spirit	0 18 1	per proof gal.
0 14 8	{Liquors, cordials, mixtures imported un- computed	0 15 0	per gal.
0 1 3	Chloral hydrate	0 1 4	per lb.
0 3 1	Chloroform	0 3 3	per lb.
1 5 0	Collodion	1 6 3	per gal.
0 1 10	Ether, acetic	0 1 11	per lb.
0 15 8	Ether, butyric	0 16 5	per gal.
1 6 2	Ether, sulphuric.....	1 7 5	per gal.
0 13 7	Ethyl iodide.....	0 14 3	per gal.
0 1 0	Ethyl bromide	0 1 1	per lb.
0 15 8	Ethyl chloride.....	0 16 5	per gal.

"PARTURIUNT MONTES NASCETUR RIDICULUS MUS," will probably be largely used just now in writing of the newly-revealed policy of the Council in regard to the Companies Bill, and it is perhaps natural that the phrase should be capable of a pharmaceutical application at the present juncture, for the net result of five months' continuous official deliberation does not commend itself on the score of brilliancy, though it may do on the point of soundness. The Council in resolving to oppose Clause 2 of the Bill mercilessly and strenuously is at least acting consistently; for that line of action is the logical corollary to the policy which dictated the "Suggestions" of February, 1899. The motives actuating the Council were fully discussed at the meeting on Wednesday, and are reported in this issue of the Journal, so that further reference to them is unnecessary here. All that need be done is to urge all pharmacists loyally to give effect to the policy deemed by the Council to be the wisest in the circumstances. It is understood that the Standing Committee of the Law and Parliamentary Committee will cause the immediate issue of definite instructions to the local officers of the Society throughout Great Britain. Meantime, Monday is fixed for the second reading of the Companies Bill, but as the Army Estimates come on for discussion then, Mr. Ritchie will further postpone the Bill. Notwithstanding that Easter is rapidly approaching, Mr. Balfour has again stated (this time to Mr. Galloway on March 1st), that the Government hopes to take up the Company question before Easter.

THE SHOPS BILL narrowly escaped a second reading on Tuesday owing to unexpected progress with the ministerial programme. The House was as surprised as the promoters of the Bill and, rather than pledge themselves to the principle of the measure, members hastily agreed to an adjournment at half-past eight. On the same evening Mr. Tomlinson (Preston) introduced his Bill, which has seen more than one parliamentary session already, to provide for the better organisation of professional accountants. It was read a first time and relegated to Wednesday, May 2, for further consideration—if circumstances permit.

MUNICIPAL TRADING.—Replying to Mr. Kimber, who asked whether, pending the appointment of a Select Committee, the Government would oppose or defend Bills or clauses in Bills relating to municipal trading, Mr. Balfour, on Tuesday, said that no such general principle as was suggested could be adopted. Each case must be considered on its merits, but undoubtedly the fact that a Committee was sitting, or was proposed to sit, on the subject would be a factor that might be taken into account. This reply, so far as lucidity is concerned, would not have disgraced the genius of Captain Bunsby, of oracular memory.

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, MARCH 7, 1900.

Present :—

Mr. WM. MARTINDALE, President.

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

Messrs. Allen, Atkins, Bateson, Carteighe, Corder, Cross, Glyn-Jones, Harrington, Harrison, Hills, Johnston, Park, Savory, Southall, Storrar, Symes, and Warren.

The minutes of the last meeting were read and confirmed.

The PRESIDENT read a letter from Miss Frazer, thanking the Council for the expression of sympathy sent last month on the death of her father. He also stated that Prof. Balfour, Dr. Dobbin and Mr. Peter Boa, had undertaken to conduct the examination for the Council prizes, as requested.

Election of Members.

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

<p>Ardern, John W.; Ashton-under-Lyne Bathurst, Ernest Frank; Kennington Bobby, Charles William; Soham Cooper, Thomas; Blackheath, Staffs Cornhill, George F.; Walsall Dewar, Donald; Portree Glover, Thomas J.; Dovercourt Gooch, Stephen Leeds; Holt Gray, Arthur Thistle; Barnes Heap, Robert Edwin; Hanley Heely, Walter Frederick; Kennington Hodgson, George; Hemsworth Hubble, Wm. Barton; Workington Jones, John Richard; Aberystwith Lenton, Walter Henry; Thrapston Lloyd, Hugh; Walton-on-Naze Lynn, Sam; Bayswater</p>	<p>May, Ernest Douglas; Lewisham Normansell, John William; Stockport Paynter, Alfred John; New Cross Pilgrim, Walter Ernest; Winchester Ransom, William T.; Sheringham Richards, William D.; Aberystwith Ringer, Alick Archdale; Manchester Shelton, William; Stockport Smalley, Robert; Cockermonth Smith, Thomas Connell; Edinburgh Stone, George; Llanelly Strachan, John; Salisbury, S.A. Walker, James; Birmingham Walmsley, Martyn; London Watkins, Alfred; London Wilson, Ralph; Perth Wright, Arthur George; Aylesbury</p>
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Election of Student-Associates.

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

<p>Anderson, William Purvis; Edinburgh Armitage, Wm. Tyrrel; Huddersfield Austin, John; Burton-on-Trent Banham, Albert Edward; Cambridge Bowling, Wm. Henry; Willesden Green Bradley, Alfred; Newark Cartmell, Edmund; Lazonby Cross, William Henry; Preston Dallman, Arthur A.; Ashton-on-Ribble Dell, George; Northchurch Dick, Andrew Douglas; Douglas Emslie, Francis Henry; Aberdeen Esam, Richard Middleton; Leicester Gaze, Wm. Ernest; Bury St. Edmunds Green, William; Westbury, Wilts Hart, Edward Joseph; Cambridge Hill, Wilfrid; Ashton-in-Makerfield Hough, Bernard Grindrod; Sale Huddart, J. Kilpatrick; Workington Hume, Ernest Norris W.; Lowestoft</p>	<p>Hutchinson, Omer Talon; Sunderland James, Cyrus Charles; Marlborough Jewitt, W. M.; Stockton-on-Tees Jones, John Elias; Bala Millar, Alexander Hastie; Dundee Oliver, Seth Harry; Shebbear Parkinson, Fredrick C.; New Lenton Robson, Alfred Atkinson; Gateshead Robson, David Wm., jun.; Gateshead Ross, William Stewart; Montrose Saunders, H. Francis; Walthamstow Savage, Francis Comer; Birmingham Shankster, Harry, Grimsby Sumpton, William; Hull Thompson, Edwin; Liverpool Tomlinson, T. McN.; Poulton-le-Fylde Totten, John Angell J.; Beccles Tyreman, Ernest Lightfoot; Whitby Veale, Percy Coleman; Burgess Hill Whitehead, Vernon Alfred F.; Oxford</p>
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Restorations to Register.

The names of the following persons who have severally made the required declarations and paid a fine of one guinea were restored to the Register of Chemists and Druggists :—

Frederick William Fowles, 6, Prince Albert Street, Brighton.
Robert Joures, 6, Violet Terrace, Berwick-on-Tweed.
John Strachan, Salisbury, Rhodesia, S.A.
Stephen Nobbs Stevens, 9, Liverpool Street, Southampton.
Thomas Henry Tyrrell, 146, Southampton Street, Camberwell, S.E.
Frederick Harcourt Witney, Wrotham, Kent.

Additions to the Register.

The Registrar reported that—

Duncan Neale
and
Moses Neale } of Sherston Magna

having made declarations that they were in business as Chemists and Druggists prior to the passing of the Pharmacy Act, 1868, and

those declarations having been duly supported, their names had been duly placed on the Register.

Restorations to the Society.

Several persons were restored to membership upon payment of the current year's subscription.

Finance Committee.

The SECRETARY read the report of this Committee, recommending various accounts for payment.

The PRESIDENT, in moving the adoption of the report and recommendations, said that the financial condition of the Society was sound, and he had no doubt that more money would be received during the current month than in February. The Benevolent Fund had received 25 guineas from the Chemists' Ball Committee; 10 guineas from the Pharmacy Club, and 100 guineas from Mr. Chas. Maw, who had given several previous donations.

The motion was adopted unanimously.

Library, Museum, School and House Committee.

The PRESIDENT moved the adoption of the report of this Committee, which included the following particulars :—

RECEIPT OF DONATIONS.

Several donations to the Library and Museum had been received (see *P.J.*, February 17, 1900, p. 164), and the Committee had directed the usual letters of thanks to be sent to the respective donors.

ATTENDANCES.

	Total.	Highest.	Lowest.	Average
Library (January)	395	29	2	15
Museum (January)	490	44	3	18

CIRCULATION OF BOOKS.

	Total.	Town.	Country.	Carriage Paid.
London (January)	134	82	52	11s. 3d.
Edinburgh (Year 1899)	1,785	1,521	264	15s. 3d.
„ January, 1900	158	135	23	1s. 7d.

The Committee recommended that the undermentioned books be purchased :—

FOR THE LIBRARY IN LONDON :—

Maisch's 'Materia Medica,' 7th edition, 1899.
Muter's 'Analytical Chemistry,' 8th edition.

FOR THE LIBRARY IN EDINBURGH :—

Maisch's 'Materia Medica,' 7th edition, 1899.
Braithwaite's 'Pharmaceutical Formulary.'
Muter's 'Analytical Chemistry,' 8th edition.

The Committee also recommended that the President, Vice-President, and Treasurer be appointed delegates to the Ninth International Pharmaceutical Congress, to be held in Paris. The Committee had considered the communication from the General Medical Council with regard to Pharmacopœia revision, and proceeded to take the necessary steps in connection therewith. It had also dealt with various matters affecting the School of Pharmacy.

Mr. GLYN-JONES thanked the Committee for acceding to his request and furnishing members of the Council with copies of this report. He asked if it was the intention of the Committee to report to the Council (in committee, if it were not advisable to do so in open Council) or to the General Purposes Committee what steps were taken with reference to the Pharmacopœia revision. That was one of the most important matters they had to deal with.

The PRESIDENT said he would refer to this matter later on in committee.

The resolution was then put, and carried unanimously.

Benevolent Fund Committee.

The report of this Committee recommended the grant of £79 in the following cases :—

Widow (77) of a member and subscriber to the Fund. Has had one previous grant. (Liverpool.)

Widow (66) of a member who had two grants. Has had one previous grant. (Norfleet, Kent.)

Widow (70) of a member and subscriber to the Fund. Has had nine previous grants. (Doncaster.)

Widow (56) of a registered chemist and druggist, and subscriber to the Fund. (Stroud.)

A registered chemist and druggist who has had two previous grants. (Liverpool.)

The death of Mr. J. B. Watson, aged 91, who had been an annuitant since 1894, was reported.

The Committee also recommended that Edwin Bennett be selected for admission, by payment from the Orphan Fund, into the London Orphan Asylum.

The VICE-PRESIDENT, in moving the adoption of the report, said he noticed that on the present occasion several of the recipients were connected with the Society either as members or former subscribers to the Fund.

Mr. ATKINS seconded the adoption of the report. The Council would remember that at the last meeting he referred to the death of a Mrs. Naftel, of Guernsey, an old lady of 83, who had been an annuitant since 1877, and had received from the Society a large sum of money. He was requested by the family of the deceased lady to express to the Council their deep sense of indebtedness and gratitude for the help which Mrs. Naftel had received. Whatever might be said about the defects of the Council or the Society, certainly one part of the Charter had been honourably fulfilled, and that was the relief of distress. He did not know of anything that had been to him in his connection with the Society a source of profounder gratitude than the consciousness which he had that they had been enabled to relieve distress in the way they had done.

The PRESIDENT, in putting the resolution, said the deserving cases were sometimes a little difficult to apportion. The Benevolent Fund was not a life assurance fund, therefore they gave from that Fund without considering whether the recipients had been subscribers to the fund, but applied it in cases of necessity.

The VICE-PRESIDENT drew the attention of members of the Society who are Freemasons to the case of Harriet Parkes, who was a candidate for the Royal Masonic Benevolent Institution, and who was the widow of a pharmaceutical chemist; he hoped she would be largely supported.

The PRESIDENT then moved a formal resolution for payment from the Orphan Fund for the admission into the London Orphan Asylum of Edwin Bennett.

The VICE-PRESIDENT, in seconding the motion, said the Benevolent Fund Committee went into this case very thoroughly, and he would point out that the father of this boy was connected with the Society practically since its formation, and had subscribed to the Benevolent Fund. Although he had ceased any practical connection with the business for some seven or eight years before his death, he still kept up his subscriptions both to the Society and the Benevolent Fund. There could not be a more suitable case.

The resolution was at once agreed to.

Assistant Local Secretaries.

Mr. J. A. Mitchell and Mr. S. N. Pickard were appointed Assistant Local Secretaries for Bradford.

The Annual Report of the Council.

The preparation of the annual report of the Council was referred to the Library, Museum, School and House Committee.

The Annual General Meeting.

On the motion of the PRESIDENT, the fifty-ninth annual general meeting of the Society was fixed for Wednesday, May 16 next, at noon precisely.

Mr. CARTEIGHE said some three months ago he had stated that the new bye-laws would probably be ready for approval at the annual meeting. To avoid confusion he would now state that on going through them it was found that they could not arrange that

they should come into force until the end of August. It would be necessary to begin with a clean draft set of bye-laws to be approved after the existing bye-laws with regard to the examinations had died out. They were being drafted and prepared and would be submitted to the June, July and August meetings of the Council, and a special meeting would have to be held in August to confirm them.

The Waterall Legacy.

The Secretary read the report of the Committee which was appointed to draw up a scheme for the administration of the legacy left by the late Mr. Waterall, of Nottingham. The following scheme was recommended:—

SCHEME FOR THE ADMINISTRATION OF THE WATERALL LEGACY OF £1,000.

The Committee appointed to consider and report on the best method of carrying into effect the provisions of the will of the late George Edwards Waterall, recommends for adoption the following scheme:—

(1) The legacy of £1,000 shall be invested in the Public Funds, and the income received therefrom shall be paid into a separate account at the Society's bankers, which account shall be called the "Waterall Legacy Fund," and a separate account of the receipts and disbursements of the Fund shall be kept by the Secretary of the Society.

(2) Subject to such deductions as may be requisite to defray the cost of administering the Fund, the income derived from the investment of the capital of £1,000 shall be applied for the benefit of deserving poor persons in the manner hereinafter indicated, that is to say:—

(a) The person who shall have precedence as a first recipient or as a recipient to be afterwards appointed at any time by the Council of the Pharmaceutical Society of Great Britain to receive such income, shall be a member of the Pharmaceutical Society who shall have carried on business in the City of Nottingham for a period of at least ten years prior to the date of his appointment by the said Council to receive such income.

(b) Should there be no such member of the said Society in the said city of Nottingham who shall, in the opinion of the said Council, be qualified to receive such income, then the said Council shall pay or apply the said income for the benefit of any registered chemist or druggist who shall have carried on business in the City of Nottingham for a like period of ten years prior to the date of his appointment by the said Council to receive such income.

(c) In the event of the failure of the said Council to find any member of the Society or any registered chemist or druggist as aforesaid, then the said Council shall pay or apply the said income for the benefit of any member of the Society or any registered chemist or druggist wherever resident as in its absolute discretion shall be deemed fit.

(d) The said Council may at any time discontinue the payment or application of the said income if in its opinion the person receiving the same shall have become unfit to receive the same by reason of bad conduct or of improved circumstances, or for any other reason, and the said Council shall then appoint another person to whom the said income shall be paid or applied.

(e) Upon the death of any recipient of the said income, or if the payment or application of the said income shall be discontinued by the said Council as hereinbefore provided, the said Council shall as soon as conveniently may be after the expiration of one month from such death or discontinuance appoint another person to or for whom the said income shall be paid or applied under the foregoing conditions.

(3) The Council shall in the month of April, 1901, proceed to the appointment of a person to receive the net income derived from the invested capital of the Fund, having previously announced its intention so to do by advertisement in the *Pharma-*

ceutical Journal not less than one calendar month before the date of appointment. If, after having advertised the date fixed for appointment as aforesaid the Council should not be in receipt of any application from or on behalf of any of the persons contemplated as having a preferential claim upon the Fund by the terms of Clause 2 of this scheme, then the said Council shall be entitled to assume that there are no preferential claimants within the meaning of the terms of the bequest, and the Council shall then have absolute discretion to apply the income of the Fund for the benefit of any registered chemist and druggist as it may think fit.

(4) In the event of any recipient being elected an annuitant on the Benevolent Fund of the Society, such recipient shall forthwith cease to receive the benefits of the "Waterall Legacy Fund."

(5) Applications must be made in a form to be prescribed by the Council from time to time, and subject to such regulations and conditions as the Council may from time to time prescribe, and announce in the *Pharmaceutical Journal*.

(6) No portion of the income derived from the invested capital of the Fund may be used for the purposes of, or become merged in, the Benevolent Fund of the Society.

The PRESIDENT moved the adoption of the scheme. He said the annual income would probably be about £25 a year.

Mr. ALLEN, in seconding the motion, said he had gone carefully through the draft, and must congratulate the members of the Committee on the able way in which they had discharged the duty committed to them.

The resolution having been carried—

The VICE-PRESIDENT moved a vote of thanks to the Committee for the trouble it had taken, which was carried unanimously.

Law and Parliamentary Committee.

The report of this Committee was read, the purport of it being that having heard a report from the President and Mr. Carteighe as to the result of an interview they had had with Mr. Ritchie, President of the Board of Trade, the Committee recommended the Council to oppose Clause 2 of the Companies Bill.

The PRESIDENT said two letters had been received bearing on this subject. The first was from the Sunderland Chemists' Association, enclosing a resolution calling upon the Council to do all in its power to oppose the Companies Bill now before Parliament, so far as it affects chemists. The second was from the Preston Chemists' Association, enclosing a resolution passed by that body on February 1, urging the Council to proceed at once with the drafting of a Pharmacy Bill as an independent measure which would restrict the titles and practice of the profession to legally qualified chemists. Acting on the instructions of the Committee he went down to the House of Commons accompanied by Mr. Carteighe on February 20, saw Mr. Ritchie, and they explained the position to him as it presented itself to them. They pointed out that the Act of 1868 was intended to give qualified individuals the sole right to keep open shop and carry on the business of a chemist and druggist, and that it was entirely by accident that companies were held to be outside the Act. After the decision of the House of Lords in 1880, companies which had been growing up between 1868 and that date had gradually encroached more and more, and now claimed the right to carry on the business of pharmacy. This they considered inconsistent with the intention of the Act, and they asked Mr. Ritchie if it would not be possible to restore the position conferred by the Act of 1868, previous to the judgment of the House of Lords. The reply was that it was absolutely impossible, that the intention of the Government was to regulate the condition of things now existing; and Mr. Ritchie pointed out that in many cases the public had less protection in the case of individual chemists who carried on several branch shops, than they had with a company pharmacy conducted by a qualified man. Mr. Carteighe then referred to the protection which was given to medical men and dentists by Clause 3 of the Companies Bill, and asked that similar

protection should be afforded to chemists on the same grounds, but Mr. Ritchie still remained obdurate, and expressed himself as disinclined to make any concession. Another attempt was then made to obtain some protection for titles, which were essentially personal in their character, but they saw no hope of any concession being offered in the desired direction. Mr. Ritchie said Clauses 2 and 3 were the Lord Chancellor's clauses, and could not be altered. He (the President) therefore moved "That the Law and Parliamentary Committee be empowered to take immediate steps to oppose Clause 2 of the Companies Bill."

Mr. STORRAR, in seconding the motion, said he was glad of the opportunity of doing so, because this was the first opportunity he had had of expressing his views since the introduction of the Bill. No doubt the reasons which induced him to support the recommendations might not be generally accepted by the Council. In October last the Council came to a distinct and definite resolution that an amended clause should be drawn up by the Council in the hope that it might be accepted by the Government. That was referred to the Law and Parliamentary Committee, with instructions to frame such a clause. No doubt the motion now proposed was really going back on the previous resolution of the Council, but that resolution was passed before the present Companies Bill was introduced into the House of Commons. Therefore, on that ground, and also on the ground that the President of the Board of Trade positively declined to listen to any amendment, they were justified in now coming to a different resolution. In the first place they had asked themselves what, as a Council and as a Society, they thought they ought to get under a Pharmacy Act; and, secondly, what they were likely to get under this clause. The intention of the Act of 1868 was that dispensing and selling poisons should be restricted to legally qualified individuals, and it was a breach of faith that that privilege should be withdrawn; it was also against the safety of the public, which was the ruling motive of the Pharmacy Act. The Courts, amongst other things, had decided that so far as companies were concerned, they were quite outside the Act, and they had also stated that the safety of the public was sufficiently guaranteed by companies employing qualified persons for the sale and dispensing of poisons. Looking at it as a chemist, he would prefer that the Council should reaffirm what chemists believed to be the principle of the Pharmacy Act; but, as an individual, he recognised that the clause in the Companies Bill was an honest endeavour on the part of the Lord Chancellor and the Board of Trade to square the practice of pharmacy with the law. The Pharmacy Act could not be amended by any clause in the Companies Bill. All they could do was to bring companies into line with the common law as it stood at the present moment. It appeared to him that the only possible policy to adopt with regard to the clause in the Companies Bill was to oppose it on the ground that it took from chemists the titles which they were justly entitled to. He scarcely thought the question of keeping open shop for the sale of poisons could be argued. He did not believe that the Companies Bill could interfere with that; it could only affirm the state of the law at the present time; but, on the other hand, in giving the use of titles to companies they had gone beyond the law; therefore he would support very strongly the recommendation of the Committee—viz., that the Council should oppose, but not attempt to amend, the clause. The Council was unanimous that it was an infringement of their rights; but whenever they began to attempt to amend the clause they all fell to pieces. One section said that the clause should be amended so as to make it entirely illegal for companies to trade in these poisons; but he held that it was incompetent to bring such a clause into a Companies Bill. Another section wanted to square the thing by having qualified directors. He did not think that was a good thing at all, because, although they might appoint qualified directors, the law would never insist on those qualified directors being actually *bonâ-fide* directors. Then again, a qualified manager was proposed, and many other amendments. The matter had been going on for

six months, and it was still as impossible as it had ever been to get the Council or the Society generally unanimous on any amendment; therefore, they should not go beyond what they were unanimous upon, and not attempt in any way to amend the clause. He had no hope whatever of ever being able to get rid of company trading; still, he felt, as a member of the Council and as a representative of the Society, that they should not give away their position. He felt that if they began to tinker with the clause and recommend some amendment it would be giving away the position which they had held all along; it would be agreeing with the principle of controlling company trading instead of abolishing it altogether. He thought they should look forward to the time when they could go to Parliament with an amended Pharmacy Act. Even if the proposed clause were carried they would be in a better position than they were at the present time, more especially if they could convince the Lord Chancellor and Mr. Ritchie that they had a good case on the question of titles. On the other hand, if the clause were dropped altogether they would be no worse off than they were at present; but they would have their case clear for an amendment of the Pharmacy Acts.

Mr. HILLS then moved the following amendment:—"That the Watch Committee be instructed to secure, if possible, the amendment of Clause 2 of the Companies Bill, in the direction of securing to qualified persons the exclusive use of their titles and a regulation of companies, which will to the satisfaction of the Committee provide that persons controlling the business of a chemist and druggist shall be qualified. That in the event of their failing to secure either of these objects, the Committee be instructed to oppose the whole clause." After the eloquent remarks from Mr. Storrar, it was unnecessary for him to say anything in support of the amendment, because that gentleman had shown that the Law and Parliamentary Committee as long ago as last October was asked to frame a clause, which from that time to this it had not succeeded in doing. It was patent to all that there was considerable difference of opinion amongst the members of the Council on the subject, and he took the opportunity of bringing forward his amendment in order that every member of the Council might have an opportunity of expressing his views on this burning question. Those who voted for his amendment would practically admit once for all that the carrying on of the business of a chemist and druggist by limited companies was there and would remain. He had not found anyone yet who would say that he really believed the Legislature would pass a law to prevent companies from carrying on the business of a chemist and druggist.

The VICE-PRESIDENT asked Mr. Hills to say what the business of a chemist and druggist was.

Mr. HILLS said it was defined by the Pharmacy Act. There should be some regulations which would render it more difficult for companies to carry on the business of a chemist, and make it more safe for the public. The question was whether they as a Council representing the Society should oppose the Government's proposals, or whether they should in some way assist the Government. It would be said that the result of voting for his amendment would be practically the same as that come to by the Committee, and that it would be useless to propose any amendment in face of the Government having said that it would not accept any. They were all practically unanimous that companies which were not controlled by pharmaceutical chemists or chemists and druggists should not have the right to use the title in a corporate capacity. On the other hand, there was a small section of their own body who carried on businesses perfectly legitimately, such businesses being absolutely controlled by registered persons, and they did not see why they should not be able to use the title in their corporate capacity. In view of the strong desire that had been expressed both north and south of the Tweed, that they should go to Parliament with the request that the use of the title should be so restricted as to imply qualification and registration, they ought to take every measure in that direction. They could appeal to any member of

either House not only for sympathy but support on the question of preserving their titles for those who were qualified to bear them. He disagreed with Mr. Storrar when he said that if the clause were dropped out of the Bill altogether they would be in no worse position. As he had so recently given expression to his view at the meeting of the Western Chemists' Association, he did not propose to say much on the subject. He suggested that the Watch Committee should undertake this duty, because it was evident that the Law and Parliamentary Committee could not come to a unanimous conclusion, and the Watch Committee had the advantage that, while it was composed of men representing different views, it could be called together and act quickly if necessary. If he were asked how he would define the "control of a business" which should be confined to qualified men, he could only say that the Council and the Parliamentary Committee had hitherto failed in giving such a definition, and while he would be willing to take something less than some of their friends, he would endeavour to get as much *bonâ-fide* control as he could. There had been no encouragement to frame a clause, because the majority of the Council were opposed to touching "the unclean thing" at all. If the amendment were carried, it might come to the same thing in the end, but he did think an attempt ought to be made to deal with the matter in a practical way, and secure that there should be a qualified person in control of every open shop in which poisons were dispensed or sold.

Mr. HARRINGTON seconded the amendment. He thought it would be a mistake simply to oppose the clause, without making some attempt to secure protection for titles.

The VICE-PRESIDENT said he agreed entirely with Mr. Storrar in thinking that Clause 2 recognised something which the Pharmaceutical Society ought not to be a party to at all, and in view of the interview with Mr. Ritchie, the result of which had been narrated, it was their duty to oppose the clause. If the Government were so anxious to legislate for pharmacy, it would still come to the Society for information and advice, and no doubt something could be recommended which would be advantageous not only to their own members, but to the public. For years they had been in close touch with the Privy Council, which had consulted the Society on more than one occasion, and it would certainly have been only proper for the Government, before legislating in any way with regard to pharmacy, to ascertain what the Society's views were. Notwithstanding all Mr. Hills had said, his opinion had not changed one iota; it was their duty to administer the Pharmacy Acts of 1852 and 1868 in their spirit. What had taken place of late years was an excrescence on pharmacy, which ought not to be recognised in any way. He believed in going on doing what they believed to be right, and carrying out the principles of the Act, especially in respect to the protection of titles, in which he did not think they had been as energetic in the past as they might have been. It was quite evident that no clause could be framed which would meet with unanimous approval, and therefore he thought the only safe plan was to adhere to the principles which had guided them so many years. The amendment suggested that certain persons should "control" a pharmacy; but the important point was the conduct, not the control. One man could control any number of pharmacies all over the country. If a limited company were allowed to do that, the next step would be that an individual might do it.

Mr. GLYN-JONES said he would support the amendment. He thought the Law and Parliamentary Committee was largely responsible for the present position of affairs. Having recapitulated what had taken place with regard to this matter since October last, he said a most serious step was taken when the Committee decided to communicate to the Government the views of the Society. Very wisely, the President, in the exercise of his judgment, wrote in his own name, but the opinion he expressed was that of the Committee, and he had no hesitation in saying that it was drawn up by the Committee, deliberately knowing that it meant two or three different things. It suggested that it should not be lawful for any

company to assume the title, etc., and later on it said it was not desirable in the public interest that a person not qualified should exercise any control. He contended there was no authority from the Council for making any such statement, and he protested against any committee taking upon itself to represent to the Government what the views of the Council were.

Dr. SYMES rose to order, suggesting that Mr. Glyn-Jones was going into ancient history instead of discussing the amendment.

Mr. GLYN-JONES said he was referring to what had taken place, as a basis for his argument.

The PRESIDENT said the details to which Mr. Glyn-Jones had referred were pretty well known, and it would be as well if he would keep to the question before the Council.

Mr. GLYN-JONES said his contention was that the Committee ought either to have drafted a clause, or reported that it could not do so, and then the Council could have decided what should be done. When the Committee was asked to draft a clause the Government Bill had not been produced. No doubt Mr. Ritchie thought he had received a deputation from the Council; but he (Mr. Glyn-Jones) contended that there had been no official communication from the Council to the Government. The proposition was that they should do nothing but simply oppose the clause, and the majority, at any rate, agreed that it would be impossible to get a clause which would prevent companies carrying on the business of chemists and druggists. Well, there would be no better chance in a private Bill. If they failed to induce the Government to amend their own Bill in the direction desired, what chance would there be of carrying a private Bill of their own with a similar clause? He contended that they would be putting themselves in a false position if they simply opposed this clause without suggesting anything in its place. If they could not get such an amendment as they would like, they would still have the same chance of opposing the clause entirely. The real question was, were they to oppose any attempt on the part of the Government to deal with company pharmacy in this Bill? They were all agreed in opposing Clause 2 as it stood at present, but he should support the amendment because the object of it was to get the clause amended.

Dr. SYMES said the Law and Parliamentary Committee had devoted a great deal of time and consideration to the subject, and if it had to do all the work over again it would only arrive at the same result. With reference to the dreadful things that Mr. Ritchie said their own members were doing, of course there were black sheep in every flock, but he did not think there were more in their own profession than in any other.

Mr. CARTEIGHE said that what Mr. Ritchie said was practically that in asking companies to put up the name of the man who was conducting a business, they were being asked to do more than some chemists were doing.

Dr. SYMES, continuing, wished to direct the attention of the Watch Committee to a very useful measure, of which notice had been given in the House of Commons—namely, the Registration of Firms Bill, which he thought would be very useful to them. There were certain incongruities in the Companies Bill; for example, there were medical companies existing, which were, as far as they knew, legal at the present moment, yet there was no attempt on the part of the Government to recognise the practice of medicine by companies; but they were told that this was an honest attempt to deal with pharmacy. They had asked for bread and had been given a stone. If that memorable case against the London and Provincial Supply Association had been fought against an individual it would have had a different result. He had been told over and over again that the question of titles was a very small matter, but he would support Mr. Storrar in saying they had at present a means of protecting their titles, and that anything else would be better dealt with in a Pharmacy Bill. In attempting to tinker with the clause they would weaken their power for opposing it definitely. The Government was very strong on having that clause or nothing, but still,

he thought if they set their mind to have it knocked out they would succeed.

Mr. HARRISON supported the Committee's report. He said he should feel perfectly free, in spite of his vote that day, to give his support to any amendment if he could agree with it. The amendment then before the Council, he took it, was a direct negative to the motion of the Law and Parliamentary Committee. They had been told that Mr. Ritchie would accept no amendment, therefore was he likely to accept an amendment which struck out the principle of the Bill? The principle underlying the Act of 1868 was that the business of a chemist and druggist should only be carried on by persons who were duly qualified and registered under the Act, and that that qualification should not be relegated to an employee or other employer; but an attempt was being made to square that principle and so adapt it that companies trading under the Act should be qualified by those whom they employed. He saw great difficulties in the working of the proposed Bill, especially in defining what was meant by *bonâ-fide* conducted. As he believed the clause to be virtually rescinding the Pharmacy Act, 1868, he would vote for the resolution, which said they were to give an uncompromising and absolute opposition to the clause. He did not speak against companies, as such, with ill feeling; but he did see great difficulty in bringing them into conformity with the Act. There was nothing in the clause which could be squared with an honest attempt to deal with a difficulty that was pressing very sorely on them all. In his opinion, it was putting the companies in a very much better position than individual traders were placed. After thirty years of the working of the Pharmacy Act, had the chemists so grievously failed in their duty that the Government had a right now to rescind that Act? If they had failed in their duty he could understand the position, but as he contended that they had carried out their duties loyally to the country, he failed to see why they should be insulted by a clause like the one proposed. The chemist placed in his business his personal capacity, his character, and his capital to the very last penny. A limited company could not prove its personal capacity, it had no personal character, and it only placed capital in its business to a limited extent. In one case they had three hostages for the conduct of the business, and in the other only part of one. Without adopting a policy of *non possumus*, he hoped at this juncture they would be so firm and united in opposing the clause before them that when it was dropped, as he believed it would be, then they could meet together to see whether there was not some *modus vivendi* by which the grievances might be removed; but they were not justified in attempting to deal with the matter until the board was perfectly clear.

Mr. SOUTHALL said he would support the amendment, because he was inclined to think that with the help of the Government they might be able to do something. There was no doubt the position was very difficult, but they had to accept the position, whether they liked it or not, and make the best of it. They were constantly reminded that companies were come to stay, which might be true or not, but, at any rate, if they could do anything to protect the titles it would be something worth having, and possibly they might be able to do even more.

Mr. ALLEN supported the motion, and said he felt a certain sense of relief at finding that there was now something like a clear issue before them. By supporting the amendment, he feared they would be weakening the position, because a direct opposition to the clause would have some chance of being effective, but once amendments were introduced, there would be a risk of its being carried with some comparatively unimportant alteration. It appeared to him that in adopting the amendment they would be surrendering the principle which had guided the Society for more than fifty years. He did not think he should be justified in doing so, even as an individual, but certainly the Society, officially, ought not to do so. Some people said companies were come to stay. He did not know whether they had or not. He was rather inclined to think that the course of years would work out the company question far better than any

Acts of Parliament. They heard a good deal nowadays about Uitlanders; but these companies were not Uitlanders, they were outlaws at present, and he wished them to remain so. If they were brought within the scope of the Pharmacy Acts by a side wind, all the education and examination of the individual was put on one side. This clause might be an honest attempt on the part of the Government to deal with the present condition of things, but there had been no practical attempt to educate members of Parliament and the public as to what the business of a chemist really was.

Mr. ATKINS said he should vote in favour of the motion for opposing this clause altogether. He understood that the President, at his interview with Mr. Ritchie, gathered the impression that Mr. Ritchie himself was not very strongly in favour of this clause, regarding it as one which was somewhat extraneous to the main purview of the Bill, and there was therefore all the more hope of a strenuous opposition to it being successful. He would be no party to any regulation of stores, as that was altogether opposed to the spirit of the Charter and the Acts of Parliament, and to the system of education they had instituted, which they hoped would ultimately eventuate in an authorised curriculum. It would be unjust to the qualified man, as it would subject him to illegitimate competition.

The PRESIDENT, in putting the amendment, said if the clause were opposed, as the resolution proposed, it would still be open to accept any amendment later on if an acceptable one were brought forward.

Mr. GLYN-JONES said he did not understand that at all. He understood the meaning of the proposed resolution was that the clause, as it stood, or any amendment of it, should be opposed.

Some desultory discussion ensued on this point, in the course of which

Mr. STORRAR pointed out that the purport of the motion was to oppose the clause, and to negative the attempt to amend it on the part of the Council, but if any amendment were brought forward afterwards by anyone else, the position could be reconsidered. The amendment proposed that the Council should attempt to amend the clause.

Mr. BATESON said he was almost the only member of the Council who was not on the Law and Parliamentary Committee. He would like to see the titles preserved, though he did not think there was so much in that as some gentlemen thought. A title was a personal qualification, and ought to be preserved inviolate. He did not think the Government would ever come to them for advice, and the best way would be to promote a Pharmacy Bill of their own.

The amendment was then put, when there were six votes in favour of it and twelve against. It was therefore lost.

The PRESIDENT next put the original motion, which was carried by fourteen votes, one hand only being held up against it.

Mr. HILLS said he understood, as the result of this vote, that no amendment would be recognised or supported unless it had previously been brought before the Council.

The Appointment of Local Secretaries.

The VICE-PRESIDENT moved, according to notice:—"That the General Purposes Committee be requested to take into consideration the desirability of rearranging the districts at present represented by local secretaries, with a view of making the districts correspond with the Parliamentary divisions of England, Scotland and Wales, except in the cities of London and Edinburgh, which are now represented by divisional secretaries." He would add to the proposed resolution, which he had written out hurriedly, "And also to consider if any rearrangement of the duties of such officers should be made, and the desirability of their appointment by the Council direct." He had thought for a long time that they did not avail themselves sufficiently of the opportunities which they had of appointing local secretaries throughout the country. In past years they had found considerable benefit from appointing local secretaries, especially in times of crisis; but on looking into the matter it appeared that they had only a partial representation. He

thought the Committee should consider the advisability of the Council appointing these officers direct, a system which had worked very well with regard to the divisional secretaries in London. It was a question whether the duty of collecting subscriptions should be imposed on the local secretaries; most other societies had subscriptions sent direct to the head office, and he thought it would be better if that method were adopted. Many chemists said the local secretary only called on them when he wanted money.

Mr. HARRISON seconded the proposition, not from any desire to find fault with the work now done by the local secretaries, but simply that there might be improved relations between those gentlemen and their constituents and the Council.

Mr. CROSS said he would not oppose the resolution, as it only referred the question to the Committee, but he thought it introduced a considerable amount of contentious matter. He thought the appointment of local secretaries from London would be a mistake. With regard to the readjustment of their duties, there were many things to be said in favour of taking away the collection of subscriptions from them, but on the other hand a good local secretary collected subscriptions for the Benevolent Fund, and if the members were to remit direct to the office he feared there would be a shortage in the receipts of the Benevolent Fund.

Mr. JOHNSTON said he agreed with Mr. Cross. In Aberdeen they had one secretary for each division of the county, and an assistant in the city. He thought it would be a great mistake to leave members to send their subscriptions direct to London; the Benevolent Fund would inevitably suffer.

The resolution was then put and carried.

London Teaching University.

The SECRETARY reported the receipt of a copy of the new regulations of the London University, which the Commissioners, under the University Act of 1898, had drawn up.

Mr. CARTEIGHE, referring to the effect of the regulations, said that the Council would be interested to know that a Board of Pharmacy was provided for in the scheme, and it was also gratifying to note that the names of Professors Collie, Green, and Greenish were included in the list of teachers recognised by the University.

General Purposes Committee.

The Council then went into committee to hear and consider the report of the General Purposes Committee, which was entirely of a legal character. On resuming, the report and recommendations were unanimously adopted, and special resolutions were passed authorising the Registrar to take proceedings against the persons named.

NOTE ON BISMUTH SALICYLATE.

BY H. W. GREEN AND A. H. WINDRIDGE.

Brucine is stated in Dragendorff's 'Plant Analysis' to be unaffected by pure sulphuric acid, but the samples procurable have each given a faint rose tint, not unlike that which is produced with minute traces of salicin and sulphuric acid. If now nitric acid, or a nitrate, be added to this mixture the usual bright red colour is produced, so that the rose tint does not affect this reaction.

These reactions have been applied to detect the presence of nitrate in bismuth salicylate, and it constitutes a very delicate test. All commercial samples which have been examined exhibit this reaction. The trade samples of bismuth salicylate give a lemon yellow colour with sulphuric acid alone, and if the rose-coloured mixture of sulphuric acid and brucine be now added, the peculiar red colour due to nitrate and brucine is developed in a greater or less degree of intensity, according to the amount present. With the view of finding out whether other bismuth salts responded to this nitrate reaction, we tried the test with other salts of bismuth, with the following results: Bismuth oxy-sulphate and phosphate, known to be free from nitrate, gave no change of rose tint, but bismuth citrate, oxy-carbonate, and oxide, and bismuth and ammonium citrate showed a distinct change from rose to salmon red. The sulphuric acid did not contain any nitrate.

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LONDON: SATURDAY, MARCH 10, 1900.

THE COUNCIL MEETING.

LAST Wednesday will undoubtedly be a memorable day in the annals of the Society, inasmuch as it was the occasion for an outspoken declaration on the part of the members of Council in regard to their convictions as to the principles which constitute the basis of the Society's existence, and though that interesting stage in the proceedings was not reached until the report of the Law and Parliamentary Committee came under discussion, it merits mention in precedence of the more routine transactions.

The additions to the Society comprised 34 members, two restorations to membership, and 40 student-associates. The SECRETARY also reported restorations to the Register of Chemists and Druggists and two additions which he had made in accordance with statutory declarations that the persons referred to had been in business before 1868.

The report of the Finance Committee presented no unusual features and was referred to by the PRESIDENT, in moving its adoption, as showing that the financial condition is sound as well as promising, a view which was endorsed by the silent adoption of the report. The Benevolent Fund account, however, was augmented by the donation of twenty-five guineas by the Chemists' Ball Committee, ten guineas by the Pharmacy Club, and a further hundred guineas by Mr. CHARLES MAW, who has been a liberal donor to the Fund on many previous occasions.

The report of the Library, etc., Committee contained, in addition to the usual records of attendances at the Libraries and Museums, donations, etc., a recommendation that the PRESIDENT, VICE-PRESIDENT, and TREASURER should be appointed delegates to the Ninth International Pharmaceutical Congress, to be held in Paris this year. The report stated that a communication from the General Medical Council in reference to the revision of the British Pharmacopœia had been considered, and that certain steps had been taken in that respect.

On the recommendation in the report of the Benevolent Fund Committee five grants, amounting to seventy-nine pounds, were ordered to be paid, and the Committee recommended that the admission of EDWIN

BENNETT to the London Orphan Asylum should be promoted by a payment from the Orphan Fund.

The SECRETARY reported the death of Mr. J. B. WATSON, who has been an annuitant since 1894.

The VICE-PRESIDENT, in moving the adoption of the report, mentioned, with satisfaction, the fact that several of the recipients had been connected with the Society as members and as former subscribers to the Fund.

The TREASURER communicated to the Council that he had been requested by the relations of the late Mrs. NAFFEL to express their deep sense of gratitude for the help she had received from the Society, adding that whatever might be said about the defects of the Society and its Council, one object of its Charter, viz., the relief of distress, had been most honourably fulfilled, and that nothing had been to him a source of more profound satisfaction than the consciousness of having been able to relieve distress in the way that had been done by the Benevolent Fund.

The VICE-PRESIDENT, in putting the motion, remarked that there was sometimes a difficulty in deciding as to the most deserving cases, but in dealing with applicants, the Committee gave without considering whether the recipients had been subscribers to the Fund or not. Mr. NEWSHOLME also drew attention to the case of HARRIETT PARKES, a candidate for the Royal Masonic Benevolent Institution, who was the widow of a pharmaceutical chemist, and expressed a hope that she would be largely supported by the votes of members of the craft who are freemasons.

A resolution was then passed, on the motion of the PRESIDENT, authorising a payment for the admission of EDWIN BENNETT to the London Orphan Asylum, and the VICE-PRESIDENT mentioned that the boy's father, who had been connected with the Society since its formation, had continued to be a subscriber, although he had long ceased to be connected with the business.

Mr. J. A. MITCHELL and Mr. S. N. PICKARD were appointed assistant local secretaries for Bradford.

Mr. CARTEIGHE then mentioned in reference to a statement he made, some months ago, as to the new bye-laws being probably ready for approval at the annual meeting, that on going through them it was found they could not come into force until the end of August, as it would be necessary to wait until after the existing bye-laws died out. The draft of the new bye-laws, which had been prepared, would therefore be submitted to the Council at the June, July, and August meetings, and a special general meeting of the Society would be held in August to confirm them.

The SECRETARY read the report of the committee appointed to draw up a scheme for the administration of the Waterall Fund (see page 258), and the plan recommended was adopted, a vote of thanks to the committee for the trouble taken in the matter being passed on the motion of the VICE-PRESIDENT.

The report of the Law and Parliamentary Committee stated that having heard from the PRESIDENT and Mr. CARTEIGHE the result of their interview with Mr. RITCHIE, the President of the Board of Trade, the committee recommended that the Council should oppose Clause 2 of the Companies Bill.

The PRESIDENT then mentioned two letters that had been received on the subject, one from the Sunderland

Chemists' Association enclosing a resolution requesting the Council to oppose the Bill, another from the Preston Chemists' Association urging the Council to proceed at once with the drafting of a Pharmacy Bill to restrict the use of titles and the practice of pharmacy to legally qualified individuals.

The PRESIDENT further added that acting on the instructions of the committee, and accompanied by Mr. CARTEIGHE he had seen Mr. RITCHIE and explained to him the view taken of the position by registered chemists, pointing out that the Act of 1868 was intended to give qualified individuals the sole right to keep open shop and carry on the business of a chemist and druggist; that it was entirely by accident that companies were held to be outside the scope of that Act, and that the encroachment of companies, since the decision of the House of Lords in 1880, was an interference with the privileges conferred by the Act. In reply to the request that registered chemists should be restored to the statutory position they occupied before that decision, Mr. RITCHIE expressed the opinion that the Government regarded that as impossible, stating that the intention was to regulate the state of things now existing by compelling companies carrying on the business of a chemist and druggist to have it conducted by a legally qualified individual, which the Government considered would afford the public greater protection than is now the case in the shops of some registered persons. In reply to Mr. CARTEIGHE's argument that the protection of practice given to medical men and dentists by Clause 3 of the Bill, should also be afforded to chemists, Mr. RITCHIE was equally obdurate. No less unsuccessful was the attempt to press the view that titles, indicating a qualification, being purely personal should not be assumed by companies, for even in that respect Mr. RITCHIE said that he could not give any hope of concession being made. That being the position taken by the Government, the PRESIDENT moved that the Law and Parliamentary Committee should be empowered to take immediate steps to oppose Clause 2 of the Companies Bill.

Mr. STORRAR, in seconding the motion, said the reasons which induced him to support it might not be generally acceptable to members of the Council, for though it was going back from the resolution of the Council in October last, the fact that the President of the Board of Trade positively refused to listen to any amendment of the clause, materially altered the conditions the Council had to deal with. The intention of the Act of 1868 was that the dispensing and selling of poisons should be restricted to legally qualified individuals; to withdraw that privilege, as the Government proposed, would be a breach of faith, as well as against public safety which was the ruling motive of the Pharmacy Act. He should prefer, as a chemist, that the Council should contend for what chemists believed to be the principle of the Pharmacy Act; but since the Courts had decided that companies are outside the Act and that the safety of the public is sufficiently guaranteed by companies employing legally qualified persons for the sale and dispensing of poisons, he recognised, as an individual, that the clause in the Companies Bill was an honest endeavour on the part of the Government to square the practice of companies with the law as it

exists. He thought the defect of the Pharmacy Act could not be amended by a clause in the Companies Bill, and that the only possible policy to adopt was to oppose Clause 2 on the ground that it proposed to take from chemists the titles they were justly entitled to, and, in doing so, did not merely affirm the present state of the law as regards keeping open shop for the sale of poison; but it went beyond the law and, for that reason, he would support the recommendation of the committee that the Council should oppose, but not attempt to amend, the Clause in question.

The VICE-PRESIDENT agreed with Mr. STORRAR that the Pharmaceutical Society ought not to acquiesce in the propositions of Clause 2, and that, in view of Mr. RITCHIE's statement as to the views of the Government, it was the duty of the Council to oppose that Clause. Notwithstanding Mr. HILLS' argument, he held that it was the duty of the Council to adhere to the spirit of the Pharmacy Acts, especially in respect to protection of titles, regarding what has taken place of late years as an excrescence not to be recognised in any way.

Dr. SYMES also supported the recommendation of the Committee to oppose Clause 2 of the Companies Bill on account of its incongruity, and because he regarded the attempt of the Government to deal with the inconsistency between the law and existing practice as misguided rather than honest. The present opportunity of protecting their titles should not be missed by making any attempt to tinker Clause 2, in regard to which a strong Government has declared itself determined to have that or nothing.

Mr. HARRISON also supported the recommendation of the Committee, adding, however, that in the event of any amendment of Clause 2 being brought forward which he could agree with, he would support it, but as they had been told by Mr. RITCHIE the Government would accept no amendment, it was not to be expected that one striking out the principle of the Bill would have any chance. The attempt being made to square the principle of the Pharmacy Act with the practice of companies carrying on the business of chemists and druggists, involved an inconsistency, for if successful it would result in rescinding the Pharmacy Act, and it should meet with uncompromising opposition from registered chemists. He held that nothing in Clause 2 could be squared with an honest attempt to deal with difficulties which have pressed sorely upon all chemists, but that its proposals would have the effect of putting companies in a better position than legally qualified individuals, a result that could not be justified after thirty years' working of the Pharmacy Act to the benefit of the public. In conclusion Mr. HARRISON contrasted the position of the registered chemists with that of a joint-stock company, as showing how unjust and unreasonable was the proposition that the personal interests of individuals who have invested in their business certified capacity, character, and their whole capital, should be sacrificed to the interests of limited companies which possess neither capacity nor character, and have only a comparatively small financial interest in the business they carry on.

Mr. ALLEN joined in supporting the recommendation of the Committee, because he did not think the Council

would be justified in surrendering the principle which had for more than fifty years guided the action of the Society. Whether companies have come to stay or not, and whether Clause 2 was, or was not, an honest attempt by the Government to deal with a difficult position, the consequence of its proposition to place a company in the same position as an individual, would be to destroy all the work of the Society.

Mr. ATKINS also supported the motion for opposing Clause 2 altogether, as he would not be a party to a regulation of companies that would be in contradiction to the spirit of the Society's Charter, to the Acts of Parliament and the system of education it had instituted, and, as he hoped, would eventually develop into an authorised curriculum. To acquiesce in such a proceeding would be unjust to all legally qualified persons, and subject them to illegitimate competition.

Mr. HILLS moved as an amendment that the Watch Committee should be instructed to secure the amendment of Clause 2, if possible, in the direction of securing to qualified persons exclusive use of their titles, with a regulation of companies that would, to the satisfaction of the Committee, provide that persons controlling the business of a chemist and druggist should be qualified, and only in the event of failing to secure either object, to oppose the Clause. He did so partly in view of the fact that the Law and Parliamentary Committee had not been able to agree to an amending clause and, also, to enable members of Council to express their individual opinions. The amendment if carried would, once for all, recognise that the business of a chemist and druggist, as defined by the Pharmacy Act, might be carried on by a limited company. Mr. HILLS referred to the recent expression of his views in support of that position at the Western Chemists' Association.

The amendment was seconded by Mr. HARRINGTON, and supported by Mr. GLYN-JONES, Mr. SOUTHALL, and Mr. BATESON. The former expressed his opinion that the Law and Parliamentary Committee was responsible for the present position of affairs, and proceeded to criticise the action taken by the Committee, until Dr. SYMES rose to order, and the PRESIDENT suggested that the question before the Council should be kept to. Mr. GLYN-JONES then contended that the Committee should either have drafted a clause or reported that it could not agree upon one, but that it was not authorised to communicate with the Government. As to the proposition to oppose Clause 2, he objected that if they succeeded there would be no greater chance of carrying a private Bill with a clause to prevent companies from carrying on the business of a chemist and druggist, and, therefore, he held that the Council would be placing itself in a false position by opposing Clause 2 of the Companies Bill without suggesting anything in its place.

Mr. SOUTHALL supported the amendment because he thought chemists have to accept the position whether they like it or not, but if they could do anything to protect their title the attempt might be worth making.

Eventually the amendment was rejected by twelve votes to six, and the motion was carried with fourteen votes.

ANNOTATIONS.

THE COMMERCE OF DRUGS is more or less a sealed book to the average pharmacist, and it is satisfactory, therefore, to find that Mr. E. M. Holmes has promised to read a paper on that subject at the Evening Meeting of the Pharmaceutical Society, to be held at 17, Bloomsbury Square, London, on Tuesday next. The veteran Curator knows as much as anyone about drugs of vegetable origin, and vastly more than most people; moreover, his knowledge is not of the mere text-book order, compiled from other sources, but gained at first hand. He proposes, we understand, to give facts which appear to support the suggestion that the scarcity of some drugs in the European market, at irregular intervals, probably arises chiefly from the prevailing keen competition in trade, which leads wholesale buyers to purchase at as low a rate as possible. Jaborandi, strophanthus, aconite, pareira, scammony, and saffron are among the drugs concerning which facts will be quoted, and it may be anticipated that the reading of the paper will give rise to a useful discussion. The meeting will open at eight o'clock precisely, when the chair will be taken by the President, Mr. William Martindale, and it is hoped that there may be a large attendance of pharmacists, wholesale druggists, and other persons who may be interested in the subject.

THE FEDERATION CIRCULAR has gone out to the local associations, with the result that meetings are being held to consider the desirability of approaching members of Parliament and submitting to them reasons why Clause 2 of the Companies Bill should not be adopted as it stands. But, unfortunately, the expected is happening—and whilst most of the associations are recommending or are likely to recommend, the substitution of a total prohibition clause—a few are content to push the claims of one of a less satisfactory nature, from the pharmaceutical point of view. The result will be that the minds of a certain number of members of Parliament will be imbued with the idea that chemists, as a class, object altogether to company trading in pharmacy; on the other hand, a smaller number of M.P.'s will gain the totally different impression that chemists as a class see no great harm in company trading in pharmacy, so long as the directors who control the business, and the managers who conduct it, are qualified in accordance with the Pharmacy Act. The net result, if no other factors intervened, would be that the House of Commons might be expected to consist of four groups—those who were pledged to oppose or support company-trading in pharmacy respectively, those who were pledged to regulate companies, and, finally, those who were not disposed to commit themselves in any way until they knew what the intentions of the Government were.

BUT OTHER FACTORS WILL INTERVENE, as local secretaries of the Pharmaceutical Society and other individual chemists are receiving copies of the Federation statement of reasons for signature and presentation to members of Parliament, and many of them are certain to take advantage of the opportunity. Some of the chemists in certain districts may be expected to disapprove of the line adopted by the local associations for those districts, and if members of Parliament receive identical circulars from the dissentients, with a different clause enclosed, it is not difficult to see that much confusion may arise in the minds of the recipients. It is quite conceivable that each member of Parliament may receive, at least, a copy of the Federation circular letter enclosing suggested Clause 2 (A), another copy of that letter enclosing suggested Clause 2 (B), a manifesto issued by a trade journal, and another which proceeds from the companies affected. In addition, he may be interviewed several times, but the net result can hardly be favourable to the adoption of any course except that of simple opposition to Clause 2. So many different courses will have been recom-

mended, with equally plausible—if not identical—arguments in the different cases, that the average long-suffering M.P. will probably decide either not to move in the matter or to object to the Clause in its entirety.

THE RESULT MAY THEN BE that the Minister in charge of the Bill will drop the Clause altogether, and decline to consider the subject further in connection with the Companies Bill. Mr. Ritchie has already expressed the opinion that neither the pharmacy nor the medical clause should have been included in the Bill, but he has stated that he is not indisposed to allow them to remain there, so long as he is not asked to alter them. Otherwise, both will be dropped, and the subjects left for consideration in connection with measures for amending the Pharmacy and Medical Acts. In any case very little sympathy can be looked for by registered chemists who expect the present Government to do anything to improve their position, particularly in relation to companies. For, as has already been explained in the Journal (see *ante*, p. 204), the President of the Board of Trade, who represents the Government in this matter, sees no sufficient reason why company trading in pharmacy should be prohibited. He thinks there is no more risk to the public in the existence of a well-conducted company pharmacy than in that of a registered chemist's branch shop, and that all the requirements of the case can be met by imposing suitable regulations.

ABSOLUTE REJECTION OF CLAUSE 2 is, as it happens, the policy finally agreed upon by the Council of the Pharmaceutical Society at its meeting this week, and an intimation of the Council's position will probably, as explained above, find most members of Parliament in a suitable condition of receptivity. It may almost be taken for granted, therefore, that the Government will shortly drop the Clause. But it must not be thought that the matter will then be ended, for it is quite within the limits of what is both possible and probable that the Clause will be heard of again before the Companies Bill becomes law. If that measure should pass through all the necessary stages in the House of Commons, and come before the House of Lords with Clause 2 omitted, it will be open for the Lord Chancellor to propose its reinsertion. Assuming that course to be followed by the author of the Clause, it may come up for reconsideration in the House of Commons, together with other amendments from the House of Lords, and, if the time should be too short to permit of full discussion, as is not unlikely to be the case at the fag-end of the session, Clause 2 may become law after all. It will be necessary, therefore, to exercise unceasing vigilance and to neglect no precaution that may be required to prevent the statutory recognition of companies which carry on business as chemists and druggists. Every registered chemist in Great Britain should write to his Parliamentary representative, requesting him to oppose Clause 2 of the Companies Bill, and be prepared to do the same again if the danger of its reintroduction should threaten later.

SECRETARIES OF LOCAL ASSOCIATIONS are requested to note that, in the event of meetings being held to consider what course of action should be pursued in connection with the Companies Bill, it will be unnecessary to send detailed reports of the discussions for publication, since all that is of any importance to persons not present at the meetings is a knowledge of the conclusions arrived at. The main question has been discussed and rediscussed more than enough; what is now required is for all registered chemists—individually and collectively—to protest to Parliament against the declared intention of the Government to grant statutory recognition to companies of unqualified persons, carrying on the business of a chemist and druggist. That they may best do, perhaps, by procuring from the Secretary of the Federation of Local Pharmaceutical Associations copies of the statement of reasons why such companies

should not be recognised by the law, and sending them—after being signed—to members of Parliament. Since Mr. Balfour has twice stated publicly that the second reading of the Companies Bill will be taken before Easter—*i.e.*, within the next five weeks—no time should be lost in taking action. In reply to correspondents who have asked for guidance in the matter of selecting one of the alternative clauses suggested by the Executive of the Federation, it may be pointed out that Clause 2 (A) was strongly commended in last week's Journal. It states the extreme case for registered chemists, providing as it does that "No company may use the description of a pharmaceutical chemist, or chemist and druggist, or any other title implying registration under the Pharmacy Act, 1868; and no company may carry on the profession or business of compounding, dispensing, or retailing poisons; and if any company contravenes this enactment it shall be liable, on summary conviction, to a fine not exceeding five pounds for every day during which the contravention happens." At the very least, if this suggested clause is sufficiently supported, the rejection of Clause 2 of the Companies Bill will be assured.

MISQUOTATION AS A FINE ART may approach perilously near to lying. How near, may be judged by our readers, after careful comparison of a published "quotation" from the *Pharmaceutical Journal* of February 24, with the words which actually appeared in our columns. The sentence referred to (see *ante*, p. 199), read as follows:—"The position taken by the Government is that *the condition of things, actually existing at the present time, requires to be regulated, and from that point of view the question presents itself whether the public is any better served or protected when registered chemists carry on branch-shops, even without qualified assistants, than in the case of limited companies.*" But as misquoted in an advertisement headed "Boots, Cash Chemists," which appears in the *Manchester Guardian* and other provincial papers, the words italicised in the foregoing passage are wilfully rearranged so as to distort the meaning of the sentence. Thus, the Journal is represented as referring to "*the condition of things actually existing at the present moment, when (private) registered Chemists carry on branch shops even without qualified assistants.*" The malicious intention of the change is obvious, but such a puerile manifestation of petty spite as has been indicated is not worthy of attention, except in so far as it seems desirable to place the facts on record. It may be that some chemists keep branch shops in which no qualified assistants are engaged, but the fact, if it be such, is not officially known. Further, anything which would be an offence under the Pharmacy Act would be as promptly dealt with by the Council of the Pharmaceutical Society if committed in the branch or other shop of a registered chemist, as though the offence were reported to have taken place in any other shop.

THE IMPORTANCE OF RESEARCH WORK in the training of chemical students is insisted upon by Mr. J. B. C. Kershaw in the *Journal of Education* for February. He states that from personal observation of the industrial and university position of chemistry in this country and in Germany, he is convinced that the special faculties called forth by research work in chemistry can be cultivated in no other way, and that our failure to compete successfully with Germany in many branches of chemical manufacture is due to our neglect of this side of chemical training. That many English chemists have themselves recognised this is thought to be proved by the fact that the register of the Institute of Chemistry contains the names of seventy-four Fellows who have studied abroad and have obtained the German Ph.D. degree; and fifty-nine of those possess no other science degree. It is, of course, improbable, even if greater facilities had been offered in English university colleges for research work, that the whole of those students of chemistry would have remained to pursue their studies in this country. Had it been possible, however, to obtain a university degree in three years by similar work, Mr. Kershaw believes that a large propor-

tion of the number would have preferred to carry on their studies at an English college. He continues: "This enforced exile of some of the most earnest and promising of our chemists during their period of study has another aspect. The professors and demonstrators in the chemical departments of our university colleges are continually deploring the fact that few of the students undertake research work in their laboratories. In both organic and inorganic chemistry the contribution of our country to original research is small compared with that of Germany. A change can only occur when the shorter period of university education covers and includes original research." The fact that the German educational authorities are even now discussing some modification of the existing system for training chemists may be urged as showing that "specialisation" has its drawbacks; but it is pointed out that the modifications now being discussed in Germany relate to a more thorough knowledge of theoretical and applied chemistry, and not to a more general education in science.

A NEW PROCESS FOR LINING CASKS, described in the *Times*, consists in coating the interior of the casks with a thin, tenacious layer of refined paraffin wax. The cask is gently warmed and then placed over a jet, from which the wax, heated to such a temperature as to be quite fluid, is ejected under an air pressure of about fifteen pounds to the square inch, with the result that it is forced into the pores of the wood, which becomes coated with a smooth impervious coating of "Sterax," as the preparation is termed. For the surface thus formed it is claimed that it does not allow organic matter to stick, and that therefore the cask can be effectively cleaned by a simple rinsing with cold liquor. The wax, too, is stated to be quite insoluble in the beer, and to be neutral, so that, while it does not encourage the multiplication of bacteria on its surface, the action of the yeasts and other legitimate organisms in the cask is not interfered with. The process, moreover, is held to tend to keep the contents in good condition, because the sealed-up pores of the wood do not allow the carbonic acid to pass out of the barrel.

THE PROPOSED PROTECTION OF SMALL SHOPKEEPERS IN PRUSSIA, by legislative action, continues to attract attention in Berlin, the debate on the first reading of the Bill, which imposes exceptional taxation on shops bearing the character of "universal providers" having begun in the Lower House of the Prussian Diet on February 26. As already stated in the *Journal* (see *ante*, p. 158), the measure deals with four categories of goods and imposes a progressive tax upon the turnover of all firms dealing in commodities which fall under more than one of those categories. The object of the Government is to protect the ordinary shopkeeper by hindering the development of the "universal provider" system. According to the *Times* correspondent at Berlin, the Bill has excited a considerable amount of opposition. It is described as an unwarrantable attempt to interfere with trade and as a tax upon enterprise and intelligence. Great exception is taken to the fact that the Government proposes to tax the turnover of the shops and not their profits. Dr. von Miquel introduced the measure in what is described as a very half-hearted speech. He said he recognised that there were many objections to attempting to solve social questions by means of taxation, but he hoped the House would give the Bill careful and friendly consideration. During the debate the Government scheme was attacked by representatives of the Radical parties and defended by the Conservatives. The spokesman of the Clericals thought the Bill did not go far enough, and that the tax ought to increase with the turnover in such a manner as absolutely to prevent a business from exceeding certain limits. The National Liberals thought it a mistake to tax the turnover instead of the profits of the shops, but were willing to refer the Bill to a committee. The debate had not been concluded when the House adjourned. Meanwhile many protests against the alleged injustice of the proposed tax appear in the Press.

LETTERS TO THE EDITOR.

The Companies' Bill.

It seems a pity that at this crisis chemists should be divided in their opinions as to what course of action should be taken by the Pharmaceutical Society or others respecting Clause 2 of the Companies Bill. A company may be composed of rogues or thieves, who are perhaps unable to qualify for want of brains, yet are anxious to conduct and participate in the practice of pharmacy. The law is to be specially lenient to these gentlemen, for it says:—Register yourselves under the Companies Acts, and as you have capital, you may buy the brains of a qualified man. It is quite easy! How generous of the law! But to the candidate who impersonates another and wins for him the coveted certificate—such an act would be identical—it demands penal servitude. In view of the necessarily increasing stringency and expense of the pharmaceutical qualification, will parents in future educate their sons to become the dispensers of medicines at nearly cost prices, with an alternative of hiring their services to grocers, draper, and others, all of whom will surely take advantage of the privilege conceded them by the new clause? Chemists will become very few, and the present pharmacies must deteriorate in value, while the profession of pharmacy will drift into the hands of incompetent persons, with, I should imagine, disastrous consequences to the community. If Parliament is to grant to outsiders—who have not even asked for, nor have any possible right to—our legally-earned title, while protecting by a special clause the interests of doctors, dentists, and even midwives, then, I think, we should not hesitate to proclaim the injustice and possible menace to future public safety until we have been rewarded for our energies.

London, March 5, 1900

D. ROUTLEY.

Spiritus Ammoniae Aromaticus.

The difference between the '85 and '98 solutions of barium chloride had not escaped my attention. I had at first thought the difference might influence the value of the test; but since it did not I deemed it unnecessary to refer to the '85 solution. The compilers of the '85 B.P., however, did make the mistake of taking Thresh's figures, which related to a 1 in 10 solution, and applying them to a 1 and 10 solution without allowance for the difference.

London, March 5, 1900.

EDMUND WHITE.

Tannin in Kino.

With regard to Mr. Hooper's statement concerning the amount of tannin present in kino, I should like to say that the figures referred to in Southall's "Materia Medica" were first mentioned in the fourth edition of that compilation, which was written by myself in 1886, and I find on reference to the manuscript that they were taken from a paper by Professor Redwood (see *P.J.* [1] 1, 401), in which it is stated, on the authority of an analysis by Vauquelin, that kino contains 75 of tannin and peculiar extractive, 24 of red gum, and 1 of insoluble matter. The lower figure was mentioned in my "Square" lecture notes, 1879, an intermediate figure—viz., 73.26 per cent. (Royle's "Materia Medica," Ed. 1876; see also "U.S. Dispensatory," page 531, Ed. 1879), being given for another kino then in commerce. Other figures of constituents were also mentioned in that edition, the origin of which are now given in parentheses—"a minute quantity of pyrocatechin" (F. A. Fluckiger Y.B.Ph., 1872, page 150); kinoin 1.5 per cent. (Y.B.Ph., 1879, page 154); and mineral matter or ash, 1.3 per cent. (Pharmacographia, Ed. 1874).

Birmingham, March 6, 1900.

F. H. ALCOCK.

ENGLISH NEWS.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.—A well-attended meeting of this Association was held on Friday, February 26, in the Lecture Theatre at 17, Bloomsbury Square. Mr. E. M. Chapman was in the chair, and a paper, "Tin-mining in Cornwall, with Historical Notes," was read by Mr. C. T. Allen. At the opening of the meeting Mr. Harris asked if anything had yet been done by the committee appointed to revise the rules. The Secretary replied, informing him that, owing to pressure of work due to organising the drill class and getting it into working order, the committee had been unable to meet, but hoped to do so shortly. No member had further business to bring forward, and the Chairman therefore called on Mr. Allen to read his paper. The paper, which dealt with the rise and decline of the tin-mining industry in Cornwall, and included a description of the shaft-mining of the present day, was illustrated by diagrams and by sketches on the blackboard. Several members had questions to ask after the paper had been read, and Mr. Allen having answered them, the Chairman thanked him for his paper, which, he said, had been followed with great interest by all present.

LANCASHIRE CHEMISTS AND THE COMPANIES BILL.—On March 3 a deputation, consisting of Messrs. P. Bean, C. Parkinson, J. Booth, R. L. Gifford, and W. Wells (Blackburn), and Councillor Shorrocks (Darwen) waited upon Sir Harry Hornby, M.P. for the borough of Blackburn, and Mr. J. Rutherford, M.P. for the Darwen division, with reference to the Companies Bill now before the House of Commons. Mr. Percy Bean introduced the deputation to Sir H. Hornby, and, having explained the objections they entertained to clause 2 of the Bill, urged that they, as qualified chemists, had a right to expect to be included in clause 3 along with "physicians, surgeons, dentists, and midwives." Sir H. Hornby asked: "But how would you deal with a limited company consisting of seven qualified men? Would you allow them the title of chemist?" Mr. Wells replied in the negative. As a matter of principle, they could not allow the title on the same grounds that companies had been able to evade the Act of 1868—they lost their individuality by limiting their responsibility, and the law had shown that a limited company had no individuality. Their title as chemists was necessarily individual, for how could a company pass an examination? In answer to further questions by Sir H. Hornby, Mr. R. Lord Gifford said that a limited company under clause 2 could become chemists, and have a right to the title by simply employing a qualified man; but an unlimited company could not describe itself as a chemist, nor could a private individual employing a qualified chemist do so. Sir Harry said he sympathised with the deputation, and thought it most illogical that a limited company should be enabled to do what a private individual might not do. He asked what steps were being taken by the Pharmaceutical Society, as he could only promise the influence of one member of Parliament, while the Society could bring influence to bear on the Minister in charge of the Bill? Mr. Gifford replied that the Pharmaceutical Society was acting in the matter, and that the deputation was in harmony with the Council. Mr. Bean also introduced the deputation to Mr. Rutherford, who showed a keen appreciation of the points at issue, and finally remarked: "It is most unfair that a limited company may do what an individual may not." Mr. J. Booth asked Mr. Rutherford to disabuse his mind of the idea that they were seeking protection or a monopoly as traders. All they asked was that their title of "chemist," which they had qualified for at the invitation of the State, should be protected. It was a principle they were fighting for—that it was impossible for the State to go back on its bargain after they had complied with the conditions laid down by the State. Mr. Booth's remarks were emphasised by other members of the deputation. Messrs. Shorrocks and Parkinson point-

ing out that the training-ground for young men who desired to become pharmacists was slowly but surely disappearing through limited companies being allowed to absorb the privileges and rights of qualified chemists. Mr. Rutherford also asked what the Pharmaceutical Society was doing in the matter, and received the same reply as that given to Sir H. Hornby. The deputation withdrew, satisfied of having made a good impression as to the strength of their case upon the hon. member.

NORTH OF ENGLAND SCHOOL OF CHEMISTRY AND PHARMACY.—The students of this School, accompanied by the Principal, Mr. F. R. Dudderidge, F.C.S., paid a visit on Wednesday, March 1, to the works of Palmer's Shipbuilding and Iron Company, Jarrow-on-Tyne, by kind permission of the managers, Messrs. F. Morris and F. W. Dick. The party was conducted by Mr. A. T. Bill. First the rolling mills were visited, where the rolling of ships' steel plates from red-hot ingots was seen. Next the five huge blast furnaces claimed the attention of the party, the operation of tapping the molten slag and pig iron being viewed with great interest. The engine-house and gas-works for the supply of gaseous fuel were then seen, and followed by a visit to the Siemens-Martin furnaces, where attention was riveted by the tapping of a charge of thirty-five tons of white-hot molten steel into the huge ladle and its subsequent drawing off into ingot moulds. The party then proceeded to the ship-yard, where the chief centre of interest lay in H.M. battleship "Russell," now in course of construction. Lastly the processes for analysis of metal and ores were seen and described in the laboratory, thus terminating a most instructive afternoon, for which one and all joined in an enthusiastic expression of appreciation.

GREAT YARMOUTH CHEMISTS' ASSOCIATION.—The first annual dinner of this Association was held at its headquarters, the Angel Hotel, on Thursday, March 1. Mr. W. S. Poll occupied the chair, and Mr. H. Palmer the vice-chair. There was a capital muster of the members, all but two being present. After the usual loyal toasts had been duly honoured, Mr. Pechey gave the toast of the evening, "Success to the Association," which was ably replied to by the Chairman. Altogether the dinner was a great success, and enjoyed by all present.

PUBLIC DISPENSERS' ASSOCIATION.—A meeting of this Association was held at St. Bride's Institute, London, E.C., on Wednesday, February 28, Mr. F. N. Clark in the chair. There was a fair attendance. The preliminary business dispatched, Mr. F. Davis communicated a paper entitled "Some Points in Practical Pharmacy." The paper was followed by a discussion on the various prescriptions, Messrs. L. J. Moore, R. Jones, Clark, Forster, and others taking part. Various Poor-law members stated that Major Herbert, the Local Government Board Inspector, had been round, and in nearly all cases expressed his satisfaction with the way members of the Association had carried out the Poison Regulations. Letters were read from several county members, Messrs. Bates, Stoke-on-Trent; Howard, Liverpool; Thomas, Cheltenham; and others. A hearty vote of thanks was given to Mr. Davies for his paper. The Secretary reported that the Association was increasing its membership rapidly; that at the next meeting, on March 28, Mr. T. W. H. Idris, J.P., L.C.C., had promised to take the chair.

HALIFAX AND DISTRICT CHEMISTS' ASSOCIATION.—A meeting of this Association was held at the Old Cock Hotel on Thursday night last, the 1st inst., the President, Mr. H. C. Brierley, in the chair. It was decided to forward to each local M.P. a letter from the Association, pointing out the deficiencies of the Companies Bill, and suggesting an amendment to Clause 2. A vote of condolence with the Dewsbury Association was passed in the loss they have sustained by the death of their President, Mr. Foster.

SOUTHPORT CHEMISTS' ENTERTAINMENT.—The chemists and assistants of Southport Parliamentary division met at the Scarisbrick Hotel on February 27, when Mr. George Ball presided over a large attendance. The meeting, which was mainly of a social character, consisted of recitations, readings, and vocal and instrumental music, the whole concluding with a very fine cinematograph exhibition, several films being pictures of incidents which have occurred during the present war. These were very highly appreciated. In an interval the Chairman asked Mr. John Smith (President of the Federation of Local Pharmaceutical Associations) to give the meeting some information respecting the Federation, as to its aims and objects. Mr. Smith, in reply, briefly outlined those points, laying stress particularly on the fact that it was neither rival nor opponent to the Pharmaceutical Society, but that by more-efficient local organisation the Society would be much strengthened and made more representative. The Chairman then expressed the opinion that the great weakness of the Pharmaceutical Society seemed to be that it represented less than a moiety of the registered chemists, and that it should endeavour to find means to alter this condition, so as to represent, not only those who paid their annual subscriptions, but every chemist on the register. Perhaps this could best be done by making every chemist, by reason of his registration, a member of the Pharmaceutical Society, and he urged the Council to find a speedy means of settling this very urgent matter. These views received very marked support. Many of those present gave in their names as wishing to join the local association, and the proceedings were closed by votes of thanks to Chairman and entertainers, and by the singing of the National Anthem.

PRESENTATION TO MR. G. S. V. WILLS.—On Wednesday, the 14th ult., Mr. G. S. V. Wills, Principal of the Westminster College of Pharmacy, was the recipient of a very useful present from his students, consisting of a beautifully finished kit-bag and silver match-box. Mr. Kemp, on behalf of the students, presented the testimonial as a token of respect and esteem, and acknowledgment of the benefit they had derived from Mr. Wills' tuition and the personal interest he had taken in their welfare and advancement, and wished him "Many happy returns of the day." In accordance with the annual custom on his birthday, Mr. Wills took the students of the College for a trip to Kew on the 21st (owing to the very inclement weather on the 14th). The afternoon was spent botanising in the Gardens. A good substantial tea was provided at the Rose and Crown Hotel at 5.30, after which a musical evening followed. During the evening Mr. Tillott proposed "Success to the Westminster College of Chemistry and Pharmacy," and the health of the Principal in highly eulogistic terms. The speech was received with cheers and followed by the singing of "For he's a jolly good fellow." Mr. Wills, on rising, was received with his usual welcome, and said he was delighted to see such a large gathering. It was impossible for him to express anything like his feelings on this occasion. He referred to the great success which had attended the students of the College at the last two examinations, and promised that everything that could be done, regardless of expense to maintain that success, should be done. The company returned to town about 9.30.

EXPOSING ARTICLES OF AN IMPROPER NATURE.—A few weeks ago Mr. Glyn-Jones warned certain of his fellow chemists of the risk they may run by exposing for sale articles of an improper nature (see *ante*, p. 74). It is, therefore, interesting to note that at Bow Street Police Court, on Tuesday, February 27, Lewis Roberts, described as a rubber merchant, of 19, Villiers Street, Strand, was charged with unlawfully exposing in the window of his shop certain articles of an improper nature. On behalf of the defendant it was contended that the goods complained of could be purchased in many of the chemists' shops in London. Mr. De Rutzen (magistrate)

said that although everything possible had been said in favour of the prisoner, there was no doubt that an offence had been committed, hence prisoner would be sentenced to three months' hard labour. Notice of appeal was given.

USE OF MEDICAL TITLES: CASE UNDER THE MEDICAL ACTS.—At North London Police Court on Wednesday, February 21, before Mr. Paul Taylor, Edward William Alabone, Lynton House, Highbury Quadrant, N., was summoned at the instance of the General Medical Council for wilfully and falsely pretending to be a doctor of medicine, and that he wilfully and falsely took and used titles and descriptions implying that he was recognised by law as a practitioner of medicine.—Mr. Lushington, for the prosecution, stated that the proceedings were taken under Section 40 of the Medical Act, 1858, the provisions of which were intended to enable the public to distinguish between qualified and unqualified medical men. In the present case defendant described himself as being "Edwin W. Alabone, M.D., Bellevue College, M.D. Phil., U.S.A., D.Sc., F.R.M.S., Ex-M.R.C.S. Eng." The prosecution contended that by using those descriptions defendant was likely to deceive the public into the belief that he was registered under the Medical Act. It was admitted that at one time defendant was a member of the Royal College of Surgeons of England, and as such was registered under the Act as a medical practitioner. But in 1886 the college removed Mr. Alabone's name from its list of members for "disgraceful conduct," and subsequently his name was also removed from the Medical Register.—Mr. H. S. Schultess-Young, for the defendant, said that the prosecution had no justification in initiating the proceedings. Mr. Alabone was careful to state the origin of his degrees, so that no one could be deceived. He further stated that in 1886 a laudatory article on Dr. Alabone's cure for consumption appeared in *Moonshine*; that article was considered by the Royal College of Surgeons to be derogatory to the profession, and defendant's name was removed from the list of members. Efforts had been made to get the name reinstated, but without avail. Since then Mr. Alabone had been careful to state that he was an ex-member of the College, and that all his other degrees were American.—Mr. Paul Taylor found that defendant described himself accurately and without intention to mislead the public; hence the case would be dismissed, with £10 costs. He refused to state a case for the opinion of the Superior Court.

ACTION AGAINST A CHEMIST.—On Saturday, February 17, the case of Barclay and Sons, Limited, *v.* Riches was tried before Mr. Justice Channell, without a jury, in the Queen's Bench Division. This was a claim by plaintiffs to recover £71 odd for goods supplied to the defendant, who carried on business as the Northern Drug Company—between July and December, 1899. Defendant, Frank Riches, formerly carried on business at 448, Kingsland Road, and 99, Mile End Road, as the Northern Drug Company. The business at the latter address was managed by a Mr. E. C. Roberts, and the question was whether the goods were supplied to defendant or Mr. Roberts. It appeared that defendant disposed of the business to Mr. Roberts in June, taking a mortgage some months after Roberts went away, and Mr. Riches again took possession under his mortgage. The question was whether by doing so he made himself liable for the goods supplied to Roberts during his ownership. Plaintiffs had sued Roberts and got judgment. His Lordship, on these facts, held that plaintiffs had no claim against Mr. Riches, and entered judgment for defendant with costs.

SALE OF CAMPHORATED OIL.—As a sequel to the appeal case, reported in the Journal for February 17 (see page 160), the charge against John Walton and Co., grocers, etc., of Maiden Bradley and Mere, Wilts., was reheard by the magistrates at Warminster on Thursday, March 1. Defendants were summoned for selling camphorated oil certified to contain only 8 per cent. of camphor; the case was originally heard on November 2, 1899, and was then dis-

missed on the technical objection that proceedings should have been taken under section 7 of the Food and Drugs Act instead of section 6. It was now stated for the defence that camphorated oil was only kept on the premises for the convenience of customers, and that defendants had no knowledge of its tendency to evaporation.—A fine of £1 and costs was imposed.

ALUM IN BAKING POWDER.—At Chippenham, Wilts., on Thursday, March 1, John Henry Harding, grocer, of Bath and Chippenham, was summoned for selling food—"Alpine Baking Powder"—to the prejudice of the purchaser.—The county analyst certified that the article in question contained at least 14 per cent. of alum, and it was stated for the prosecution that if 14 per cent. of alum was used in baking a 2 lb. loaf, there would be about sixty grains of alum in the bread, whereas there should only be about five grains.—Defendant admitted selling the powder, but pleaded that he sold it as received from the manufacturer, Mr. H. Matthews, 67, High Street, Plymouth, having no idea that it was adulterated.—The Chairman of the Bench said that, while of opinion that defendant was ignorant of the ingredients, he should not sell an article as described unless he got a guarantee, as the whole onus fell on the retailer. For the benefit and protection of the public they were obliged to administer the law, but in the present case only a mitigated penalty of £3, including costs, would be inflicted.

SALE OF SEIDLITZ POWDERS.—Jane F. Hodson, Vauxhall Road, Liverpool, was summoned on Wednesday, February 28, at the Liverpool Police Court, for selling seidlitz powders certified to be deficient in the proper ingredients.—Defendant, who stated that the powders were manufactured by Messrs. Bell, Sons, and Co., Liverpool, and that there was a label upon them stating that they were genuine, was bound over.

CARBOLIC ACID POISONING.—At an inquest held on Tuesday, February 27, on the body of Frances Dicker (48), wife of a cellarman, living at 97, Grosvenor Park, Camberwell, it was stated that on the previous Friday deceased sent her daughter, aged 12, to a chemist's for twopennyworth of carbolic acid. The chemist refused to serve her, as she was unable to say for what purpose it was required. The girl went back to her mother, who told her to say it was for disinfecting purposes. She then obtained the poison and took it home. Some minutes later the girl saw the bottle which had contained the acid lying on the floor, and noticed that her mother looked strange. She screamed; the landlady hastened to her assistance and got the woman on to the bed. A doctor was sent for, and on his arrival ascertained that deceased had taken $1\frac{1}{2}$ oz. of carbolic acid, and was past medical aid. The immediate cause of death was coma.—It was stated that deceased had been worried in consequence of one of her children becoming insane.—A verdict of "Suicide whilst of unsound mind" was returned.—In the case of Isaac Patrick Downey (26), of 69, Ballance Road, Homerton, he wanted to be a soldier, but being rather short-sighted, was on that account rejected by the authorities. On Friday, February 23, he received from his two brothers, who were at the front with their regiment, one of the Queen's chocolate boxes. He took the box to a number of public-houses, and was supplied with drink. On Sunday, February 25, he went home drunk, and was reproved by his father. Shortly afterwards he drank a quantity of carbolic acid, death occurring about twenty minutes later. An inquest was held on Thursday, March 1, and a verdict of "Suicide whilst temporarily insane" was returned.

SALE OF SPIRIT OF NITROUS ETHER.—On Saturday, February 24, at St. Augustine's Petty Sessions, Canterbury, Fred H. Neale, chemist and druggist, Herne Bay, was summoned for selling spirit of nitrous ether which was not of the strength required by the B.P., 1898.—Defendant was represented by Mr. Potter, who submitted that the case must fall through, as the analyst's certificate—which stated that the drug was considered to be adulterated, as it

did not contain the proper amount of nitrous ether—was not in accordance with the requirements of the Act. He did not dispute the facts of the case as they stood, but, inasmuch as the certificate did not show the constituent parts of the article, and also failed to show that the article in question was liable to decomposition, the case must be dismissed on the ground that the certificate of analysis was not a good one.—The Bench, after a consultation, decided that the case must fall through, owing to the certificate being a bad one, although there was no doubt that the article supplied was not up to its proper standard. The Bench also intimated that the County Analyst, who made out the certificate, should be warned to be more careful in future.

A CORONER AND CHEMISTS' PRESCRIPTIONS.—An inquest was held at Liverpool on Thursday, March 1, by the City Coroner, with reference to the death of Annie Maud Corbett (5), daughter of a dock labourer.—The evidence was to the effect that the child had suffered from severe cough and headache, and was taken on February 15 to Mr. B. Cluett, pharmaceutical chemist, St. James-street, Liverpool, where medicine was prescribed by him. A few days later the mother went to the shop and said that the child was suffering from measles. Another medicine was then made up, and on the 26th ult. a bottle was given to improve the appetite. The child died next day. The mother subsequently called on the chemist, taking the last bottle supplied to her and, it was stated, with her permission, Mr. Cluett threw away a portion of the contents of the bottle, and advised her to inform the City Coroner, but to say nothing about the last bottle. According to the medical evidence, death was due to tubercular meningitis, and also to pleurisy, resulting from the same cause. The medicine prescribed was suitable for measles, with accompanying bronchitis. The coroner having commented on the extreme danger of a chemist prescribing in a case in which he had insufficient information, the jury returned a verdict in accordance with the medical evidence.

SCOTTISH NEWS.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The eighth meeting of the twenty-second session was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Wednesday, February 28, at 9.15 p.m., Mr. David Harley (Vice-President) in the chair. The minutes of the last meeting having been read and approved, a paper was read on "Gold and Gold-beating," by G. H. C. Rowland (see p. 252), after which Mr. J. Rutherford Hill gave some notes on "The Pottage Herbarium," in the course of which he described the methods usually adopted for collecting, drying, and mounting specimens, and explained many points in structural and systematic botany, and in the naming of plants, as illustrated by the plants included in the Pottage Herbarium, which was on exhibition. After discussion, the Chairman moved a vote of thanks to Messrs. Rowland and Hill, which was cordially passed, and the meeting then closed.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION.—At the weekly meeting of this Association, held on March 2, the once-popular game of "Spelling Bee" was revived with great success. Mr. J. P. Gilmour, President, officiated as examiner and judge, and endless amusement was afforded by the outrageous mistakes of some of the competitors. After half-an-hour's frantic wrestling with the "slimness" of English spelling as she is taught, only two survivors "faced the music." These were Messrs. B. Cockburn, Ph.C., and J. Davie, M.P.S., to whom accordingly, the first and second prizes were awarded respectively. Dr. Coull's lecture on "Stereo-Chemistry" has now been definitely fixed for the 23rd inst., and the first annual dance of the Association is to take place on the 28th inst. Tickets—double 5s., gentlemen's 3s. 6d., and ladies' 2s. 6d.—may be had from Mr. J. P. Gilmour, 419, Victoria Road, Glasgow, or any member of committee.

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION.

The annual meeting of this Association was held on March 5 at the Dewsbury Town Hall, when Mr. G. WALKER (Vice-President) presided, and members were present from Dewsbury, Savile Town, Mirfield, Cleckheaton, Liversedge, Heckmondwike, Batley, and Ossett.

THE DEATH OF MR. FOSTER.

Before the ordinary business was proceeded with, the Chairman referred in feeling terms to the sad loss the Association had sustained by the death of the President, Mr. A. Foster. Their meetings were always brightened by his cheery presence and his genial manner. His long experience and knowledge of business affairs were always at the service of the Association, and when they happened to tread on anyone's corns, Mr. Foster's advice was always of a conciliatory nature. He (Mr. Walker) proposed a vote of condolence and sympathy with the relatives of the deceased.

Mr. W. STEAD (Heckmondwike) seconded the motion, observing that his acquaintance with Mr. Foster extended over more than fifty years. They were first associated as playmates, then as school-fellows, and were afterwards apprenticed to the late Mr. T. H. Gloyne. In recent years they had been associated as members of the Dewsbury and District Chemists' Association.

Mr. R. GLEDHILL (Dewsbury), who was apprenticed to Mr. Foster, supported the resolution, and observed that the deceased was one of the pioneers of their Association.

The motion was passed in silence, all the members standing.

Letters were read from Mr. Herbert C. Brierley, on behalf of the Halifax Association, and Mr. J. A. Mitchell, on behalf of the Bradford Association, sympathising with the Dewsbury Association on the loss they had sustained.

THE ANNUAL REPORT.

Mr. GLEDHILL then read the second annual report, which congratulated the members upon the sound financial position of the Association. Various items of interest had been discussed during the year, including the Lord Chancellor's Bill to amend the Pharmacy Act, the election of members on the Council of the Pharmaceutical Society, and the Companies Bill. The Chemists' Defence Scheme had also been discussed, Mr. Glyn-Jones having come down to lay the scheme before the Association. The Association had again proved itself one of the foremost in defending the rights and privileges of the chemists throughout the country, and had invariably taken the lead in all matters which had for their object and aim the wellbeing of their brother pharmacists.

The CHAIRMAN expressed the opinion that the report was a very satisfactory one. They had done some solid work, which had resulted in some good.

On the proposition of Mr. J. W. CUSONS (Ossett), seconded by Mr. C. CROOK (Mirfield), the report was adopted, as was also the financial statement, submitted by Mr. W. STEAD.

ELECTION OF OFFICERS.

Mr. Stead, who has been one of the most active members of the Association, was unanimously elected President, and Messrs. R. Gledhill and J. W. Cusons were appointed Vice-Presidents. Mr. G. Walker was elected Secretary, and Mr. R. Broadhead (Batley), Treasurer.

On the motion of Mr. BROADHEAD, seconded by Mr. CROOK, a hearty vote of thanks was given to Mr. Gledhill for his past services as Secretary, and the compliment was duly acknowledged.

THE COMPANIES BILL.

A long discussion then took place on the Companies Bill of 1900, the matter being introduced by Mr. CUSONS, and it was ultimately decided that the local members of Parliament should be approached and asked to support the amendment of the Bill by the insertion of Clause B suggested by the Federation, in place of the Clause now in the Bill.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

A special general meeting of the members of this Association was held at the White Bull Hotel, Blackburn, on March 6, to consider the recommendation of the Executive that the Hon. Sec., Mr. R. Lord Gifford, should be nominated for election to the Council of the Pharmaceutical Society.

Councillor CRITCHLEY (President) read letters from Messrs. Heaton and Brown (Burnley), Whitehead (Morecambe), Williamson (Preston), and Jepson (Darwen) promising support to Mr. Gifford, if nominated. Before proceeding to vote upon the matter, he would ask Mr. Gifford to explain his views, premising that he personally would be very glad if he consented to stand.

Mr. R. LORD GIFFORD said his position was that the Pharmaceutical Society should exist for the members, and to administer the Pharmacy Acts. Nobody could deny that those functions had been neglected, and the only reparation required was that they should put the members into a rational and possible position. For a number of years they had been observers of the methods of the Council, and of individual members of the Council, and it had impressed them as strange that it had never been thought necessary to awake and arrest the intelligent interest of the drug trade in its own affairs. The Council seemed to imagine that if it had questions before it in committee, and decided, or failed to decide, upon them, that was sufficient for the members of the Society; but they emphatically denied this. Questions of broad policy should be discussed in open Council, and his first declaration of policy was full publicity on all public questions. His second was that the Council's policy should be active more than defensive. They had been so little assertive that people thought they had no rights, and when they claimed them the public thought they were asking for something to be given them. In that connection they were strongly of opinion that the present policy of the Council should be the establishment of the Act of 1868 as it was passed—"in the interests of the public it shall be unlawful for anyone to sell or keep open shop for retailing, dispensing, or compounding poisons, or use or assume the title chemist and druggist," etc. He ventured to assert that there was no difference of opinion among qualified chemists that the least they ought to aim at was the Act of 1868, and that it is in the power of the Council to bring forces into operation that will effect that object. They heard much as to what was feasible and what was not, but surely they would be best occupied in first deciding what were their rights: secondly, in claiming them; and thirdly, in establishing them. There was evidently floating in the nebulous haze around the Council an idea that in some simple manner a real "gilt-edged" pharmacy would be evolved, but that was quite unlikely. Granting special privileges were quite foreign to the present temper of the Legislature, and there was every evidence that that temper would become stronger rather than weaker. The policy the committee advocated was one it had consistently supported all through the agitation—the Act of 1868 and nothing less. Anything less was a confiscation of their rights; anything more was out of the question. But more was not needed. The Act of 1868 was persistently called "a wretched Poisons Bill." But was it? The much-maligned Act was a common-sense one intended to enable the public to distinguish a duly-qualified person. It gave them a title, but it also established the principle that in the interests of the public it was desirable and necessary to place poisons outside the operations of free trade principles, confining their distribution to persons specially trained. In virtue of that they were quite justified at any future time in agitating for the inclusion in the schedule of fresh poisons or proved dangerous drugs, such as carbolic acid, colocynth, digitalis, strophanthus, and acetanilid. In a word, they were determined on the establishment of the principles of the Pharmacy Acts, and refused to complicate the issue with either trade questions or theoretical fancies. The Council could not have realised the importance of

holding tight that which chemists already had. They must be given credit for having efficiently built up and consolidated the profession on its educational side, but they forgot that while they were making entrance to the profession more difficult they were allowing its privileges to be curtailed. His position was that in view of the coming increased stringency in the examinations, the Council's absolute duty was to establish the 1868 Act in the spirit of the Legislature of that time. That was the irreducible minimum, and if the Council could not secure it, it stood condemned as incompetent to safeguard the professional interests in its charge. He attributed the Council's former inability to conserve the interests of qualified chemists primarily to its lack of sympathy with its members, which was proved by the smallness of the number connected with the Society, and next to its neglect to organise, which was proved by the existence of the Federation. If the Society had due appreciation of its responsibilities there would be no necessity for a Federation. Lastly, former Councils had not actively insisted on the retention of their status. There was no pretence of the present policy of the Council being anything but futile on account of the internal dissension in the matter of the Companies Act. The time had come when, he thought, the Council would see that it had either to fight and win or lie dormant and lose; and he hoped and trusted that the present week's meeting of the Council would have results which would spur the country on to a hopeful if difficult fight. The grounds on which he should ask the support of members of the Pharmaceutical Society were:—

- (1) The Pharmaceutical Society for its members.
- (2) Apathy of Council must be remedied.
- (3) Organisation must not be delayed.
- (4) An active policy and publicity in all matters of public interest.
- (5) We must have the full effect of the Act of 1868.

Councillor SHORROCK (Darwen), in moving that Mr. Gifford be nominated to the Pharmaceutical Council, said he was quite with Mr. Gifford with regard to the Federation. He had supported that body through thick and thin, but in the matter of the Companies Bill they had two strings, one of which was out of tune. Chemists wanted the title—that was their minimum demand—and he thought they were quite as much entitled to the benefits of the Medical Clause as any of those included in its scope. He moved the proposition with great pleasure.

Mr. PERCY BEAN seconded the proposition. He was the first secretary of the Association, and he could testify to the higher level and the greater popularity attained by the Association since it had insisted upon a principle outside mere trade matters. Mr. Gifford was a typical Briton, who never knew when he was beaten, and he would be a credit to Lancashire and the North on the Council.

Messrs. WELLS and HINDLE also supported, the latter stating that they wanted live men on the Council—men with honesty of principle and prepared to fight for the trade as they knew it.

Mr. W. HOLT supported the nomination. Mr. Gifford had so closely studied and got such a grip of the political position of pharmacy that his opinions were asked for and valued by men in high position in the pharmaceutical world, while his persistency and energy were something to marvel at. Such men were sadly needed on the Council, where the pitiable weakness exhibited in dealing with a matter of such vital interest to the qualified man as the clause in the Companies Bill was apparent to every chemist who took an intelligent interest in the affairs of pharmacy. It had been positively painful and disheartening to read month after month: "There is no report, because we have nothing to report." It was more painful still to learn from one of its twenty-one members that almost every one of them held a different opinion as to the remedy that should be applied. The Council seemed to quite fail to realise the seriousness of the position. Some members seemed willing to hand over the charter of incorporation to Mr. Jesse Boot, so that he could form a Pharmaceutical Society of his own. Others appeared to be incompetent to form a strong opinion at all, and

although some two or three were willing to work on right lines they failed to make their opinions prevail, and so things drifted along. They might depend upon it that the President of the Board of Trade knew all that, and as a sensible man he would not take into consideration the arguments of such a divided and incompetent body. Strong and resolute men, with opinions firmly set and founded upon principle, ought only to be on the Council, and he ventured to think Mr. Gifford would prove to be one of those. He put it to members throughout the country whether the time was not ripe for a change? In urging favourable consideration of Mr. Gifford's views, he hoped that increased interest would be taken in the elections of members of the Council. Mr. Gifford's success would enable him to continue, perhaps more successfully, his policy of securing due and proper recognition, professionally, of the qualified chemist.

Mr. LOMAX (Darwen) said nobody outside the committee had any idea of the time and work Mr. Gifford had devoted to the work of the Association. He had a thorough grip of the situation, especially as to what chemists wanted under the 1868 Act. Only those who had passed the qualifying examination should be entitled to style themselves chemists, and he could not understand how any misunderstanding on the point could exist on the Council. It was necessary for the protection of the public that the title should be confined to properly qualified men, and he hoped Mr. Gifford, when he got upon the Council, would make that very plain.

Mr. PICKWORTH said they heard at times that chemists were seeking a monopoly, but he failed to see that. If Mr. Boot wished to be a cash chemist and use the title of chemist legitimately, he should follow the same course as the speaker and pass his examinations. There could be no monopoly, for it was open to any person to become a chemist by going through the proper gate instead of climbing over the wall by the aid of £ s. d. If Mr. Gifford stuck to his present position on the qualification question he would have the solid support of the whole mass of working chemists in the country.

The resolution was carried with acclamation, and Mr. GIFFORD briefly acknowledged the confidence reposed in him.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY.

Mr. P. H. MARSDEN presided over a good meeting on Thursday evening, the 1st inst., at the Liverpool School of Pharmacy.

It was decided to send a letter of condolence to Mr. J. P. Catford, who has just been bereaved in the death of his father, who was known in his own county of Devonshire and considerably beyond its borders as the oldest member of the Volunteer forces of this country.

Specimens were handed round by the President for naming; one, on the authority of Mr. Wardleworth, was possibly a small *Pentactydra* seed, or a *Mucuna* according to Mr. Marsden, and the others tanning material of the *myrabolan* class.

Mr. HAROLD WYATT, Jun., then read a paper, entitled—

Dispensing Notes.

He said: These notes are a continuation of a series of similar remarks on my everyday work, which I have at various times brought before the notice of the Students' Society, and for which no claim is made either as to originality of matter or novelty of treatment. They are intended for the guidance of young dispensers who may meet with similar peculiarities in prescriptions passing through their hands, to whom I trust they may afford some assistance if it be only that of suggesting methods by which some formulæ of apparently hopeless incompatibility may be compounded with credit to the dispenser and satisfaction to both prescriber and patient.

MIXTURES.

- (1) R Antipyrin ʒii.
 Quininæ Sulph. gr. xxiv.
 Acid Hydrobrom. Dil. fl. ʒiiij.
 Syrupi ʒi.
 Aquæ ad ʒviii.
 M. ft. Mist.

With some samples of hydrobromic acid a yellowish red colour is caused if the quinine and antipyrin are mixed with the acid in strong solution—this, however, disappears on further dilution. This is due, perhaps, to the salts causing over-concentration of the acid, a trace of free bromine being produced, and this forming a red compound with the antipyrine.

Dilute hydrobromic acid and antipyrine when mixed in the above proportion give a yellow solution.

- (2) R Sodii Salicylatis ʒii.
 Syrupi Limonis ʒss.
 Aquæ Chlorof. ad ʒvi.
 M. ft. Mist.

Contrary to expectation there was no separation of salicylic acid in this. The citrate of sodium, formed by the action of the citric acid in the lemon syrup, dissolved the salicylic acid, the chloroform water also assisting to keep the acid in solution. This solvent property of citrates towards salicylic acid is well known.

- (3) R Tinct. Ferri Perchlor. mʒo.
 Acid Phosph. Dil. ʒii.
 Tinct. Nucis Vom. ʒii.
 Sp. Chlorof. ʒiv.
 Aquæ ad ʒviii.
 M. ft. Mist.

A precipitate of ferric phosphate is unavoidable in this, but the density of this precipitate varies with the way of mixing. If the tincture of iron and acid be mixed together and then diluted a heavy precipitate will fall at once, increasing in density until about the third day, when its maximum is reached. Dilution of the iron tincture and acid separately before mixing causes the precipitate to fall slowly, and in a very finely divided, almost gelatinous condition.

Prepared in this last way the mixture is more slightly, the precipitate is readily diffused, and even after keeping exposed to the light for six months the density of the precipitate is not anything like that formed when the ingredients are mixed before dilution.

- (4) R Sp. Ætheris Nit. ʒii.
 Potass. Bicarb. ʒii.
 Tinct. Aconiti mxxiv.
 Syr. Rhœados. ʒss.
 Aquæ ad ʒii.
 M. ft. Mist.

Dissolve the bicarbonate in an ounce of water, then add the spirit of nitre, shake well, and lastly add the syr. rhœados. As most samples of sp. æther. nit. are acid it is necessary to neutralise them before adding to the syr. rhœados, or the colour of the syrup may be bleached to such an extent that the blue colour of the finished mixture will vary considerably.

- (5) R Potassii Iodidi ʒii.
 Quininæ Hydrochlor gr. ʒ2.
 Syrupi Aromatici ʒi.
 Aquæ ad ʒviii.
 M. ft. Mist.

The intention of the prescriber was evidently to give a salt of quinine in combination with potassium iodide, and aware of the fact that quinine in acid solution gives with iodide of the alkalies a precipitate of iodide of quinine which rapidly becomes coloured by liberation of iodine until an iodo salt of the alkaloid is formed—he had chosen the most soluble salt of quinine for his purpose as being in his opinion the least acid. The precipitation of quinine iodide, however, cannot be avoided, still if dilute hydrochloric acid be added drop by drop, this iodide is redissolved, but on standing traces of the iodo salt of an orange colour separate and the mixture

becomes deep yellow in colour. Bearing in mind the wonderful effect of a trace of hypophosphorous acid in preventing liberation of iodine I made a series of experiments and found that the mixture could be made so as to remain permanently clear and free from colour, even when exposed to sunlight, if about 20 minims of dilute hypophosphorous acid were used to dissolve this precipitate of quinine iodide.

- (6) R Syrupi Ferri Iodid. ʒii.
 Olei Morrhuæ. ad ʒvi.
 M. ft. Mist.

This is a combination in great favour at various public institutions about Liverpool, and one which is by no means elegant, however efficacious it may be.

Most specimens of cod liver oil contain hydroxyl compounds or at any rate bodies capable of liberating iodine from iodides. The amount of those iodine liberating substances present is inversely as the freshness of the oil and the care with which it has been kept. When the syrup of iodide of iron is added to cod liver oil a brown colour is first formed, and this goes on increasing in depth until the mixture is a deep red. A slightly and presentable emulsion is easily made from this formula by shaking half the oil in a dry bottle with 6 grains of powdered tragacanth and then pouring in the syrup of iodide of iron diluted with ½ oz. of water containing 6 minims of dilute hypophosphorous acid, and making up with oil to 6 fluid ounces and well shaking. So made this will keep well for a considerable time.

- (7) R Liq. Calcis ʒiv.
 Liq. Bismuthi ʒi.
 Nepenthe mxxv.
 Sp. Chlorof. ʒiss.
 Aquæ ad ʒviii.
 M. ft. Mist.

When the solution of bismuth is added to the lime water a white precipitate of bismuth hydrate falls if the liq. bismuthi is free from more than a trace of ammonium citrate. With the old liq. bismuthi a precipitate is formed which is gradually taken up (after standing a while) by the ammonium citrate present.

- (8) R Calcii Chloridi,
 Potass. Bromidi aa gr. ʒ20
 Syrupi Ferri Iodidi ad ʒiv.
 M. ft. Mist.

This gave considerable trouble and varied in colour when made by different operators. The chief cause of this was alkalinity of the calcium salt. A good mixture was turned out by dissolving the bromide in 2 oz. of simple syrup by the aid of heat, and allowing to cool: then dissolving the calcium chloride in ½ oz. water and ½ oz. syrup, with enough dilute hydrochloric acid to produce a non-alkaline solution. Mix these solutions and finally add sufficient concentrated liq. ferri iodidi (made with hypophosphorous acid as a preservative) to correspond with 4 oz. of syrup of iodide of iron, making up to 4 fluid oz. with simple syrup.

PILLS.

- (9) R Argenti Oxidi gr. viii.
 Ext. Belladonnæ gr. viii.
 Aloin gr. x.
 Pil. Aloes et Ferri gr. xxx.
 M. fiat massa et divide in pil. xvi.

To protect the oxide against reduction it was rubbed to a paste with cacao butter 8 grains. The other ingredients were massed separately with honey, the oxide mass then quickly and lightly worked in, and the mass cut into sixteen pills. Weight of mass 65 grains. The pills kept well, and were often repeated.

- (10) R Codeinæ gr. ¼.
 Argent. Oxid. gr. ¼.
 Pepsinæ gr. ii.
 Taka Diastase gr. iii.
 M. fiat pilula. Mitte xii.

Proceed as in No. 9, viz., make a mass of the codeine, pepsin and diastase with honey, and afterwards rub in the oxide massed with cacao butter. Weight of mass 80 grains.

(11) R Resinæ Guaiaci	gr. ii.
Resinæ Podophylli	gr. ½
Olei Cajuputi	m ii.
Massa Pilul.	q. s.
Ut ft. pilula. Mitte xxx.	

Melt the resin of guaiacum with 22 grains of beeswax and stir until nearly cold, when add the essential oil and the resin of podophyllum. Beat hard until homogeneous and make up to 150 grains, mass with very dry and finely-powdered marshmallow root, and cut into 30 pills. These retain their shape though fairly soft, and are not so large as would appear from the formula. The marshmallow prevents them falling and helps in their disintegration.

(12) R Ferri Sulph. Exsic.	gr. i.
Niccoti Sulphatis	gr. ¼
Extracti Belladonnæ	gr. ¼
Ext. Nucis Vom.	gr. ¼
Aloin.	gr. ¼
Olei Menthæ Pip.	m ½
Ft. pil. Mitte xii.	

This formula was brought before the notice of the L.P.S. Society last year on March 2, by Mr. P. G. Jenner. The best excipient in my hands turns out to be beeswax, used in the following fashion:—Rub the salts to powder with the aloin and powdered extracts of nux and belladonna, turn out of the mortar and proceed to work up the essential oil of peppermint with 6 grains of beeswax in fine shavings, to which when smooth the powder may be added and the mass cut. These pills are small, firm, and, in consequence of the salts present, easily soluble.

(13) R Digitalin (Codex)	gr. 1/100
Strychninæ	gr. 1/30
Fiat pilula. Mitte 50.	

A medical friend wished these made up for a fastidious lady patient, desiring them to be small and as smartly turned out as possible. Triturations of digitalin and strychnine were made with sugar of milk, and for every fifty pills, 10 grains of compound tragacanth powder and sufficiency of sugar of milk were used, massing with enough compound tincture of cardamoms. The pills turned out well, and looked very attractive. However the patient complained that they must be manufacturers' pills, and were not hand-made, which brought the doctor down to inquire. He was more than satisfied on looking at the prescription register and seeing the working formula written up opposite his order. This was one of the few cases in which one seems to err through taking too much pains over one's work.

OINTMENTS.

(14) R Acidi Oleici	ʒss.
Lanolin Hydros.	ʒss.
Pot. Carbonatis	gr. iv.
Potass. Iodidi	gr. xxx.
Olei Gerani	miv.
M. ft. Unguentum.	

One of our members, Mr. Jenner, had made this up and found that it turned brown owing to the iodide being acted upon by the oleic acid.

If the oleic acid be old and deep coloured this may take place, but if a fairly fresh, good sample of light colour be used, no colour appears when the ointment is made in the following way, viz., dissolve the carbonate and iodide in 72 minims of distilled water, add the oleic acid by degrees, then the essential oil, and lastly, anhydrous lanolin, 168 grains; well rubbing to a cream.

(15) R Hydrarg. Perchloridi	gr. iiiiss.
Cretæ Præparatæ	gr. 75.
Acidi Carbolici	m150.
Olei Olivæ	m150.
Unguenti Zinci	ʒviiss.
M. ft. Unguentum.	

The oxide in the zinc ointment, together with the creta præp., it was at once seen would have an action on the perchloride if this were not protected in some way, accordingly the creta præp. was rubbed fine with oxide of zinc, ʒi. ʒi., and the lard in which the

carbolic acid had been dissolved by heat was stirred in until well and smoothly mixed. When cool, to this was added the perchloride dissolved in absolute alcohol, ʒii., and olive oil in 150, and the whole well stirred. This was often repeated, and after keeping gave no visible signs of the perchloride being converted into oxide.

(16) R Ung. Hydr. Oxid. Rubr.	ʒii.
Acid. Carbolici	miii.
Ung. Sulphuris	ʒii.
Ung. Petrolei	ʒvi.
M. ft. Unguentum.	

If the liquid carbolic acid is used, this is apt to darken in colour, but where phenol in crystals is employed it keeps for long periods.

A good discussion followed the reading of the paper, after which the proceedings terminated.

Obituary.

BROOKE.—On February 28, Frederick Brooke, Chemist and Druggist, Hackney. Aged 61.

EVANS.—On February 27, Thomas Benson Evans, Chemist and Druggist, Denbigh. Aged 44. Mr. Evans was a native of Tregaron, Cardiganshire, and went to Denbigh about twenty years ago as an assistant to Mr. J. Harrison Jones, Chemist and Druggist. A few years later he succeeded to the business of the late Mr. William Edwards, High Street, Denbigh, where he quickly established a good business connection. He was associated with the Calvinistic Methodist body, and for some years had filled the office of deacon at Capel Mawr.

FLEWITT.—On March 3, at his residence, Wylde Green, Charles T. M. Flewitt, formerly a well-known chemist of Birmingham. Aged 87. Mr. Flewitt was a native of Birmingham, and after completing his education became a dispenser at the Birmingham Dispensary in Union Street. Subsequently he began business as a chemist at Snow Hill, afterwards removing to High Street, where he established a thriving business, and continued it for fifty years. Sixteen years ago he retired.

ILEY.—On March 1, John Iley, Chemist and Druggist, Wolsingham (Durham). Aged 58.

INMAN.—On March 1, Joseph Henry Inman, Chemist and Druggist, Newcastle, late of Sheffield.

WATSON.—On February 28, James Burscough Watson, Chemist and Druggist, Preston. Aged 91.

PRACTICAL NOTES AND FORMULÆ.

Almond Cream.

Sweet almonds, 120 Gms., are rubbed into a perfectly smooth paste with water, 480 Gms., and mixed with a previously-melted mixture of white wax, 7.5 Gms., white Castile soap, 7.5 Gms., and spermaceti, 15 Gms.; finally, 16 drops of rose oil, dissolved in 180 C.c., of alcohol, 90 per cent., are added.

Polish for Linoleum.

Mineral oil (0.885) odourless and free from opalescence, 35; hard paraffin, 7.5; Japan wax, 0.5. Melt together and allow to cool.—*Pharm. Post*, 32, 721.

Solder for Different Metals.

Solder for tin, zinc, lead and white metal may be obtained by fusing tin 10, lead 15, melts at 223° C.; tin 10, lead 10, melts at 200° C.; tin 10, lead 6, melts at 190° C.; tin 10, lead 5, melts at 185° C.; tin 10, lead 4, melts at 181° C. Soft solder for zinc, copper or brass, may be made from tin, 100, lead 20, melts at 240° C. Tin solder for cast iron is composed of tin, 1; lead, 1; bismuth, 1.—*Pharm. Centralth.*, 40, 633; after *Central Ztg. f. Optik. u. Mechanik.*

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Cannabis Indica.

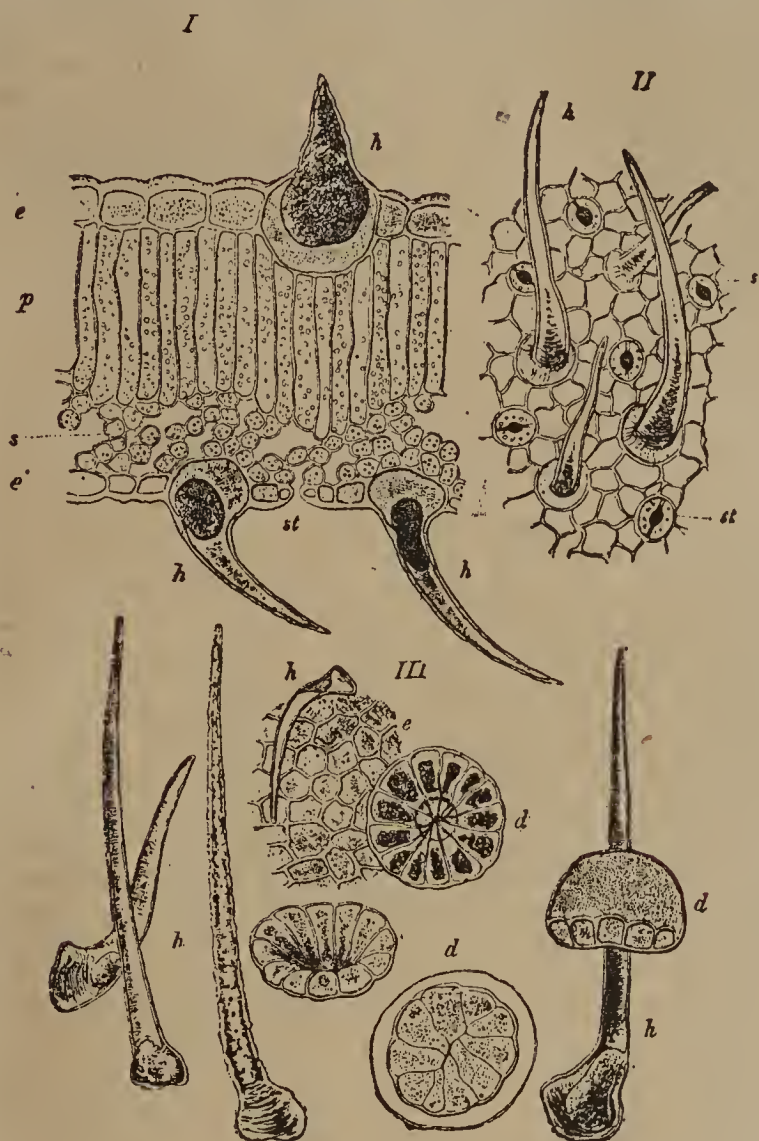
INDIAN HEMP is derived from *Cannabis sativa*, Linn. (N.O. Urticaceæ), an annual, diœcious herb, indigenous to Central and Western Asia, and largely cultivated in temperate climates for the sake of its strong fibres (hemp) and oily seeds. The source of the drug, however, is the female plant grown in India, as that alone secretes any quantity of the resin to which the medicinal properties of the drug are due. The pistillate or female plants, therefore, having been pruned to produce flowering branches, have their flowering or fruiting tops collected and, without removing the resin, pressed into the more or less compact masses known commercially as "ganja" or "guaza." Other varieties of Indian hemp occur in more or less cylindrical pieces; they are sometimes much stronger than the official drug, and are therefore unsafe substitutes for it. The drug possesses sedative, anodyne, hypnotic, and antispasmodic properties; it is used to prepare Extractum Cannabis Indicæ and, indirectly, Tinctura Cannabis Indicæ and Tinctura Chloroformi et Morphinæ Composita.



CANNABIS INDICA.—a, Young leaf. b, Female flower, with linear bract. c, Perianth unrolled. d, Longitudinal section of ovary. e, Fruit. f, Ditto, transverse section. g, Ditto, longitudinal section.

CHARACTERS.—*Cannabis indica* occurs in rough, compressed, flattened masses of a dusky-green colour, consisting of the branched upper part of the stem of the plant, from 50 to 300 Mm. long, bearing leaves and pistillate flowers or fruits, matted together by a resinous secretion. The straight stem has ascending branches, is longitudinally furrowed, and bears numerous small, one-celled, curved, appressed hairs and occasional stalked glands. The upper and more important leaves are simple, alternate, and 1-3 partite; the lower leaves are opposite, digitate, and consist of five to seven linear-lanceolate leaflets with distantly serrate margins. The pistillate flowers are small, the single ovary in each being surrounded by a perianth and supported by a bract, beyond which protrude two long brown stigmas; the ovoid and slightly reticulated fruit contains a single oily seed and is supported by an ovate-lanceolate

bract. Both leaves and bracts bear numerous leaves and glands, like those on the stem; the leaves are enlarged at the base, and contain cystoliths; the glands secrete a viscid adhesive resin.



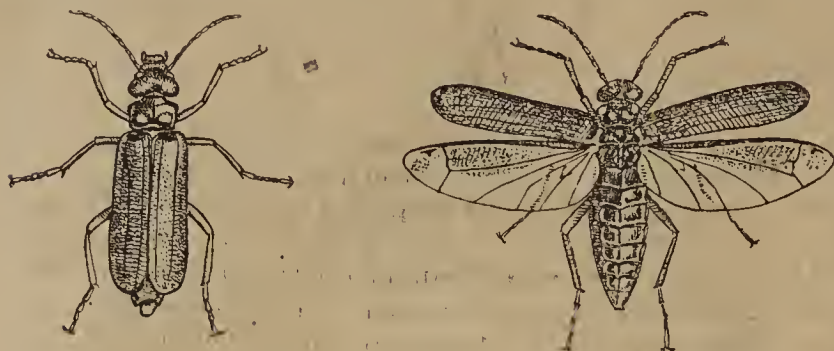
CANNABIS INDICA.—I. Transverse section of leaf. II. Lower epidermis showing hairs and stomata. III. Hairs (h) and glands (d). After Vogl.

NOTES.—The distinctive characters of Indian hemp are the rough, dusky-green masses in which the drug occurs, the curved appressed hairs, and the linear-lanceolate leaflets on the lower leaves. It has a powerful odour, is almost devoid of taste, and its chief constituent is the resin, which is freely soluble in 90 per cent. alcohol. In preparing "ganja" a quantity of the resin separates and constitutes the drug known as "charas" which, when distilled under reduced pressure, yields certain inactive terpenes and cannabiniol. The latter is a viscous resin which melts to an oily liquor when warmed and appears to constitute the intoxicating principle of Indian hemp. A thick, yellowish, oily liquid termed cannabiniol has also been isolated from the drug, as well as colourless crystals of an alkaloid—tetano-cannabine—which resembles strychnine in its action.

Cantharis.

CANTHARIDES are the dried beetles, *Cantharis vesicatoria*, Latr. (Order Coleoptera), which are widely distributed over Southern Europe and collected in Spain, France, Russia, Sicily, and Hungary. The insects are gregarious, and are collected by shaking them from the trees—ash, privet, elder, etc.—which they frequent, the time selected being before sunrise, whilst they are unable to use their wings. After being shaken on to cloths the beetles are killed by the aid of heat or by exposing them to the fumes of ammonia or of burning sulphur. Cantharides possess rubefacient and vesicant properties, and act as an irritant poison when taken

internally; they are used to prepare Acetum Cantharidis, Emplastrum Calefaciens, Emplastrum Cantharidis, Liquor Epispasticus, Tinctura Cantharidis, Unguentum Cantharidis and, indirectly, Collodium Vesicans.



CANTHARIDES.—A. *Cantharis vesicatoria*, exact size. B. Same with elytra and wing sheaths expanded.

CHARACTERS.—Cantharides are from 18 to 25 Mm. long, about 6 Mm. broad, and have a strong, disagreeable odour which diminishes on keeping. They have two long, narrow elytra or wing-sheaths, of a shining green or coppery-green colour, under which are concealed two thin brownish transparent membranous wings; each insect has six legs and two antennæ.

NOTES.—The distinctive characters of cantharides are their colour, odour, and narrow shape. The rose beetle—*Cetonia aurata*, Linn.—is similar in colour, but broader; Chinese blistering beetles—*Mylabris sp.*—are shorter, and their wing cases are marked with transverse black and yellow bands. Cantharides contain about 12 per cent. of fixed oil and from 0.5 to 1 per cent. of a definite crystalline substance—cantharidin, $C_{10}H_{12}O_4$, a lactone of cantharidic acid—to which the vesicant properties of the beetles are due. It is insoluble in water, but unites with potassium or sodium hydroxide to form compounds which are soluble in water. In alcohol it is only sparingly soluble, but it dissolves readily in acetic ether or in chloroform. It exists chiefly in the soft parts of the insect, partly in the free state and partly in the form of salts soluble in water. The Chinese blistering beetles yield from 1 to 1.2 per cent. of cantharidin.

Caoutchouc.

INDIA-RUBBER is the product of *Hevea brasiliensis*, Muehl. Arg. (N.O. Euphorbiaceæ) and other species indigenous to Brazil. Inferior varieties of it are produced by species of *Castilloa* and other plants growing in tropical climates. It occurs in the milky juice or latex of the plants, associated with fat, albumin, resin, etc.; and is obtained by incision. By coagulation of the albumin contained in the exuded juice, the suspended particles of caoutchouc are collected in a curdy mass, which becomes tough and elastic when dry. Para rubber, as it is termed in commerce, is used in the preparation of Liquor Caoutchouc and, indirectly, of Charta Sinapis.

CHARACTERS.—India-rubber (Para) occurs in elastic masses, of varying form and size, the brownish-black colour externally shading off into a paler tint internally. Each mass consists of a number of thin layers, which appear to be separated by dark lines, the superposition being due to the coagulation of successive coats of the alkaline latex by exposure to acid vapours contained in the smoke from burning wood. Some rubber is milk-white internally, and little, if any, can properly be described as "mottled." India-rubber is insoluble in water, ethylic alcohol, alkaline solutions, or in dilute acids, but more or less soluble in chloroform, oil of turpentine, carbon bisulphide, benzol, and in petroleum spirit. It has a characteristic, somewhat empyreumatic, odour, is nearly tasteless, and melts at about $125^{\circ}C.$, remaining soft and adhesive after cooling.

NOTES.—The distinctive characters of India-rubber are its elasticity and behaviour to solvents. Thus, in chloroform, benzol, etc.,

it swells and becomes soft and gelatinous, a portion of it appearing to dissolve, whilst the rest remains in a more or less disintegrated condition. It seems to consist chiefly of two hydrocarbons, its more soluble portion being soft and ductile, while the less soluble part is tenacious and elastic. When subjected to dry distillation, oil of caoutchouc—a mixture of various hydrocarbons—is obtained. Alcohol removes from Para rubber about 1.5 per cent. of resin; other impurities naturally present are fat, colouring matters, and mineral substances. Pure caoutchouc is a white, amorphous substance— $(C_{10}H_{16})_x$ —and can be obtained by dissolving the crude material in chloroform and precipitating with alcohol. It absorbs oxygen from the air, and is converted into vulcanite when treated under pressure with sulphur.

Capsici Fructus.

CAPSICUM is the product of *Capsicum minimum*, Roxb. (N. O. Solanaceæ), a small erect shrub with spreading branches, which is probably a native of Southern India, and is cultivated there and in other tropical countries—Eastern Africa, South America, etc. The fruits of the plant are collected when ripe and dried. The drug possesses stimulant, stomachic, and tonic properties; it is used to prepare Tinctura Capsici and Unguentum Capsici, and the tincture enters into the composition of Tinctura Chloroformi et Morphine Compositus.



CAPSICUM.—Fruit of *Capsicum minimum* with peduncle attached; also detached peduncle. Natural size.

CHARACTERS AND TEST.—Capsicum fruits are scarlet when fresh, but of a dull orange-red colour when dried. They are oblong-conical in shape, obtuse at the apex, from about 12 to 20 Mm. in length, and not exceeding 6 Mm. in diameter. The fruit is superior, and sometimes remains attached to a small, inconspicuous five-toothed inferior calyx and a straight, slender peduncle about the same length as the fruit, or rather longer. The pericarp of the fruit is somewhat shrivelled and flattened; it is glabrous, shining, more or less translucent, and also leathery in texture. A transverse section of the fruit shows that it is two-celled, each cell containing from five to ten small, flat, whitish seeds, either loose or attached to the thin reddish membranous dissepiment which separates the two cells. The seeds are nearly circular in shape, and have a characteristic thickened margin. The odour of capsicum fruits is characteristic, and the taste intensely pungent, being most marked in the dissepiment that divides the fruit. On incineration, powdered capsicum should not yield more than 6 per cent. of ash, thus showing freedom from adulteration with inorganic substances.

NOTES.—The distinctive characters of capsicum are the shape and size of the fruit and peduncle, the presence and pungent taste of the dissepiment, and the shape of the seeds. The fruits of *Capsicum annuum*, Linn., cultivated in Europe, are large, with a short peduncle and conspicuous green calyx; the fruits of *C. frutescens*, Linn., and other species cultivated in tropical countries can only be distinguished from those of *C. minimum* by minute differences in their external appearance. The chief constituent of capsicum fruit is capsaicin, to which its pungency is entirely due; it has been isolated in a crystalline form, and is contained chiefly in the dissepiment, being secreted by the cells of the epidermis between the cuticle and the outer cell-wall. Other constituents of the fruit are two non-pungent alkaloids—one crystalline (capsicine) and the other volatile; a fixed oil and resin are also present.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

DRYING CRYSTALLISED SALTS.

F. H. Setman describes a simple apparatus he has devised for drying crystallised salts. A large-sized cylindrical porous cell has a central hole bored at the bottom, large enough to receive a fair-sized cork bored with a single hole. The mouth of the cell is similarly fitted with a cork bored with a single hole, and through the two corks are passed pieces of glass tubing of convenient length. The glass tubes should project slightly into the cell, and the external portions be long enough to support the cell between the two ends of a wooden box, so that the cylinder can be rotated on its axis. The salt to be dried is placed in the cylinder, the corks are fixed tightly, and the cylinder is placed in position in the box; one tube is then connected with a drying tube, the other with an aspirator, and a current of dry air—cold or hot, as necessary—allowed to pass. By turning the cylinder from time to time a fresh surface of salt is exposed to the current of air.—*Chem. News*, 81, 91.

ABSORPTION OF IODINE BY PLANTS.

P. Bourcet has experimented with certain edible plants with the object of determining how they absorb the iodine they require, and he publishes a table which shows that under identical conditions of soil, moisture and exposure, some plants absorb much more iodine than others, whilst some do not absorb a trace. The Liliaceæ and Chenopodiaceæ were found to accumulate much more iodine than the Solanaceæ or the Umbelliferae. In the case of the Compositæ and Cruciferae the absorption of iodine varies in different species.—*Bull. Soc. Clinn.* [3], 23, 40.

NEW METHOD OF METHYLATION.

M. Prud'homme describes a new method of methylation, which depends on the combined action of formic aldehyde and nascent hydrogen in an acid medium. By its means he has been able to transform a certain number of colouring materials and leuco bases, containing NH₂ groups. The equation of the reaction is—



Fuchsine was transformed into hexamethylated violet, rhodamine of *m*-aminophenol into methylated rhodamine, thionine into methylene blue, and pheno-safranin into a blue colour which is probably an induline.—*Mon. Scient.* [4] 14, 73.

T'UNG OIL.

This oil is extracted from the seed of the paint tree (*Dryandra cordasa*) which, according to the United States Consul at Shanghai, is extensively cultivated in the Yangtze Valley, also in Chekiang Province. The seeds of the paint tree are poisonous, and the oil is used occasionally for poisoning rats, also to produce vomiting in would-be opium suicides; though for the latter purpose it is neither so safe nor so effective as zinc sulphate or the stomach-pump. The chief use of t'ung oil is as a standard paint, and as such it is in great demand by the natives. When boiled, it makes one of the best drying oils; it is also extensively used in varnishing with the famous Ningpo varnish, "t'si," *i.e.*, the dried sap of the varnish tree (*Rhus vernicifera*), a good coating of which will stand considerable heat without leaving a mark, and will last for years. The various shades for colouring are produced by animal, vegetable, and mineral substances—pig's blood is the favourite for a first coating in varnishing. To give body and lustre to paint, finely powdered galena and other ores are mixed with the oil used.—*Journ. Soc. Arts*, 48, 397.

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SEMINASE.

E. Bourquelot and H. Hérissey consider that the ferment of leguminous seeds possessing a horny albumin, previously described by them (see *Ph.J. ante*, p. 91), is a specific zymase, for which they suggest the name "Seminase." They find that this ferment, precipitated from aqueous extracts of the seeds of fenugreek and of lucerne, differs from malt diastase in rapidly effecting the hydrolysis of the albumin of the locust bean, which diastase attacks but slowly, whereas seminase, on the other hand, is very much less active on starch paste than diastase. Even this action is probably due in great part to the trace of diastase which these seeds contain, as well as seminase. Since the cotyledons of both fenugreek and lucerne contain, during the first period of germination, considerable quantities of starch which ultimately disappear, it is evident that this small quantity of diastase plays an important part in the nutrition of the growing plant.—*Comp. rend.*, 130, 340.

AMBER AND COPAL.

Among the objects found by Schliemann at Troy and Mycenæ were a number of amber trinkets. As amber is derived from the shores of the Baltic, the question arose whether they were made of true amber or of fossil copal of African origin brought to Troy by the Egyptians and Phœnicians. Roessler, however, has proved them to be true amber by a simple test, based on the fact that amber contains sulphur, whereas copal does not. A minute particle is placed in a test tube, and heated until fumes are given off. On allowing the fumes to come into contact with a piece of moistened lead acetate test paper the characteristic black colour will be given if the specimen be amber, while with copal no such colour will be obtained.—*Journ. Pharm. Chim.* (6), 11, 113, after *Arch. iv. der Pharm.*

CHEMISTRY OF PEPPERMINT OIL.

The formation of menthol and other constituents of peppermint oil during various stages in the development of the plant has been investigated by Eugène Charabot. The oils examined were derived from plants at three different stages of growth; the first as soon as the inflorescence appeared, and before the formation of flower buds, the second when flower buds were formed, the third when the flowers were fully expanded.

	Before formation of flower buds.	After formation of flower buds.		Flowering plants.
		(a) leaves	(b) inflorescences.	
Sp. g. at 18° C.	0.9025	0.9016	0.9081	0.9200
Opt. rot. at 18° C.	- 24° 10'	- 26°	- 20° 15'	- 2° 37'
Esters (as menthyl acetate).....	3.7 per cent.	10.3 per cent.	7.5 per cent.	10.7 per cent.
Combined menthol ..	2.9 " "	8.1 " "	5.9 " "	8.4 " "
Free menthol.....	14.3 " "	12.2 " "	29.9 " "	32.1 " "
Total menthol	17.2 " "	50.3 " "	35.8 " "	40.5 " "
Menthone	5.2 " "	4.2 " "	16.7 " "	10.2 " "

It will thus be seen that at the first stage the plant yields an oil rich in menthol, but containing a relatively small proportion of esters, and in which menthone is only present in small quantity; as, however, the development of the green parts of the plants progresses, the proportion of esters increases, and this etherification takes place in the leaves, for when the oil passes from them towards the inflorescences, it becomes less rich in esters. Menthone, however, would appear to be chiefly formed in the flowers, where it increases during the development of the inflorescences, while the proportion of the total menthol diminishes. It is concluded therefore that, as in the case of lavender (*P.J.* [4], 10, 249), etherification is confined to the chlorophyll-bearing parts, and that menthone is formed in the flowers by the oxidation of menthol.—*Comp. rend.*, 130, 518.

THE COMMERCE OF DRUGS*

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

Curator of the Museums of the Pharmaceutical Society.

There is a scarcity of some drugs, at irregular intervals, in the European market, which probably arises from various causes, but chiefly from the keen competition in trade, which leads buyers to purchase at as low a rate as possible. This may be illustrated by some facts in connection with some of the drugs that have recently been scarce or high priced. Genuine leaves of *Pilocarpus jaborandi* are at the present moment so scarce that it is probable that it would be almost impossible to purchase 1 cwt. of them in London, although there would not be a similar difficulty about the Rio Janeiro drug (*Pilocarpus selloanus*) or the Maranham drug (*Pilocarpus microphyllus*). The reason of this appears to be that the last time genuine jaborandi became scarce and dear, not only were large supplies of it shipped to England, but the other varieties were also sent over in abundance, and as a cheaper price was asked for them, and the leaves of genuine and the Rio Janeiro kind are much alike in size and appearance, and buyers have not always a knowledge of pharmacognosy, the cheaper drug was largely bought by wholesale dealers. The small leaf was also bought by makers of pilocarpine, chiefly for Germany, it having been discovered in that country that *P. microphyllus* afforded a remunerative yield of the alkaloid, and that it paid better, owing to its low price, to manufacture the alkaloid from these leaves than from the genuine kind. Consequently the genuine drug became "a drug in the market," and, as it would not pay the merchants who held it to go to the expense of warehousing it until the existing stock in the possession of wholesale druggists was exhausted, it had to be sold for what it would fetch, which was 4½d. per lb., whereas the drug cost at least 9d. to collect and send to Liverpool. The result is that shippers, finding that they only lost money over the drug, will not now send it unless they have a certainty of not losing by it. There is little doubt that if 1s. per lb. was offered for a definite quantity it could easily be procured from Pernambuco. The plant being tolerably hardy in subtropical climates, there is little doubt that after a time the cultivated leaves will be placed in the market if a price can be obtained for regular but limited supplies. The difficulty in this case, as in many others, is that, owing to absence of means of communication between producer and consumer, and want of trade agencies to limit the output, the market is flooded when drugs become scarce.

STROPHANTHUS.—It is not at the present moment possible to obtain pure seed giving the characters described in the Pharmacopœia. In this case the difficulty is due partly to the ignorance or carelessness of the first exporters and partly to their attempt to create a monopoly. The first exporters of the drug from Nyassa Land, thinking, apparently, that all strophanthus seed possessed the same properties, or finding only a limited amount of the genuine Kombe seed, adopted the practice of sending three varieties of seed from different districts in the same country, and from three different species, but all of these seeds are very similar in size and colour, and not distinguishable by ordinary observers. One of these species, *S. emini*, has soft, velvety leaves, and flowers very like those of *S. kombe*, but the pod is quite distinct, having a dense, woolly coat. Another, *S. courmontii*, has flowers which do not possess the curious long-tailed petals which form so striking a feature in the other two, and, moreover, has smooth leaves, whilst those of *S. kombe* have stiff hairs. The mixture was detected by the fact that whilst the seeds of *S. kombe* give a green colour, those of the other two species give a pink or reddish colour, with strong sulphuric acid. At first the seed was exported in pods, but subsequently the loose seed was shipped, the seeds being freed from pods and awns by native girls employed for the purpose, and the different seeds once mixed cannot

possibly be separated. The exporters attempted to secure a monopoly by keeping botanists in this country in ignorance of the exact plant which yields the drug, with the natural result that the high price of the drug led to competition, and seeds of other species were imported from West Africa at a cheaper rate. But different species of strophanthus, like different species of aconite, vary much in potency, and when it was found that in some cases teaspoonful doses of the tincture produced no poisonous effect, whilst in others a few drops produced the desired effect, medical men lost confidence in the drug, and the demand has very considerably fallen off. Attempts are now being made to obtain a uniform product in commerce, and the East African exporters have promised a definite brand in future of one kind of seed alone, which it may be hoped will reinstate this valuable drug in favour.

The present state of the market is, therefore, due in this case partly to the attempt to lower the price by importation of a cheaper article, and partly to the ignorance of the producer.

ACONITE ROOT.—Until some years ago German aconite root formed the staple article in commerce. Then Japanese aconite appeared in the market in the form of a carefully-prepared drug of good quality, but as it appeared to the taste more powerful than the German, many wholesale firms hesitated to use it for tincture, although the price was lower than the German. The lowering in price of the German root led to very careless collection and preparation of the drug, and to the adoption in the British Pharmacopœia of the root cultivated in England and collected when at its best. But a drug so cultivated and carefully dried had to meet with the competition of the German and Japanese drugs, and the low price of these was utilised to lessen the price of the English article. As the grower must of necessity know what stock to grow, which he must judge from the sales he can effect, the result of beating down the price is a less acreage under cultivation and an increase in the price of the drug in consequence. Thus, three years' sales of the English drug at 6d., 1s., and 1s. 6d. per lb. respectively indicate that the average (1s. per lb.) is the price which it would pay the grower to produce it. It must be remembered that, apart from the rent of land and the expense of drying, 4-lb. of root yield only 1 lb. of dried root, and that, much of the root being small, it takes 4 lb. or 5 lb. of fresh root to yield 1 lb. of root of uniform size and mature growth.

PAIREIRA BRAVA.—In this drug the conditions of its scarcity are much the same, but differ in some respects. The stems and roots of plants of this family resemble each other so closely as to deceive the uneducated eye, and consequently spurious drugs often find their way into the market. Wholesale druggists who have already a stock of the root hesitate to buy the genuine when it does appear, unless they can be certain of its genuineness, the drug being in small demand. Hence the genuine drug is often sold at a loss to the shipper, and consequently becomes scarce and dear subsequently. In times of scarcity anything that resembles it is offered, and generally purchased by those on the look out for "cheap" lots. In this way a Menispermaceous root from Bahia that was placed in packages of feathers was offered and sold, and a native medicinal root from Africa belonging to the Menispermaceæ was also sold as *Paireira brava*. In such cases, therefore, it is no wonder that a drug loses its reputation.

SCAMMONY.—The cause of the inferior quality of scammony is in reality the demand in certain markets for an inferior article. Thus, Skilip scammony, containing only about 40 per cent. of resin, and worth barely half the price of the pure drug, is largely in demand for the South American market, where buyers will not pay the price of the pure drug. This has led to the introduction of the root and the resin prepared from it by using alcohol as a solvent, although here again the competition in prices has led to the production of two forms of the drug, one containing the resin only, the other some watery extract in addition, due to percolating with water after exhausting with spirit.

* Read at an Evening Meeting of the Pharmaceutical Society, March 14, 1900. (See p. 283.)

SAFFRON.—The demand for a cheap saffron for colouring purposes, as in Cornwall, where buns and cakes are almost universally coloured with it, has led to the regular supply of inferior (Alicante) saffron, at least 1s. per oz. cheaper than the Valencia or best quality. It cannot be too widely recognised by pharmacists that cheapness in drugs means, as a rule, inferiority in quality. It naturally follows that those who sell cheaply must buy cheaply, and the public must suffer. Only dealers in large quantities can buy cheaply, and unless they have a rapid sale the expenses of warehousing and the deterioration of many vegetable drugs by keeping necessitates an increase in price. The publication of market prices in the journals of pharmacy, and the difference between these and the prices of drugs in the wholesale drug lists, leads to an attempt on the part of retailers and hospitals, etc., to obtain drugs at the lowest possible price, often leaving a bare working margin for expenses to the wholesale dealers. Thus, many crude drugs, such as senna, myrrh, etc., have to be sifted free from dirt, screened into various sizes, and picked by hand. Sarsaparilla has to be split by hand and cut by machinery. The loss in weight by these processes, and the expenses of preparation, as well as the loss of interest on money lying idle in stock, all add to the cost of the drug. In the case of powder there is always a considerable loss of weight in drying before a drug can be powdered, the average amount of moisture lost on drying being 10 to 12 per cent. Besides this, there is always a remainder or "gruffs" that has to be allowed for when a quantity of a drug is ground, which it does not pay to regrind and sift.

The wholesale dealer in drugs has to supply the varying demands of different countries, and must either lose business or keep in stock and sell drugs of quality often very much below the B.P. standard. But he is always willing to procure drugs of the best quality for those who will pay the price for them.

Unfortunately, the retail chemist has often only the knowledge derived from text-books, and very little practical knowledge of commerce. Few, probably, could pass a successful examination if asked questions as to the different grades of drugs in wholesale price lists and their relative values for purposes of pharmacy.

Thus, a man may purchase a very nice-looking sample of gum arabic at a cheap rate and think he has got a bargain, but finds on dissolving it that it either has very little adhesive property or that it gives a glairy mucilage, or that it has a considerable proportion insoluble; or he may buy cheap myrrh, and find that it yields only a small quantity of good gum fit for mist. ferri co., and that it requires careful picking to separate the pieces of different flavour (Bissabol, etc.), that would spoil the flavour of the tincture; or he may buy cheap saffron, and find it loaded with sulphate of baryta or soluble salts of the alkalies, or containing *Calendula* coloured with aniline dye. Or he may buy a cheap aloes, and find that he has bought Natal instead of hepatic, or Socotrine aloes; or Barbados, which seemed cheap, but yields only an amount of watery extract proportional to its cost. The only possible way of buying cheaply is buying in large quantity when there are "drugs in the market"—i.e., when the supply exceeds the demand; but even then if a price less than the cost of production is paid he will probably have to make up that price in the long run when the drug gets scarce again. It will be found, if inquiry is carefully made, that the most successful drug businesses are those in which the greatest care is taken to secure the purest and best drugs. A medical man soon finds out whether good ipecacuanha has been used in a case of croup, and the public are not slow to discriminate between medicine conscientiously prepared and that which is not.

HOW TO GARGLE.—In gargling, the nose should be held, and the head thrown well back. In this way the gargle will effectively reach every surface of the pharynx. As usually done, the upper anterior surface of the uvula and of the soft palate are reached.—*Pract.* 54 117, after *Charlotte Med. Journ.*

SOME WEST AFRICAN DRUGS.*

BY J. SLINGER WARD.

Much notice is now being taken of the products of our West African colonies, and efforts are being made to extend our knowledge of their resources. The drugs shown form an interesting selection of some which are used by the natives on the Gold Coast. They were sent by an inhabitant of Sierra Leone, Mr. Onacoe Amnah, to Mr. Samuel Potter, of 7, Fowke's Buildings, Great Tower Street, who handed them to me, together with a manuscript description of their uses. In describing them I will first give the native name, followed by extracts from the manuscript, which you will find in instances is very quaint. Many terms used by the writer are more vivid than polite.

This being the last evening meeting of the session, and having only a limited time for preparing this paper, some of the specimens are unidentified, but I hope that on a future occasion I may be able to communicate further investigations on the, at present, unknown drugs. The pepper of Western Africa used in the various formulæ is probably the fruit of *Piper clusii*, which grows abundantly in the mountainous districts of Sierra Leone. It has a camphoraceous taste, moderately acrid, and in a fresh state diffuses a rich aromatic odour. The natives employ it in the place of black pepper.

Akotompoteng.

"This root is very useful in many diseases; it has a nice smell after it is preserved for a month or so. For cure of pain in the waist: Take or remove the skin of the root and grind same with a little pepper, guinea pepper, or guinea grains, and water; to be injected every three days. For bellyache: As above. For Dysentery: Boil the roots with pepper and drink a tumblerful three times a day till relieved. For free bowels: Make an infusion of this with either rum, whiskey, schnapps, or gin, or any other spirit-liquor, and drink a few minutes before chop (food). For excess menses: Grind the peel of the root with guinea grains quite smooth, make it into a ball, dry it well, and put some into cornflour or any light chop, and eat it."

This root is probably from a species of *Xylopia*; it certainly is derived from a plant belonging to the N.O. Anonaceæ. Mr. Cole informed Professor Scott Elliot that it is an astringent and styptic of great power, and certain in activity. It will check bleeding when other remedies fail; it is a native specific for piles, and is useful in menorrhagia, epistaxis, hæmaturia, hæmatemesis, and hæmoptysis.

Toantin.

"This root, as well as the leaves, are very useful, especially in disorder of the bowels and in diarrhœa; also for women as well as for men, in strengthening the system. As a tonic: Chew the root (the peel or bark), alone or with guinea grains, as much as you like or can, and swallow the juice. For coughing: Chew the inner bark in the same manner. For bitters: Macerate the root with guinea grains in rum, whiskey, or schnapps for a week, and you make a nice bitters suitable for every liquor, which at the same time makes a tonic. Waist pain: Peel the root, grind it well with pepper, mix with so much water, and inject, say, every morning for a week or so, according to constitution. For chronic sores: Scrape the root and grind it very well to powder with guinea pepper (not with water) very dry, and put it on the face of the sore after it is well cleaned, and it will cure it in a few days."

This is probably the "Tumardiahbah," which it much resembles. presented to the Museum by Messrs. T. Christy and Co., but which has not been identified.

Ekum-Nkura.

"The meaning of the name of this bark is 'killing mice.' Poison, especially for mice, when well ground and mixed with chop (food) for them. For swollen part of the body: Grind this well

* Read at an Evening Meeting of the Pharmaceutical Society, March 14, 1900 (See p. 286.)

with water and rub over any swollen part; it will cure it. As smelling salts or sneezing powder, etc.: Grind this very well and smoothly, dry it well, and make it into a very dry powder; put it into a dry phial well corked, and in case of one fainted put a little into the nostril of the patient to induce sneezing; especially boys; after sneezing, he will be in his senses. As far as this bark is known, it does not kill a human being, but it makes them very dull; however, it is not advisable to use it internally."

This bark has not been identified, but a leaf sent with it is probably from a *Bauhinia*, N.O. Leguminosæ. It is very peculiar and interesting. It sinks in water; this is caused by masses of a hard horny deposit in the corky layer. On incineration, this deposit leaves an ash consisting chiefly of lime. Exhausted with 90 per cent. alcohol, the tincture is red in colour with a purple tint; evaporated, the residue is nearly entirely soluble in water. Sulphuric acid added to the aqueous solution throws out a reddish precipitate which is darkened in colour, but not dissolved by ammonia. This alcoholic exhaustion shows no indication of alkaloid or glucoside. Extracted with benzolated amylic alcohol, the solution, shaken with acidulated water, gives a trace of alkaloid. On aqueous extraction, water removes colouring matter; sulphuric acid acts with it in the same manner as with the alcoholic exhaustion. This shows no reaction for alkaloid, neither does acidulated water nor chloroform. Cells containing colouring matter run in distinct rows in the bark; between the colour cells fibrous tissue occurs; prismatic crystals in great abundance are interspersed through the whole structure, especially in rows alongside the lines of colour cells; the intervals between the colour rings are occupied by bast fibre and tissue. The masses of horny tissue of the corky layer are composed of stone cells. The seeds of *Chailletia toxicaria* are used as a rat poison in Sierra Leone, and are said to produce the same effect as strychnine. This plant is probably the bark in question.

Nkokobesah, or Inconchery.

"This root is very nice in smell, and is sometimes used in making soups to diminish smell of fish or meats, such as herring or turtle, meats, etc., and otherwise used as medicine in many diseases. As an ingredient it is ground and put into soups, such as sea turtle soup, to lessen its smell, and into fowl soup to increase its relish and render it more palatable; hence the first name, which means 'fowls will finish.' Tonic: Clean the root and chew it, swallow the juice; or grind the bark of the root very smooth, mix it with palm-wine and guinea grains well ground, strain it and drink. For cure of waist pain: Remove the bark from the root, grind same with pepper, guinea grains or guinea pepper, mix it with a pint or so of fresh water, strain it well, and inject. Cure for weak men: It restores the weak system; if by one reason or the other one is weak, prescribe any of the foregoing, and the result will be found almost in every case successful. Bitters: Wash the root in water, cut it up, put it into a bottle with rum, gin, schnapps, whiskey, or any drinking spirit, and three days after commence to drink it, either alone or with any other spirit liquor."

This drug has not been identified.

Adesekanchie.

"This root and the bark have the same properties. They are very serviceable in many diseases. They are especially good for women during pregnancy. For bellyache, waist pain, gout, etc.: Grind the bark of the tree or that of the root with pepper, mix with fresh water, and inject every morning until relieved. Free bowels, etc.: The stick or the bark of the root is macerated in rum, gin, or whiskey for one day; the resulting tincture is taken alone or in other alcoholic drinks. The tumbler or any glass vessel used with this medicine is to be quickly cleaned after its services are dispensed with, or it will stain it. For external pain: Grind the bark with guinea grains and lime, and apply to the affected part, and after half-an-hour it will be relieved. If burning during the application, it is advisable to remove the medicine; but do not cool the place by washing, or it will burn intensely."

Sarcocephalus esculentus, N.O. Cinchonaceæ, is the plant yielding this drug, and has been exported from West Africa as "peach root." It is understood to be the base of an African peach bitter sold in London. It is the Doundaké noted in the *Pharm. Journ.* [3], 15, 614, and 16, 49, and there described as an astringent and febrifuge capable of replacing Cinchona bark. The authors of that paper find that chloroform removes from the bark several bodies, one containing nitrogen, of a resinoid nature and soluble in alcohol, the others being a mixture of wax and fatty bodies extracted with alcohol. The tincture was of an intense yellow colour, with a very pronounced green fluorescence. From this they were able to separate three bodies—one of a yellow red colour, very bitter, soluble in hot water and alcohol; another, yellow, insoluble in boiling water but soluble in alcohol; the third, brown, insipid, insoluble in boiling alcohol or water, but soluble in caustic potash. Both the first and second can be used to dye silk or linen, and give, with indigo blue, fine shades of green. The *Sarcocephalus* is distributed widely in Africa, from Senegal to the Gaboon. In Sierra Leone the natives call the fruit the peach or fig of the country. The fruit eaten in excess acts as an emetic. The plant prefers the neighbourhood of the sea coast, but it is also met with in the interior. The Doundaké bark on the coast of Africa is liable to be mixed with that of some species of *Morinda*, which it resembles, and are used for the same purposes.

Yarney Crop.

"This crop is used for many things, and is almost good in all diseases, except dysentery or diarrhoea. Powder: Grind it smoothly, allow it to dry in its juice; after that, grind it again. For fainted persons: Put a little of this powder into the patient's nostril, and if he or she sneezes there is hope for life or recovery, and will be able to answer any question put. Purgative: Mix a little of this powder with an ounce or two of castor oil, with the juice of one lime, stir well before drinking, and it will purge almost instantly. If it is wanted to be used alone as a purgative, take a small part, and after well grinding mix with some water, strain and drink so many ounces according to constitution."

This is from a species of *Gladiolus*, probably the *spicatus*.

Atsunobie Bark.

"The use of this bark appears to be to check uterine hemorrhage. It is described as being very powerful, and a decoction with palm nuts is advised to reduce the astringency."

This bark contains a peculiar form of tannin. It has not been identified.

Peyarebiasah.

"This bark is very useful in many diseases, and almost everyone describes it differently in any disease. For consumption or cough: Boil the bark with or without pepper, guinea grains, or guinea pepper, and drink (when cool), say, three times a day a tumblerful till relieved. It makes or induces coughing easy—that is, the phlegm or the mucus could easily be spat out."

This bark has not yet been identified.

Bongbo.

This is a pod of the *Cassia sieberiana*. The tree producing it grows to a height of 30ft. Gum from the bark and pounded fruits applied to open sores, which are said to cure in a remarkable manner.

OTTO OF ORRIS.*

BY J. C. STEAD.

This otto, a golden yellow oily fluid, is in appearance somewhat similar to sweet almond oil, but of a much less viscosity. It has an extremely persistent sweet fatty smell, and on dilution fully develops the characteristic odour of orris root to several times the extent which a similar quantity of the ordinary concrete oil would produce. To the tongue it is at first bland, but this is followed by a lasting somewhat biting and bitter after effect.

*Read at an evening meeting of the Pharmaceutical Society, March 14, 1900. See p. 286.)

It is miscible in all proportions with ether, 90 per cent. alcohol, chloroform, petroleum-ether, and benzene. It dissolves in about 8 volumes of 70 per cent. alcohol, and to a very small extent in water. Applied to moistened litmus paper, the alcoholic solution produces a distinctly acid reaction. Added to caustic potash solution a milky mixture is produced, from which on standing a curd separates and the odour of the otto appears to be a little intensified.

Treatment with a hot 30 per cent. solution of sodium acid sulphite does not cause any perceptible diminution, and the odour of the otto is not apparently affected. When one drop on white demy paper is placed in a water oven, the greasy stain soon disappears, leaving but a slight discoloration. Subjected to distillation at atmospheric pressure it is decomposed; the first portion of the distillate retains a little of the original odour of the otto, and is dextrogyrate.

An examination of the otto has furnished the following figures:—

Specific Gravity	15° 5 C.	0.9489
	15° 5 C.	
Optical rotation, 100 M.m.		—20°25
Treated with alcoholic semi-normal caustic alkali.	100 = 6.4 KHO	
Acetylated otto	100 = 17.76 KHO	
Congealing temperature		—5°
Viscosity compared with that of almond oil		34.6 : 100 at 20°

These figures are fairly constant for the different batches that have been prepared, and the otto is of a satisfactory standard value which is not reduced by age.

The otto has been in use for some time past, and has given very good results. When one considers that the concrete oil is largely composed of non-odorous matter, that the odour value of different samples varies, and how rapidly it deteriorates under the ordinary conditions of storage, it can be reasonably claimed that this new preparation of orris root, which is equivalent to the ordinary concrete oil minus its solid fatty non-odorous constituents, is a distinct advance on the older products.

STANDARDS FOR DRUGS FROM A WHOLESALER'S POINT OF VIEW.

BY H. WIPPELL GADD.

The same scene wears a different aspect, according to the position from whence it is viewed, and the same subject must always be differently viewed in accordance with the varying positions of those to whom it appeals. It is therefore in no spirit of opposition to the excellent work which is being done by Mr. C. G. Moor and his coadjutors that I venture to write a few lines on the above subject from a somewhat different point to theirs. I hold no brief for the wholesalers, and possibly some of them may repudiate my views, but opposition is better than apathy, and the subject seems to demand discussion. As to the advisability of standards being fixed, there can hardly be two opinions. The analysts need them, the wholesalers would welcome them, and the retailers would be wise to insist on their being established.

For the safety of the public, for the convenience of the medical profession, and in the interests of all honest traders, it is imperative that standards should be defined. But if they are to be generally applicable they must be settled by a general consensus of opinion. Analysts, in spite of, or perhaps because of their training, are too often zealous without being discreet. They seem to lack a sense of proportion, and forget that absolute purity is seldom compatible with commercial conditions. If left to them only, the standards would probably be fixed too high. The wholesale druggist, on the other hand, with his experience of the wide variation in natural products, may possibly be tempted to make the standards too broad, whilst the retailer is apt to draw general conclusions from limited data and isolated cases.

But if it be granted that standards should be fixed, a fresh difficulty arises in the question as to how they are to be maintained.

The tendency of the age is towards factory-made goods, and the responsibility of maintaining the standards is therefore likely to be thrown back on those pariahs of pharmacy, the wholesale houses. Already, not content with the definite statements on labels, lists and invoices, retailers are advised that they should demand special guarantees from the manufacturers. But no section of the trade can repudiate its own peculiar responsibilities. If retailers cease to make, they are still responsible for what they sell, and must, after satisfying themselves that the goods are right when taken into stock, see that they do not deteriorate whilst in stock. I am confident that all wholesale houses are prepared to stand by their labels, and, if necessary, to specially guarantee that any particular article is up to standard when sent out; but no firm could be responsible for goods which have been perhaps for months beyond its control, and it is for the retail pharmacist to prove that he and his servants have kept the stock in a proper manner after it was received.

The recent statement made in the Pharmaceutical Society's own house—that not 1 per cent. of pharmacists ever tested their chemicals—will, I trust, speedily be contradicted, for nothing could be more fatal to the best interests of the trade than for such a statement to be generally accepted as a fair description of the condition of pharmacy. If it were so, who could blame the Lord Chancellor and other distinguished laymen for thinking that any number of pharmacies may be efficiently controlled by unqualified directors, if only a tame pharmacist is carefully preserved at headquarters. Personally, however, I am hopeful that all the various classes interested in the fixing of standards will contribute to the elucidation of the subject, and that the very desirable end of greater uniformity of products will ultimately be attained.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Council and the Companies Bill.

And so the Council has actually made up its mind at last, though hardly even with what it is the fashion nowadays to term practical unanimity, meaning thereby that those who do not vote with the majority do not necessarily disapprove of the position taken up by that majority. There were nineteen members of the Council present at the meeting held on Wednesday last, and, according to the official report, only fourteen of those voted in favour of opposing Clause 2 of the Companies Bill absolutely. But, stranger still, only one member appears to have voted against the motion. Apparently, two who supported the amendment so ably moved by Mr. Walter Hills subsequently found grace and voted for the original proposition, whilst three members could not make up their minds on the second occasion, and decided to trust to Fate or Providence. One who was present displayed a sublime impartiality by not voting at all; whatever happens, therefore, he will be in the proud position of being able to say that he did nothing to prevent it happening. Probably, however, he is far from desirous of finding himself blushing at some future time if ever he should find himself famous on that account. But, to return to my subject, the decision arrived at strikes me as being just a little feeble. Here is a body which has for some years past been expressing its anxiety to have the chief problem which puzzled it solved in a Companies Bill, and lo, when an opportunity presents itself, the issue has to be shirked—positively shirked—because no constructive policy can be agreed upon. Five months' division of opinion has ended in a resolution to end rather than mend the Lord Chancellor's clause; and now we are left to depend upon the somewhat weak reed of trusting that the Government will be so impressed by the opposition offered as to decide to drop the unfortunate clause which has been the cause of so much mental perturbation during the past twelve months.

The Next Step to be Taken.

I am quite aware, of course, that this is probably what will happen; but I am, nevertheless, concerned about the future. If we secure the rejection of the Lord Chancellor's proposals we shall certainly have accomplished something, but that something will not have the effect of altering the existing condition of things in the least degree. The great anomaly of companies being able to do what individuals cannot do will still prevail, and it must be a matter for serious consideration what the next step is to be, and how soon it may be taken. The company pharmacy problem cannot be permitted to remain unsolved for ever, and the fact that a satisfactory solution is difficult to find must not be allowed to prejudice our position indefinitely. The most logical thing, I opine, would be to proceed forthwith to appoint a committee to draft a Pharmacy Acts Amendment Bill, and, though it would be impossible to get such a measure introduced during the present session of Parliament, I see no sufficient reason why that should be allowed to interfere with necessary reforms being initiated, at least. As a matter of fact, we need not now expect to accomplish much, if anything, whilst the present Parliament exists. It cannot last much longer than twelve months, if so much as that; and during the remainder of its brief existence the reform of pharmacy law is not likely to receive an inordinate share of its attention. But with a new Parliament may come a change of Government, and whilst everything is fresh it would be a good thing to impress upon Ministers the desirability of doing something in the direction of disentangling matters. It would be absurd, however, to wait until the critical time is close upon us, and I sincerely hope that a new policy of procrastination will not succeed that of waiting upon opportunity and failing to take advantage of the opportunity when it arrives.

The Approaching Council Election.

It has been stated more than once, and frequently by individuals who did not seem to know what they were talking or writing about, that we need live men on the Council of the Pharmaceutical Society. The statement is undoubtedly true so far as it goes, but it only expresses part of the truth; and I should suggest as a modification that what we require is representatives with a good business capacity, who can retain their business habits when they come to deal with the affairs of a corporate body. Why a level-headed man of proved business capacity should fail when he attempts to cope with the larger affairs of life need not be considered here. It is sufficient to recognise the fact, and, having recognised it, to take such steps, when the proper time comes, as will tend to replace those who have failed to do what was required of them by others who may reasonably be expected to grasp the situation better. Membership of the Council of the Pharmaceutical Society is a thankless office at best, and probably but few of the members who stand for re-election at any given time would worry much if they failed to secure a renewed lease of the supposed privilege of being permitted to attempt to make bricks with little or no straw. There need, therefore, be no compunction about the matter on the part of those members of the Society who may hold the opinion that certain persons might make better representatives than certain other persons. And, after all, no great revolution is to be feared, for the chief difficulty must always be the securing of enough candidates for the position, and not the recording of a sufficient number of votes to insure the return of a given candidate. There is always sufficient voting power lying latent to place a really capable man among the successful seven, if only those who desire to see him returned will exert themselves to the extent of seeing that the votes which might otherwise be wasted are duly recorded.

The Duty of Members of the Society.

I am not, of course, at present aware how the nominations are proceeding; but I would point out that, whilst any member of the Society can nominate one or more other members as candidates for seats on the Council, the necessary letter must be sent to the Secre-

tary of the Society at once, if it has not already been sent, in accordance with the very explicit instructions given in the *P. J.* a fortnight ago (see *ante*, p. 238). At the April meeting of the Council the names of the candidates will be duly notified, and the voting papers will shortly afterwards be sent out. It should hardly be necessary to state that it will then obviously be the duty of every member of the Society to vote for the seven candidates whom he thinks best qualified to represent him in carrying on the administrative work for which he, in common with every other member, is responsible. But neither is there any ground for supposing that the experience of May next will differ greatly from that of former years, and the surprise be in store for us of finding that nearly all those who possess voting power have exercised their privilege. Much, however, may be done to help to secure the realisation of that ideal if everyone who makes up his mind to vote also does what he can to persuade others to follow his example. Personally, I would rather see that a thousand more votes than usual had been recorded than that my own favoured candidates had secured election, since the result would then reflect the actual views of the Society, regarded as a whole, better than has ever been the case during recent years. And, though I am not sufficiently sanguine to imagine that any change of so distinctly revolutionary a character is likely to come about on the present occasion, I do hope that a strong effort will be made by my fellow members to show that they are not unmindful of one of their most important duties. Last year the number of voting papers issued exceeded five thousand four hundred, but of those more than seventeen hundred were not returned. Recognising the weakness of poor human nature, and the inherent tendency to laziness that afflicts most of us at times, I am willing to acknowledge that such a result is not surprising. At the same time, however, there is no reason why it should not be improved upon, and I trust a strenuous effort will be made this year to keep the wasted votes below a thousand in number. Of course, I am assuming that there will be a contested election, but even in that respect I may be disappointed. There is none too much enthusiasm in our ranks at present and, as I have already stated, membership of the Council is a thankless office at best.

POLITICAL GOSSIP.

THE POLITICAL SITUATION in regard to the Companies Bill was not materially changed since last week, though the Bill has approached a little nearer the top of the Government programme. Last Monday it was the eighth item on the Orders of the Day, and next Monday it may probably be fourth, as far as one may judge by the present rate of progress with public business. There are now, exclusive of Wednesdays, only some fourteen days of Parliamentary time available before the commencement of the Easter recess, and if, as Mr. Balfour has promised, four days notice of the second reading is to be given, it seems pretty safe to anticipate no debate this side of the holidays. But one never knows what may turn up; the four days notice may not be forthcoming, for, as La Rochefoucauld has it, "Nous promettons selon nos espérances, et nous tenons selon nos craintes," which, being interpreted, means that Mr. Balfour's fears for the progress of the measures to which the Ministry is pledged may render his hopeful promise untenable. Opposition on the commercial clauses of the Bill is foreshadowed by a question which Mr. Kimber (Wandsworth) asked on Monday last. One of the clauses inserted by the Select Committee of the House of Lords last year provides for a preferential right of payment to simple contract creditors in cases of liquidation, and Mr. Kimber sought to ascertain the Government attitude in respect to this proposal, which has so vital an effect on existing securities. Mr. Ritchie, in reply, first repudiated on behalf of the Ministry the paternity of the clause, just as he has done in the case of the Pharmacy clause, and then proceeded to say that he could make no statement as to the official attitude to be adopted in regard to any proposal in the Bill; he expressed

the hope, however, that the House would refer the whole Bill to a Grand Committee.

COMMITTEE PROCEDURE is apt to lead to confusion unless one bears in mind the provisions of the Standing Orders which regulate the House. There are Select Committees, which are specially appointed to discuss specific questions; Joint Committees, consisting of members of both Houses and having defined duties; Committee of the whole House, which requires no explanation; and Standing Committees, also called Grand Committees, which are set up at the commencement of the Session to deal with measures containing clauses affecting particular departments of national activity. Thus, there is a Committee on Law, and another on Trade. It is usual when referring a Bill to the Standing Committee to which it pertains to add to that Committee some dozen or fifteen representative members of the House who are interested in the measure, or who have manifested a desire to investigate the probable effects of some of its more important clauses. A case in point is the Food and Drugs Bill of last year, which went to the Committee on Trade and received the active attentions of Mr. Strachey and Sir Charles Cameron, who, if we remember rightly, were temporarily added to the Committee. The proceedings of these Committees terminate before each sitting of the House, and cannot be prolonged without permission of the House, which, it may be added, is frequently given when time presses. It must not, however, be supposed that Grand Committee takes the place of the Committee of the whole House, through which the Bill has to pass prior to its third reading—it is supplementary to the popularly-called "Committee stage," and serves as an additional refining process for highly controversial measures. With these rough facts in view, one may evolve an opinion as to the length of time during which it will be possible, if the Watch Committee deem fitting, to worry the Government in respect to Clause 2.

THE QUESTION of Municipal Trading is to receive investigation at the hands of a Joint Committee of both Houses of Parliament which will be very shortly constituted in pursuance of a promise given late last Session and repeated early in the present Session. It is understood that the terms of reference to the Committee will be confined to considering and reporting as to the principles which should govern the powers given by Bills and Provisional Orders to local authorities for industrial enterprise either inside or without their sphere of jurisdiction. The motion for effecting the appointment of this Committee is down on the paper as we go to press, and stands in the name of the Government Whip—Sir W. Walrond, Bart. (Tiverton).

GREAT OPPOSITION is promised to the Chancellor of the Exchequer's proposal to extend the duty on brokers' contracts hitherto confined to share operations, to contracts on the sale of all goods. Mincing Lane is in revolt, and several London M.P.'s, headed by Sir A. Rollit, have memorialised the Chancellor on the subject. Sir W. Houldsworth (N.W. Manchester) on Friday, 9th, asked the representative of the Treasury whether the word "broker" in the Budget resolution contemplated the inclusion of all sales or purchases by agents acting on commission for a principal, and if not, what limitation was to be understood. Mr. Hanbury, in reply, defined "broker" to refer only to persons carrying on the business of a broker, and it would not therefore have so wide an application as was suggested. He did not, however, attempt to specify what constitutes "carrying on the business of a broker," and his answers will scarcely satisfy the trading community. Mr. Harwood, of Bolton, asked a question with reference to memoranda of sales or purchases forwarded to principals by agents, but he was asked to wait until the Finance Bill was circulated. It is hinted that a fitting compromise will be arrived at by Sir Michael Hicks-Beach after his consultation with representatives of the various chambers of commerce.

PHARMACEUTICAL SOCIETY.

Evening Meeting.

The fourth evening meeting of the Society took place at 17, Bloomsbury Square, London, W.C., on Tuesday, March 13.

The PRESIDENT, Mr. Martindale, occupied the chair. The first communication was a paper on

THE COMMERCE OF DRUGS,

by Mr. E. M. HOLMES, and is printed at page 278.

Mr. HOLMES added that since the paper was written some "Uganda aloes" had come under his notice. Upon first hearing of that drug he thought it was strange that aloes should come from Uganda, and he had since ascertained that the drug in question had come from Mossel Bay, at the Cape of Good Hope. It was prepared from *Aloe ferox*, by Mr. S. A. Deacon, of Herbertsdale. The drug was entirely sun-dried.

The PRESIDENT said that vagaries of commerce sometimes produced such a scarcity of supply of the true drugs that pharmacists had to scour the country to get small quantities of them. Commerce had even failed at times to produce such a common thing as gum arabic.

Mr. J. S. WARD said the Pharmacopœia required that the amount of resin in scammony should be 70 per cent. and the amount of ash 3 per cent. True natural scammony with only 3 per cent. of ash was never found without vastly more than 70 per cent. of resin. The amount was generally 80 to 85 per cent.

Professor GREENISH said that what Mr. Holmes had told them that evening appeared to afford some support to his contention regarding the importance of as absolute and minute a study as was possible of the genuine drugs, and not so much a comparison of them with the substitutes for them. It seemed to him that by the actual study of the drug—chemically, microscopically, and physiologically, as well as macroscopically—they would be able to identify the genuine drug, even though it might be a matter of some patience and difficulty. If they were not able to do that, they did not know the genuine drug with sufficient accuracy. If they had no means by which they could distinguish one drug from another, he could not see what was the object of separating them. With regard to the weight they should place on the study of commercial varieties of drugs, it seemed to him that if a student had received a careful grounding in the scientific part of the subject he would be able to apply the knowledge which he got in that way to the discrimination of those drugs which were presented to him in the course of his ordinary business dealings. Mr. Holmes had mentioned the case of acacia. Anyone carefully instructed would be able to compare the acacias with the Pharmacopœia description, and he would detect without much difficulty those drugs which were not fit for pharmaceutical use. Amongst the subjects which Mr. Holmes had chosen there were other drugs which were specially interesting, saffron being an instance. Recently a former student of the school sent some saffron, which had been sold as ordinary saffron, and was found upon examination to be half calendula, dyed possibly with aniline dye. It was common in Germany, and could be mixed with genuine saffron just as one pleased. Aconite was also a subject which seemed to have a good deal of interest, for he believed they were apt to ascribe to their colleagues on the Continent less discrimination than they possessed. He had formerly always thought that the aconite was collected very carelessly in the summer when it ought to have been collected in the autumn, but he now believed that the Germans were of opinion that the summer root of the aconite plant was the best and the strongest. If one examined the ordinary German aconite he would find that it had evidently been collected in the summer. He was by no means convinced that English aconite was so much superior to the German, and he did not think that its superiority had ever been

proved. He did not know how it could be proved except by a physiological test. Japanese aconite was interesting. Some little time ago he saw a notice to the effect that there were two kinds of Japanese aconite root sold in the market. He went into the subject at the time, and the difficulty was solved in a very simple way. He found in one parcel of the roots two kinds joined together, and the difference was simply that the one root was a parent root and the other the daughter root. He believed they were generally separated, but if a parcel were searched through they would be sure to be found combined. No one knew how difficult it was to get reliable information concerning the commerce of drugs. It could not be obtained by reading books. One must go into the market and see for himself.

Mr. UMNEY said the commerce of drugs must always be an interesting matter to everyone who handled drugs, and to a wholesale druggist it was a matter of vital necessity to understand the commerce of drugs and the great laws upon which markets depended. He referred more especially to the law of supply and demand. Mr. Holmes had done good service in calling attention to these matters. He should like to state publicly that there was no man to whom wholesale druggists and drugbrokers on the east side of Temple Bar—and, indeed, all persons who handled drugs in the City—were more indebted than to Mr. Holmes. With regard to such a simple drug as aconite, he had found that he had bought it at 4d. a lb. and sold it at 3s. a lb., and he had bought the same drug back at 16s. a lb. Could a better instance be found of the fluctuation of drugs? That had all happened within the last four or five years. Kino came into the London market till London was simply glutted with it, and no purchasers could be found except those who bought it up quietly and stealthily to retain it till it would pay them handsomely. At last it became a monopoly. It went up to 16s. a lb., and it had gradually gone down again to 1s. 6d. Cubebs, which were now worth 20s. a cwt. in the London market, had formerly been sold at £25 a cwt. The conditions of growth had altered. The Dutch now grew cubebs very largely in Java, and the conditions of the production of this and other drugs differed enormously from the conditions which prevailed in days gone by. No better instance of that fact could be given than cinchona bark. Ninety per cent. of the whole cinchona bark of the world was now grown at Java. England was no longer the drug market of the world. For instance, cinchona bark for making quinine could now be bought at Amsterdam. With regard to jaborandi, ninety per cent. of the import went to Liverpool, and varieties of the drug were only seen occasionally in London. While pharmacists were desirous of upholding the Pharmacopœia preparations of *Pilocarpus jaborandi* for galenicals and fluid extracts, he saw no reason why other kinds of jaborandi should not come in and be used. They did not confine themselves to one variety of cinchona bark for making quinine, but they took whichever happened to be the cheapest. With reference to strophanthus, Mr. Holmes was quite right. He (Mr. Umney) had again and again seen different varieties, but he had always been most particular to look for *Strophanthus kombe*, and he did not think that he had ever had any other variety in his warehouse, but the brokers who sold drugs by auction were not particular about what they sold. Mr. Holmes had not mentioned Indian aconite. That came in occasionally in considerable quantity, and the market was now almost constantly supplied with Japanese aconite. English aconite was put into the Pharmacopœia because the subject of the aconites was thought to be in a chaotic condition, and it was considered that the best way out of the difficulty would be to prescribe English aconite root, so that the tincture might be made from a root which had been grown under their very noses. Mr. Holmes spoke of the root being sold at 6d. and at 1s. 6d. If the root could be bought to-morrow for 4d. he (Mr. Umney) would buy it at that price; but, on the other hand, if he had to pay 3s. for it he should do so. The same consideration applied to all drugs, almost without

exception. As to scammony, there was a little bit of ancient history attaching to it. In the 1867 Pharmacopœia the standard scammony was then 80 per cent., and there was an action in the Law Courts on the subject. The matter was taken up very strongly by Mr. William Squire, and it was proved that 80 per cent. natural scammony was only obtainable with very great difficulty, though it could be got occasionally. Then the standard was put down to 75 per cent., and in the last Pharmacopœia unfortunately it had been put down to 70 per cent. He had for years known that the British Pharmacopœia ash standard was too high, and certainly the resin stood too low. He believed that a 75 per cent. standard would be better. Resin of scammony had become responsible for the almost entire displacement of natural scammony. He should think that the proportion of natural scammony, as compared with the resin of scammony extracted from the root, was not a one-hundredth part of what was used formerly. The root had come very largely into London. Sometimes it could be bought for 17s. 6d. a cwt., and sometimes it fetched 40s. As to saffron, he had recently examined samples with 15 per cent. of ash, and he always regarded the ash more than the colour. He believed that the Pharmacopœia proportion of ash was not to exceed 6 per cent. He had recently examined some with 10 per cent. It was a common practice in some parts—not in Valencia—to load saffron with sulphate of baryta. Hanbury showed that fact twenty-five years ago. The sulphate of baryta was made adherent to the saffron by means of glycerin. When an infusion was made and allowed to stand the subsidence of the mineral matter was seen. With regard to grinding, they did not always take a uniform loss of 10 per cent., as Mr. Holmes had said. Opium lost 20 per cent. and some drugs lost 5 per cent., but perhaps the average was 10 per cent.

Mr. HEAP expressed the interest with which he had listened to the paper. He was inclined to agree with Mr. Holmes rather than with Professor Greenish on the necessity of studying drugs from a commercial point of view. Mr. Umney had emphasised the importance of that point not only to the wholesale druggist but to the pharmacist as well. The instance with regard to acacia which Mr. Greenish had mentioned illustrated the point. There was a distinction between the scientific knowledge and the scientific nomenclature of gum arabic and the commercial, and he did not think that anyone could reconcile the two. As to scammony, he thought that Mr. Umney would agree that there would not be much difficulty in obtaining a sample which would give the high proportion of 80 per cent. of resin. As to saffron, it was commonly known that the Alicante saffron was little more than an adulterated form of the saffron which was exported in a comparatively pure condition from Valencia.

Mr. GLYN-JONES joined in thanking Mr. Holmes. He wished to ask him whether there was any reason why the Government should not take to some extent the same action with regard to imported drugs that they took with regard to imported articles of food, and compel the importers to properly designate and describe the articles which they imported. It had been suggested to him that the reason was that there were not any producers of drugs in this country to be protected, as there were producers of agricultural products. But it seemed to him that the distributors of drugs had a right to be protected. He agreed with Mr. Umney that the importation of crude drugs which were beneath the standard might be allowed, but he thought that druggists had a right to insist that they should be properly designated or labelled, so that if there was a wrong description the blame might be allocated.

Mr. UMNEY, replying to the last speaker, said that he was one of the deputation which waited on Mr. Walter Long with reference to the question of separating drugs from the Sale of Food Act, and he strongly put before Mr. Long the question of having an inspector of drugs in London. He pointed out to Mr. Long that some of his confrères objected very strongly to an inspector of drugs, because it was supposed that he would destroy all the goods which were not up to a certain standard, and that then chemists and druggists

would be to a certain extent undone. There was no reason why cummin seed and anise seed which might have been damaged by water should not be used for producing essential oil, and there was no reason why cinchona bark which had been damaged should not be used for producing quinine, just as much as bark which was absolutely sound. When he was chairman of the chemical section of the London Chamber of Commerce some three years ago he went before the Committee which was dealing with the Sale of Food and Drugs Bill. The question involved had been urged upon the Legislature from different points of view. It was very much to be regretted, of course, that many points in the recent Act had been passed, and that there was not such a strong move as there might have been to give the Act its proper position.

Mr. MACEWAN said that one point in connection with supply and demand which Mr. Holmes had not touched upon was excellently illustrated at present by cascarilla, the quality of which drug had been deteriorating immensely during the last few years. There was considerable scarcity, and, as far as his information went, that condition was due to a great extent to the difficulty of getting at the trees. He believed that the plant had become extinct in one or two places where formerly the drug was collected. There was an allied instance in the case of ipecacuanha. Apparently the region from which the official ipecacuanha was derived was becoming to some extent depleted of the plant. It was supposed to have been very much depleted when the price was low, but the price had recently gone up to three times the normal value, and the consequence was that ipecacuanha was now pouring into London. It was said that labour had been taken from collecting rubber in order that it might be used for collecting ipecacuanha. Pareira root was rather interesting to him from the fact that when he was examined in the Minor and Major the spurious drug was the one which was recognised as official. He did not know why that should have been the case, but it was so when he left Edinburgh.

Mr. GLYN-JONES said that he judged from Mr. Umney's answer to him that he had not made his question quite clear. The question he asked was not whether there was any reason why the authorities should not have the same power with regard to drugs as with regard to tea, which was, under certain conditions, to destroy it. He quite saw that it would be unfair to destroy an article that was not up to the B.P. standard. But under the present law the authorities had power to fine the importer of an article of food, not for importing it, but for not properly designating it and describing it. He only asked why a similar power should not be enforced with regard to drugs? He did not suggest that drugs should be destroyed.

Mr. HILLS said that Mr. Holmes had not told them whether they could get the Pareira root which was described in the present British Pharmacopœia. He had something to do with the present British Pharmacopœia, because in his official capacity he was Chairman of the Pharmacopœia Committee, and he recollected that medical men were very anxious that the drug should be retained in the Pharmacopœia. He believed that the pharmacists were rather anxious to get rid of it. Medical men said that it was of considerable value, but when the experts set to work to determine what the drug was, there was very considerable difficulty, and the Committee did not quite know what drug it was that the medical men had found to be of so much advantage to their patients. Would Mr. Holmes in his reply be good enough to tell them whether there was any of the genuine drug easily obtainable, and whether he thought there was any difference in therapeutic value between the one and the other?

Mr. FORSTER said that he had heard Mr. Holmes with great pleasure. Unfortunately, they were not all leading pharmacists, and they wanted a few more of Mr. Holmes's lectures in order to improve their position in that respect. He had sometimes worried Mr. Holmes with questions with regard to strophanthus, and he

believed that he had regularly bored him on the subject. He thanked him very much for his paper, and hoped that he would give them more such productions.

The PRESIDENT said that Mr. Holmes had mentioned something about jaborandi. He (the President) found many years ago that he got the best from Pernambuco. Apparently the nearer to the Equator the drug was grown the richer it was in alkaloid. One sample which he got from Assumption, two thousand miles further south, was void of all alkaloid. He remembered an importer once showing him specimens of strophanthus, and telling him that several importations had arrived at once, and that they were all different, but he mixed them all together, as he wanted to sell the whole lot, and it was of no use to keep them separate. *Strophanthus kombe*, which was now official in the Pharmacopœia, had a dull bluish-green appearance, with silky hairs. With regard to aconite the Japanese was not true *A. napellus*. It had a strong tingling taste, even a more tingling taste than the *A. napellus*, or the German, or the English, or even than the *Aconitum ferox*. The action on the tongue was well marked, and undoubtedly the drug was very poisonous. It ought not to be used in place of the true aconite. The latter could now be got of English growth without much difficulty, but it was higher priced than the German. He was afraid that life was too short to allow them to go into the histology of the whole of the official drugs, as Professor Greenish would have them to do, but the study of a few should be taken up by students. They knew the expert knowledge which Mr. Holmes had acquired, principally by looking at things, although Mr. Holmes was a histologist to some extent as well. Mr. Umney had, of course, acquired a similar experience by his long attendance at the drug market. He believed that the rule of the London drug market sales was *Caveat emptor*. A drug was sold under the hammer for what it was. The buyer bought it with his eyes open, or if he did not like it he could leave it. He believed that the vagaries of commerce were such that the fluctuations of the market were greater in drugs than in any other class of goods which came into the market. He had in stock some quinine which had cost him 13s. 4d. an ounce. It was a special brand, and was sometimes wanted. The bark from which it was obtained varied almost as much in price as the salt obtained from it. When he was in Jamaica last year the planters told him that there were some millions of cinchona plants in the Blue Mountains, which were almost entire waste in consequence of the competition with the growth in Java and other parts of the East. Cane sugar also had been displaced by competition, and the only yield of any importance was that of bananas. The planters were now taking to growing bananas and sending them to the United States instead of growing sugar and cinchona bark. As to the contract system in hospitals, he thought that it would be very useful if dispensers would pay attention to getting samples of drugs and seeing that the bulk was equal to the sample.

Mr. HOLMES, in reply, said that he was very much obliged to Mr. Ward for pointing out a weakness in the Pharmacopœia with regard to scammony. He believed that scammony with 70 per cent. of resin would contain more ash than the Pharmacopœia stated. He held very strongly that they ought not to use crude drugs in medicine at all. A crude drug was always liable to vary in strength. As to Professor Greenish's remarks, they represented one point of view, and he (Mr. Holmes) perhaps represented the other. There was a good deal to be said for both. What Professor Greenish taught he taught as thoroughly as anybody could teach it. But, on the other hand, it was to be remembered that a man who went into business had to buy and to sell, and he had his living to get. If he wished to do business he must know the difference between senna at 7d. a lb. and senna at 2s. or 2s. 6d., and he did not think that histology would teach him that. There was a commercial side to the question as well as a scientific side. As to aconite, it might be true, as Professor Greenish said, that the German aconite gathered in summer was as rich in alkaloid as the

English root gathered in the autumn, but there were twenty varieties of aconite known. They were not all of equal strength. There was an alkaloid which gave the bitterness but did not give the tingling taste, which occurred in those species which were gathered when the flowers were on the plant. Those persons who cultivated aconite were very careful, if they grew different varieties, to keep them separate. He had listened with very great interest to Mr. Umney's remarks. Mr. Umney always told them something worth hearing. He had had a knowledge of the trade for more years than he (Mr. Holmes) could remember, and he was a most careful business man. It was quite true that kino had varied exceedingly. He had been told that the reason why it was such a high price was that it was now used for colouring wine. As to jaborandi, much of the drug came to Liverpool. Some varieties contained only half as much pilocarpine as the genuine jaborandi, but there was no reason why they should not be used for hair washes. For use in medicine, however, they ought to have something which they could depend upon. They did not want to use as a medicine something which would not produce the proper effect. Alicante saffron was the kind which was chiefly adulterated now. Formerly Barcelona saffron was very much adulterated. One of the most interesting adulterations of late years was made with soluble salts. Nitrate of potash was one of the things used, and it was found that the saffron deflagrated when it was burnt to ash. He might answer Mr. Glyn-Jones by saying that a jaborandi came into the market some time ago quite different from the ordinary jaborandi. He did not know its proper name. It was not possible to name all the things which came into the market and to say what they were. The importers offered the drugs in the names under which they received them. As to cascarrilla, which had been mentioned by Mr. MacEwan, he did not think that the tree was extinct, for two months ago he saw some very fine quills as big as his finger. Pareira root, which had been referred to by Mr. Hills, was a drug which had a history. Mr. Hanbury, who was a very conscientious man, sent over to Jamaica to get some of the drug, and when the root came to England it was found that it was not what the Pharmacopœia described. It had only one ring, for instance, whereas the true variety had several rings. Obviously there was a mistake somewhere. Shortly afterwards he (Mr. Holmes) got some samples from Messrs. Hearon, Squire, and Francis, and took them to the British Museum and compared them. He found that they were *Chondrodendron tomentosum*. In the meantime Mr. Hanbury had named his specimen according to the specimen in the Kew Herbarium, but it was wrongly named there. Therefore he (Mr. Hanbury) had practically to take the name found at the British Museum to describe the article. As to the question whether the genuine drug was obtainable, he believed that several firms could supply as much as Mr. Hills was likely to want. As to Japanese aconite, he could only say that he got a specimen from Japan and that it did not correspond with *Aconitum fischeri*. He had now some plants labelled *Aconitum fischeri* which had been obtained from the Botanic Gardens, Edinburgh. He was growing them, and perhaps he should be able to give some information about it another year.

Mr. J. SLINGER WARD next read a paper on

SOME WEST AFRICAN DRUGS,

which is printed at page 279. At the conclusion of the paper,

The PRESIDENT said that thanks were due to Mr. Ward for bringing the paper forward. It might contain the nucleus of some very interesting further researches.

Mr. HOLMES thanked Mr. Ward for the trouble which he had taken in examining the drugs. It must be remembered that the drugs which had been described were offered in the markets in Sierra Leone just as herbs were offered in country places in England, and they were used by the natives for different diseases. What Mr. Ward had read gave an idea of the way in which drugs were used by the natives. Guinea grains meant grains of paradise. As to the

pepper, a small quantity was in London some time ago. The guinea pepper he believed was something quite different. It had a very useful action on the mucous membrane. The fruit generally grew in clusters. It had a hot taste, something like pepper, and for that reason it was called guinea pepper. The third drug of which Mr. Ward spoke was an exceedingly interesting bark, and it possessed some peculiarities which he had never noticed in any other barks. Differences could be discerned by means of a lens in different specimens. With regard to the African peach root that article was used right away from Sierra Leone down the west coast, and also on the east coast to Natal, as a sort of tonic for indigestion, and he believed that it was used with great success. He noticed that the expression in the paper "If he sneezes he will recover" had amused the meeting very much. It would be remembered that when the prophet raised the son of the Shunamite woman the child sneezed. The sneezing was mentioned as a sign of life and an indication that the child would recover.

Professor GREENISH said that the collection of drugs which had been shown by Mr. Ward opened out a very important field for investigation. Here were a number of drugs which awaited identification. He believed that Mr. Holmes would tell them that in the Museum upstairs there were others which awaited identification. The number of workers at present was only very small. No doubt the examination of the drugs would give very interesting results to anybody who had time to undertake it.

Mr. HOLMES then read a paper by Mr. J. C. Stead on

OTTO OF ORRIS,

which is printed at page 280. At the conclusion,

Mr. HOLMES said he thought that the paper showed them that English chemists were not at all behind others in the preparation of essential oils.

Mr. W. C. ALLEN said that the subject before the meeting was certainly one of very great interest to him. Although the ordinary concrete oil of orris root which had been referred to was very peculiar, the particular oil which had been brought before them that evening was one which they had not at present touched at all. He did not feel able to add anything to the discussion upon the article itself, but the matter was of very great interest, and particularly so because on former occasions they had met in commerce with an article which had been called liquid oil of orris, but which was an entirely fictitious and sophisticated article. It had received the name of oil of orris because it had the flavour of the orris root. The name was given that the article might be sold.

Mr. UMNEY said that the oil which had been described was quite a novelty, and they were very much indebted to Mr. Stead for bringing the subject forward. The process by which it was produced was not given, but he imagined that now that attention had been called to the subject there would be other workers, and certainly the matter would be taken up in Germany, and they would soon know something about it. He should strongly commend the subject to manufacturers of essential oils in this country. English pharmacists might learn something about it. The concrete oil of orris had to be kept at a certain temperature, or it would solidify. Only those persons who could distil on a very large scale could work with the essential oils, because the yield was very infinitesimal. Even the ordinary concrete oil of orris was worth 24s. or 25s. an ounce in large quantities. The oil described was very expensive indeed. It was well worthy of investigation.

EXHIBITION OF SPECIMENS.

Mr. HOLMES subsequently exhibited and described various specimens. One was a substance called dionin, a hydrochloride of ethyl morphine. It has the action of morphine, but is nearly four times as soluble as the hydrochloride of that alkaloid. Its use is not followed by the morphine craving, and the salt does not cause irrita-

tion when injected. Another substance shown was iodipin. It is intended for internal use. It does not produce symptoms of iodism when used. Another substance was bromopin. It does not produce what was known as bromism, or irritation when used for hypodermic injections. Attention was also directed to a sample of fat which had been sent for investigation from Jamaica, by the director of the Botanic Gardens there.

Library, Museum, School and House Committee.

At the ordinary monthly meeting of this Committee, held on Wednesday March 14, the following statements respecting the Society's Libraries and Museums in London and Edinburgh were presented:—

ATTENDANCES.

	Total.	Highest.	Lowest.	Average.
Museum (February)	462	40	7	19
Library (February).....	502	30	9	21

CIRCULATION OF BOOKS.

	Total.	Town.	Country.	Carriage Paid.
London (February)....	163	89	74	18s. 10d.
Edinburgh (February)	135	108	27	1s. 8d.

DONATIONS TO THE LIBRARY (LONDON).

- Radcliffe Library, Oxford:—Catalogue of books added during 1899.
 University College of South Wales and Monmouthshire:—Calendar, 1899-1900.
 Geological Survey of Canada:—Annual Report for 1897.
 Mr. David Hooper, Calcutta:—Akakia, an ancient Eastern medicine, 1899.
 Mr. R. T. Baker, Sydney:—On an Apocynaceous plant yielding large edible tubers; Contributions to a knowledge of the Flora of Australia.
 Pharmaceutical Society of Ireland:—Calendar, 1900.
 Royal College of Physicians of London:—List of Fellows, etc., 1900.

DONATIONS TO THE LIBRARY IN EDINBURGH.

- Dr. L. Dobbin, Edinburgh:—Lectures on the History of the Development of Chemistry, by A. Ladenburg, 1900.
 Pharmaceutical Society of Ireland:—Calendar, 1900.
 Mr. Alex. Noble, Edinburgh:—*Pharmaceutical Journal*, 1896-99. Seven vols.

DONATIONS TO THE MUSEUM IN LONDON.

- Mr. J. Medley Wood, F.L.S., Botanical Gardens, Durban:—Fruits of *Cola natalensis*.
 Mr. J. G. Whiffen, London:—Specimens of commercial nux vomica seeds including Bold Bombay, Bold Cochin, Saigon, and Madras varieties.
 Professor W. G. Greenish, F.I.C., etc.:—Specimen of Anise bark from Madagascar.
 Messrs. Hodgkinsons, Clarke, and Ward:—Specimens of native African remedies from the Gold Coast.
 Mr. W. E. Miller, London:—Forty-three specimens of Chinese drugs.
 Messrs. Wright, Layman, and Umney:—Specimen of flat bark of *Cinchona Calisaya*, var. *boliviana*.
 Mr. A. Heap, London:—Specimen of "Uganda" aloes.

DONATIONS TO THE MUSEUM IN EDINBURGH.

- Messrs. Wyleys and Co., Coventry:—Specimens of an average and a selected sample of Asafetida in the tear.
 Mr. H. W. Jones, Coventry:—Specimen of Uganda Aloes.
 Dr. R. Stewart McDougall, M.A.:—Galls of *Retinia resinella* on *Pinus sylvestris*.

PURCHASE OF BOOKS.

The Committee authorised the purchase of the undermentioned works:—

FOR THE LIBRARY IN LONDON:—

- Ladenburg's History of Chemistry, by Dobbin, 1900.
 Lowson's Text-Book of Botany.
 Collective Indexes of the Journal of the Chemical Society, 1873-1892.
 Index of the Bulletin de la Société Chimique, 1889-98.

FOR THE LIBRARY IN EDINBURGH:—

- Lowson's Text-Book of Botany.
 Wurtz's Elements of Modern Chemistry.

Publications Received.

ANÆSTHETICS: THEIR USES AND ADMINISTRATION. By Dudley WILMOT BUXTON, M.D., B.S. Third edition, pp. 320, cr. 8vo. Price 6s. London: H. K. Lewis, 136, Gower Street, W.C., 1900. From the Publisher.

A TEXT-BOOK OF MATERIA MEDICA FOR PHARMACEUTICAL STUDENTS. By W. A. KNIGHT, Ph.C., Pereira Medallist. Pp. 320. Price 9s. net. London: Clive and Co., Bookseller's Row, W.C. 1900. From the Author.

PHARMACEUTICAL REGISTER OF VICTORIA for 1899. Printed and published under the direction of the Pharmacy Board of Victoria. Melbourne: Robert S. Brain, Government Printer. 1900. From the Publishers.

AKAKIA: AN ANCIENT EASTERN MEDICINE. By DAVID HOOPER, F.C.S. Reprinted from the *Journal, Asiatic Society of Bengal*. Vol. LXVIII., Part II., No. 4. 1899. From the Author.

LECTURES ON THE HISTORY OF THE DEVELOPMENT OF CHEMISTRY SINCE THE TIME OF LAVOISIER. By Dr. A. LADENBURG. Translated from the second German edition by Leonard Dobbin, Ph.D. (With additions and corrections by the author.) Pp. xvi. + 373. Price, 6s. 6d. net. Edinburgh: The Alembic Club (W. F. Clay, 18, Teviot Place). 1900. From the Publishers.

THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX, 1900. Pp. lxxx. + 871. Price 7s. 6d. net. Bristol: John Wright and Co., Stone Bridge. 1900. From the Publishers.

MORLEY'S PHILATELIC JOURNAL. Vol. I., No. 3. March, 1900. Edited by A. PRESTON PEARCE. London: Walter Morley, 15, Brownhill Gardens, Catford, S.E. From the Editor.

THE CALENDAR OF THE PHARMACEUTICAL SOCIETY OF IRELAND, 1900. Corrected to January 3, 1900. Vol. XXIV., pp. 206. Price, paper cover, 1s. 6d. Dublin: The Registrar, 67, Lower Mount Street. From the Registrar.

DIE SCHMERZLINDERNDE WIRKUNG DES ASPIRIN. Von Dr. R. WEIL. Sonderabdruck aus "Allgem. Med. Central-Zeitung." 1900, No. 4. WELCHES EISENPRAPARAT SOLL MAN BEI CHLOROSE ANWENDEN? Von Dr. JULIUS WEISS. Separatabdruck aus "Die Heilkunde Monatsschrift für Praktische Medicin." December, 1899. MITTEILUNGEN UBER HEROIN. Von Dr. JACOB WIESNER. Separatabdruck aus der "Deutschen Aerzte-Zeitung." Heft 3 February, 1900. UEBER ASPIRIN, EIN NEUES ANTIRHEUMATICUM. Von Dr. E. ROELIG. Sonderabdruck aus der "Deutschen Medicinischen Wochenschrift." 1900, No. 5. Elberfeld: Fried. Bayer, and Co. 1900. From the Publishers.

UNIVERSITY COLLEGE, BRISTOL.—Meeting of the Governors and Report of Council for the Session 1898-99. Pp. 43. Bristol: University College, 1899. From the Secretary.

NEW REMEDIES.

DIURETIC ACTION OF MULBERRY LEAVES.—In Siberia an infusion of 2.5 Gm. of mulberry leaves in two cupfuls of boiling water is a popular diuretic. The leaves are infused for eight or ten hours, and a cupful of the infusion, which is not unpleasant to take, is drunk night and morning for three days.—*Bull. Gen. de Theran.*

SILVER SALTS IN ACUTE PNEUMONIA.—Ciccainiga reports on sixty cases of acute lobar pneumonia in which treatment by silver nitrate was clearly beneficial—only three of the cases were fatal. The dose given was 10 centigrammes for children from eight to ten years, up to 25 to 30 centigrammes for adults, in pills or suspension. In urgent cases an injection of a 0.5 per cent solution of protargol was injected hypodermically. Beyond some vomiting, no ill effects were observed.—*B.M.J. Epit.*, 1, 1900, 24.

ROYAL INSTITUTION.

A lecture was given on Friday, March 2, by Major RONALD ROSS, D.P.H., M.R.C.S., on

Malaria and Mosquitoes.

Malaria, or malarial fever, is a complaint of considerable importance because of the large number of people that suffer from it. For example, in 1897 the white and black troops in India numbered 178,000 men; out of these no less than 75,000 were admitted into hospital for malarial fever, without counting those cases of fever which did not necessitate taking the patient into hospital. The complaint is not in itself serious, but is responsible for a mortality of five million people a year in India alone.

The symptoms of malaria are recurrent attacks of fever. It comes and goes, every third or second day, or even daily, hence receiving the name quaternian, tertian, or quotidian fever. The discovery of quinine in the seventeenth century led to the differentiation of malaria from other forms of fever, because it was found that this drug is a specific for malaria.

Pringle, a celebrated Anglo-Indian army surgeon, studied the mode of spread of malaria and connected it with stagnant water. He thought it was caused by a mist rising from the ground. In the middle of the nineteenth century a black pigment, called the malarial pigment or melanin, was found in the blood, liver, and spleen of malarial patients. In 1880 Laveran discovered the parasite of malaria by observing in its body the substance melanin. The parasite is a unicellular organism, one of the Protozoa. He and other scientific men made an exhaustive study of these parasites within the human body. They found that the organisms increase in the blood by means of spores. A spore enters a corpuscle, increases in size, reaches maturity, and divides into a number of spores which are liberated by the bursting of the mass. This process is continued *ad infinitum*.

There are several types of this organism, which are found in men, monkeys, bats, frogs, and birds. It is a curious fact that there are produced also other bodies, crescentic in shape in one species; they are sexual, and therefore are termed gametocytes.

In the blood they have no function, but after exposure to air for a few minutes these crescentic bodies become oval, then spherical, and after fifteen minutes develop into a number of wriggling bodies. Several theories were put forward to account for their presence; Laveran held that they were part of a living process, while others considered their production to be associated with the death of the organism.

In 1883 King found that malaria was conveyed by mosquitoes, and various theories were put forward by Laveran, Manson, and Bignami. Manson's theory was the only one of these which was of practical value, and it was Manson's theory alone which led to the solution of this great problem. Manson considered that the wriggling bodies were connected with the disease, being disseminated by some suctorial insect, just as the Texas cattle-fever is carried by a tick. The author undertook to verify Manson's theory and began work in India, at Secunderabad, in 1895. The task was attended by great difficulties. Over 1,000 mosquitoes of the genus *Culex* were examined during two and a quarter years, without result; he then went into a malarial district and found a different species—*Culex fatigans*, of the genus *Anopheles*—with spotted wings. On examination, the parasite was found in its stomach.

Next year he completely traced the development of the malaria parasite of birds in the mosquito, and finally succeeded in infecting a number of certain healthy birds—viz., sparrows and larks—with malaria by the bites of mosquitoes in July, 1898. It was proved that the wriggling bodies were not zoospores, but microgametes of two sexes, by the fusion of which a zygote was formed. One interesting point may be mentioned in speaking of the mosquito. It is not, as is generally supposed, an ephemeral insect living only for a day, but is capable of living for months if regularly fed.

Indeed, Bancroft has kept them alive for two and a half months in Australia.

In December, 1898, these investigations were repeated and confirmed by Koch and Grassi, and by Bignami and Bastianelli, who also succeeded in infecting healthy men by the bites of mosquitoes in Italy. Since then great developments have taken place in the investigations. In August, 1899, the malaria expedition was sent to Sierra Leone, in order to study the habit of the malarial mosquito in that colony, with a view to the prevention of the disease. The mosquito theory explains all the facts known about malaria, and no objections are raised against it. The prevention of the malaria may be attained by the destruction of *Anopheles*.

The first of a course of lectures was given at the Royal Institution by the Right Hon. Lord RAYLEIGH, M.A., D.C.L., LL.D., F.R.S., on Saturday, March 3, the subject being

Polarised Light.

Double refraction, the first phenomenon that led up to the discovery of the polarisation of light, was observed by Erasmus Bartholinus. A crystal of Iceland spar or a thin slice of tourmaline is generally employed in order to get double refraction of a beam of light. If, for experiment, a thin slice of tourmaline be arranged in a lantern so that it allows light to pass through perpendicularly, two images may be obtained. If another thin slice be now added, the light passes through partially, but on turning round the second at right angles to the first, the part where they overlap is quite dark. This experiment shows the sided character of polarised light. In considering wave-motion three main characteristics have to be borne in mind—(1) The wave-length, which has nothing to do with the direction of the light or the distance traversed, but is applied to the distance from the crest of one wave to the crest of the next; (2) the velocity of propagation; (3) the periodic time, the distance which a wave advances in unit time.

The vibrations of light are transverse, and not like those of sound, longitudinal. This statement is seen to be correct, because otherwise the phenomenon of polarisation would be unexplained. When the refracted and reflected ray together make a right angle, then the best conditions are obtained for getting polarised light. Brewster formulated a law which is of great importance—the angle of incidence of light on water must be such that the tangent is equal to the index of refraction. Light may be oppositely polarised; it should be mentioned that in this connection the opposite of north and south is east and west, and not south and north.

In order to demonstrate the polarisation of light, a board about thirty feet in length may be placed in a vertical position. At a distance of about three feet from the top a bar is fixed transversely at about three inches from the board, so as to allow a long rope hanging from the top of the board to pass between it and the bar. The rope may be manipulated from the ground; on giving it a succession of shakes at right angles to the board waves are set up which are stopped by the bar; but when the rope is shaken in a direction parallel with the board, from side to side, the waves pass beyond the bar. By shaking the rope in a circular manner a compound wave runs along it, part of which—the perpendicular component—is stopped by the bar, but the remainder, which is a horizontal wave, travels beyond the bar. Again, if the bar be replaced by a grating of parallel bars arranged at right angles to the board and the rope similarly shaken, it will be found that waves perpendicular to the board pass through the grating, and horizontal waves are stopped by it.

These preliminary experiments form an introduction to the subject of the polarisation of light. Just as a circular motion set the rope vibrating with a compound wave, so light may vibrate transversely in two directions—say, north and south, and east and west. Light, on passing through one Nicol's prism, vibrates in one direction only; on passing it into a second Nicol's prism arranged at right angles to the first, no light passes through, since that which was vibrating in the second direction is now cut off.

LETTERS TO THE EDITOR.

The Approaching Council Election.

I have been strongly pressed by numerous friends to come forward again as a candidate for the Pharmaceutical Council, and this I should have liked to have done, but I am met by a difficulty which is, I fear, insuperable—namely, that the date and time of meeting of the Council is the same as that fixed by our City Council at Oxford, at the meeting of which I must be present, as, being chairman of the Sanitary Committee, with its numerous sub-committees, there are often matters of importance brought forward which demand my presence. Moreover, I do not believe in half-hearted work. Therefore, I regret very much to say that I shall not be able to avail myself of the kind offices of my friends, who expressed a wish to nominate me. At the same time, I offer them my hearty thanks, and also the large number of my *confrères* who so kindly supported me at the last election. As I am starting for North Africa on Tuesday next, I thought it would be well at once to communicate the sole cause which prevents me from standing as candidate at the forthcoming election.

Oxford, March 10, 1900.

G. CLARIDGE DRUCE.

I believe that there are a large number of members of the Society who, like myself, are convinced of the necessity for securing the return of at least three or four new members to the Council at the forthcoming election. Past experience has shown that unless some concerted action is taken the success of new candidates is doubtful. I believe that if those, who feel strongly the need for change in the personnel of the Council, will act together, that we should be able to achieve our object. I should therefore be glad to receive a post-card from every member of the Society who shares these views. I should also be obliged if any member who has been nominated as a candidate, and who would appreciate such organised support, will communicate with me.

159, East India Dock Road, Poplar, E. W. S. GLYN-JONES.
March 14, 1900.

The Federation Circular.

Three copies of the Federation Circular Letter and Clause A have been signed by David Lister (South Queensferry), James Chapman (Kirkliston), Findlay Stuart (Broxburn), A. Tweedie (Bowness), Thomas Lumsden (Linlithgow), Annie Y. W. Spence (Linlithgow), Francis Rae (South Queensferry), David Reid (Bathgate), John Freeland (Bathgate), Marshall Thomson (Bowness), C. M. Spence (Linlithgow), Edward Spence (Linlithgow), Alexander Spence (Linlithgow), and I have been asked to send a copy to each of the three following M.P.'s: Alexander Ure, Esq., M.P., Linlithgow County; John Wilson, Esq., M.P., Falkirk Burghs, which includes Linlithgow; and also to Campbell Bannerman, Esq., M.P., Stirling Burghs, which includes South Queensferry. You will notice that every registered chemist resident in the county of Linlithgow has signed.

Linlithgow, March 12, 1900.

ALEXANDER SPENCE,
Local Secretary, Linlithgow County.

Stamping Fees—Glass Measures.

Having read in your Journal, of March 3, the report of the Deputation of the City of London Corporation to the Board of Trade, will you permit me to state, for fear of misapprehension among chemists and druggists, that the question of stamping fees brought under the notice of the President of the Board of Trade, on the 12th ult., had reference only to publican's glass measures and not to the fees charged on apothecaries' graduated glass measures, or any other denomination of weight or measure.

Weights and Measures Office,
42-6, Whitecross Street,
March 12, 1900.

A. J. STREET,
*Chief Insp'ctor of
The Corporation of London.*

The Duties of Local Secretaries.

In your report of the Council's proceedings I notice that a motion to consider something about local secretaries was agreed to. The local secretary is not much "in the know," and so is not in his proper position to advocate the need there is for all those on the Register being members of the Society. If the motion is intended to keep the local secretaries "posted" as to what the Council are purposing doing for the welfare of the members of the Society, well and good. If not, I fear that any motion will be useless. To my mind, the real use of the local secretary is to have the members in his particular district well in hand, so that matters of importance may be dealt with promptly. I would suggest that (1) the local secretary should be required to send in a complete report as to how the practice of pharmacy is carried on in his district; (2) the number of shops and by whom conducted, principals or assistants; (3) population of each town (or burgh); (4) whether dispensing is done by the medical man. This suggested report would furnish instructive reading to the London authorities, and they could then compare the conditions of pharmacy in the Scotch provinces with that which obtains, say, in Oxford Street, London.

March 10, 1900.

A LOCAL SECRETARY (23/41).

The Pharmaceutical Society and Public Dispensers.

I venture once more to beg space in your columns for the purpose of ventilating this question, but not in a "shrieking, hysterical" spirit, with a view to claiming a "divine right" for those licentiates of the Society holding public appointments. Still, I am bold enough to maintain that we have a right to expect more help and encouragement from the Society than we have received hitherto, and I also think that any improvement we obtain with regard to our professional status and pay will have a favourable reaction on the position of our brethren engaged in the retail trade, because medical men, and others too, would learn to look on chemists generally as being worthy of more confidence and respect than is generally at present accorded to them. Personally, I have little ground for complaint, chiefly, I suppose, on account of the high esteem earned by my predecessor during many years' service, but I know some important institutions where the porters receive greater consideration at the hands of the authorities than do the dispensers many of the latter, too, are men of considerable ability and irreproachable character, and I cannot help feeling indignant that such things are possible. There is no doubt that some medical men make their dispensers the scapegoats for the injuries they imagine themselves to suffer at the hands of prescribing chemists, etc. I am ready to admit that in past years these appointments have not always been held by men of the best class, but better men would be obtained for the very responsible work if proper inducements were held out. The Dispensers' Association will, I hope, prove a very good means by which dispensers can unite to bring about an improvement in their status, but I think that both the Society and the trade at large ought to support its efforts. It may be that the Society's officers are afraid of coming into conflict with the Apothecaries' Hall, as I believe the latter body claims that theirs is the only proper qualification for these posts, but I don't think it would need much effort to convince the authorities that such a claim is preposterous, considering what a farce the Apothecaries' Hall examination is. Besides, that body's influence in the medical profession even is on the wane. What is needed not only in this, but in other difficulties connected with the pharmaceutical profession, is more grit and determination on the part of the Society in supporting the just claims of the body it is supposed to represent.

March 8, 1900.

A HOSPITAL DISPENSER. (23/35.)

The New Spirit Duty.

I think it was well to call the attention of the trade to the alteration in the spirit duties, but in my opinion the matter in the

second column at page 256 has not been put quite as it should be, and for this reason:—The duty on spirit of proof strength before the alteration was made was not 10s. 10d. as you state, but 10s. 6d.—the additional impost of 4d. being upon foreign spirit of wine—whereas the 10s. 6d. was on home produced spirit. Any spirit exported from the colonies was charged with the duty of 10s. 8d., and any spirit from Hamburg 10s. 10d. per proof gallon. The addition to these prices therefore would be 6d., in other words the duty now on home-produced spirit is 11s., upon colonial proof spirit (say Jamaica rum) 11s. 2d., and upon Hamburg spirit 11s. 4d. per proof gallon.

London, March 13, 1900.

CHAS. UMNEY.

ANSWERS TO QUERIES.

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

REMEDIES FOR BLUSHING (J. W. M.—40/1).—We regret we have no information regarding the composition of the so-called remedies you refer to.

SYRUP OF CHERRIES (W. J.—39/34).—Cherry juice and sugar, *q.s.*, to produce a syrup of *s.g.* 1.33. Heat till the sugar is dissolved, and strain as soon as boiling commences.

SQUILL AS A MOUSE POISON (D. M.—39/33).—The recipe you refer to appeared in the *P. J.* for August 19 last. Wheat is soaked thoroughly in an infusion of fresh squill bulbs (1 to 5) and dried quickly.

MICROSCOPIC PREPARATIONS (H. W. W.—40/2).—You will find working formulæ for all the preparations you mention in Squire's 'Methods and Formulæ' (Churchill, 3s. 6d.), a copy of which you ought to possess.

SEMIVITRIOUS OF LEAD (G. A. T.—39/25).—The old name for litharge was semivitrified oxide of lead—Plumbi oxydum semivitreum. It was so called in the *P. L.*, 1836. You should specify flake or scale litharge when ordering it.

THE COMPANIES BILL (A. W. H.—24/9).—The letter drafted by the Federation of Local Pharmaceutical Associations fully answers the purpose. Why not procure a copy of that to send to your Parliamentary representative, and persuade your friends and neighbours to do the same.

SHORT DISTANCE TELEPHONE (J. L. G.—39/31).—You should be able to procure what you require of Messrs. H. W. Cox, Limited, manufacturing electricians, Cursitor Street, Chancery Lane, London, W.C. You will also find numerous advertisements of low-priced instruments in the *English Mechanic*.

WORKS ON CELLULOID AND GUNCOTTON (W. B.—38/31).—We know of no work devoted solely to the subject. You will probably find more information on the subject by referring to the *Journal of*

the Society of Chemical Industry than in any other publication. M. Eissler's 'Handbook of Modern Explosives,' which you would probably obtain from Lippincott, 10, Henrietta Street, Covent Garden, W.C., may be useful to you.

HAIR DYE.—(C. F. G.—39/23).—It is difficult to advise you as to the exact tint you wish to produce, but possibly the following will answer:—Pyrogallol, 1 Gm.; 70 per cent. alcohol, 60 Gm.; balsam of Peru, 2 Gm.; solution of ferric acetate, 12 drops. The hair should be well washed with rain water containing a little solution of ammonia, and then thoroughly dried before applying the dye. Try a little first on some of the hair cut from the head to see if it produces the desired tint.

BACTERIAL TREATMENT OF SEWAGE (J. T. G.—39/19).—You will find the information you require in the London County Council report on the subject, also in a paper on the subject in the *Journal of the Royal Agricultural Society* of last year by D. Pidgeon, and another paper published in the *Imperial Institute Journal* for this month. You will also find several valuable papers on the subject in recent volumes of the *Journal of the Society of Chemical Industry* and the *Journal of the Society of Arts*.

PREVENTION OF CAKING IN BISMUTH MIXTURES (F. C. I. W.—39/29).—We do not see that your suggestion is practicable. In the first place, the "pellicle" you speak of cannot well be pear-shaped, since a pellicle is a very thin skin such as collodion forms. Probably you mean "pellets." It would scarcely be safe to send out a bottle of mixture containing small pear-shaped pellets of glass, especially an opaque mixture such as you mention, for the patient might easily swallow one. If larger pellets were made inside the bottle it would be rather costly, and the bottle would have to be thicker than ordinary, or the pellets, when shaken up, would break it. We should not advise you to patent your idea.

ASSAY OF CRUDE "CARBOLIC" ACID (T. G. S.—39/5).—The following methods are given in Allen's 'Commercial Organic Analysis,' vol. i., pp. 310-311:—*Determination of tar oils.*—Introduce 5 C.c. of the sample into a graduated tube, and add gradually 10 C.c. of 9 per cent. soda solution, agitate well, and set aside. The phenol on cresols will dissolve, while the neutral oils will form a layer above or below the alkaline liquid according as the admixture consists of heavy or light tar oils. The volume occupied by this oily layer is then read off. The separation of the tar oils is facilitated by the addition of a known volume of petroleum spirit, which must, of course, be deducted from the total oily layer which separates. Lowe's method for the approximate assay of crude carboic acid is as follows:—100 C.c. of the sample is placed in a retort without any special condensing arrangement and distilled, the liquid which passes over being collected in graduated tubes. Water distils first, followed by an oily fluid. When 10 C.c. have distilled the receiver is changed, and the volume of water read off. If the oily liquid floats it contains light tar oil. If it sinks it may be regarded as hydrated phenol, containing about 50 per cent. of pure carboic acid. The next portion of the distillate consists of anhydrous acids, 62.5 C.c. of which are distilled off. The relative proportion of carboic and cresylic acid in this distillate may be approximately determined by observing its congealing point. Mixtures of pure carboic and cresylic acids are then made in varying proportions until the same solidifying point is obtained. The residue in the retort consists wholly of cresylic acid and the higher homologues of phenol. Another method is to liberate the mixed acids from the alkaline liquid after separation of the tar oils and to submit a portion of them to fractional distillation. Phenol boils at 182° C., cresol from 198-203° C.

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LONDON: SATURDAY, MARCH 17, 1900.

OF CRYING FOR THE MOON.

SINCE the LORD CHANCELLOR first intimated his concern about the fact that the Pharmacy Acts do not cover the case of drug stores carried on by joint-stock companies or corporations, a year and eight months have elapsed; but it is very doubtful whether the position of affairs has been appreciably altered since. It has certainly not been altered for the better, whether regarded from the standpoint of pharmacists or of the general public. Lord HALSBURY then urged that a common-sense view of the question requires that companies should be treated in exactly the same way as individuals, and the late Lord HERSHELL supported that contention; but other views have since prevailed with the LORD CHANCELLOR, and he must now be regarded as one of the most prominent persons who consider that there is no occasion to impose the same legal obligations on companies as on individuals. In fact, he has placed himself in the somewhat invidious position of posing as the chief legal opponent of the just claims of registered chemists and, to that extent, he must be regarded as a foe rather than a friend. Whatever the reason may be, Lord HALSBURY must now be reckoned as an adverse factor and, unfortunately, he appears to be able to carry the Government with him in this matter; as witness the exposition of Mr. RITCHIE's views as given by the PRESIDENT of the Pharmaceutical Society at the meeting of the Council last week. It would appear that the Government is indisposed to interfere with company trading in pharmacy otherwise than to regulate it. The PRESIDENT of the Board of Trade insists that in many cases the public has less protection in the case of individual chemists who carry on branch shops than they would have in the case of company pharmacies conducted by legally-qualified persons, and he is even disinclined to accept the view that chemists' titles are essentially personal in their character. The position of affairs is thus an extremely serious one, and it is incumbent upon every registered chemist to face these facts and to make up his mind whether or not he is prepared to give up all or anything that the Legislature was understood to have secured to him conditionally upon his satisfying the duly-con-

stituted authorities of his fitness to undertake the duties appertaining to his qualification.

The Council of the Pharmaceutical Society, as recorded in last week's Journal, has decided to oppose the clause in the Companies Bill, which would have the effect, if it became law as it stands, of recognising a right on the part of unqualified individuals who associate themselves together to carry on business as corporate bodies to usurp the privileges connected with the qualifications of registered chemists. But successful opposition of the clause will have no other effect than that of leaving matters in the same unsatisfactory position as they now are. The real fight will yet have to take place; companies will remain outside the scope of the law then as now, and the whole question involved in the usurpation of chemists' titles and practice by associations of unqualified individuals will have to be reopened sooner or later. In all probability that will be in connection with a measure intended to amend the Pharmacy Acts directly, and dealing with other matters as important in their way as the question of company trading. Notwithstanding that, however, any clause dealing with the company pharmacy problem may be expected to constitute the most contentious part of a Pharmacy Acts Amendment Bill, and it must be regarded as an absolute necessity that there shall be complete agreement on the subject within the ranks of registered chemists. It has been simply pitiful to note of late to what extent disunion can pervade those ranks, and how, with regard to a point on which all might not unreasonably have been expected to agree, the most diverse opinions have existed and been allowed to instigate support of more or less antagonistic policies. Such conduct is the more to be deplored when it is borne in mind what almost overwhelming forces are arrayed against chemists. So great and well-organised are those forces that it may be a matter for serious consideration whether any further action will be justified on the pharmaceutical side unless a proper sense of discipline can be maintained in the ranks and full trust reposed in those who have been selected as fit and proper persons to watch over and protect the interests of their fellow-craftsmen.

It has been repeatedly urged by representative pharmacists that it is no use "crying for the moon," and those who have been most conspicuous in ignoring that injunction have probably done as little as anyone in the direction of taking or suggesting steps of a practical nature to assist in the accomplishment of their desire. The "moon," in the present instance, may be taken to represent the abolition of what is spoken of as company trading in pharmacy, and that, it is safe to say, is now as unlikely of attainment as the most impossible thing that any reader of the Journal can conceive of. It would have been a difficult object to attain twenty years ago, if the whole of the registered chemists of Great Britain had been united in supporting the demand for it; how much more difficult then must it be to persuade an unwilling Government and a sceptical Legislature of the reasonableness of such a demand at the present time, with the chemists of the country split up into several distinct groups, supporting views more or less opposed? The suppression of bogus companies, the regulation of genuine concerns, and the restriction of titles and strictly

professional practice to duly qualified individuals may fairly be regarded as the utmost that can be secured. Moreover, it is safe to say that the successful carrying through of a policy based on those lines would be of the greatest possible advantage to chemists, as well as to the general public, and that anything further in the nature of protection might safely be left to individual enterprise. The properly trained chemist with a fair business aptitude neither requires nor desires to be perpetually coddled and hampered by the State in the practice of his calling. He need only ask that none shall be permitted to assume what it has cost him much to take up, without paying the same price. Beyond that, he should demand nothing except a fair field and no favour, and he ought to consider it an absurdity to "cry for the moon" when everything he really requires can be supplied under reasonable conditions in this prosaic workaday world.

JAMES WATT.

By the death of JAMES WATT, Pharmaceutical Chemist, which took place at his residence at Haddington, on Sunday, March 11, there has passed away another of the older generation of Scottish Pharmacists. Mr. WATT was born at Lybster, Caithness-shire, in 1822, and was educated at a private school, where the study of Latin was a prominent feature. He served an apprenticeship of seven years with the late Mr. BREMNER, of Thurso. After its completion opportunities for starting business on his own account presented themselves at Tain, in the north, and Haddington, in the south. He had almost decided on the former when, on the advice of Mr. BREMNER, he resolved to go south, and commenced business in Haddington in 1845, and has continued there ever since. The business gradually grew to be one of the largest and most typical provincial pharmaceutical practices in Scotland. In 1853 he became a member of the Pharmaceutical Society, and has acted as local secretary from 1870 till the present time. He took considerable interest in the work of the Society, and for six years he was a member of the North British Branch Executive and for four years a member of the Council, from both of which he retired in 1889, owing to age and infirmity. On the death of his younger son, who conducted the business, about two years ago, he assumed as partner a former apprentice, Mr. W. P. WILSON, who now becomes sole proprietor. Mr. WATT took a deep and lively interest in public life. He was for forty years a member of the Haddington Town Council, and filled the offices of magistrate and Provost. He was also a Justice of the Peace for the county of East Lothian. He was a lifelong abstainer and non-smoker, and was one of the founders of the original temperance movement in Scotland. He took an interest in literature, and was Con- vener of the Haddington Library Committee, which he was the means of removing from an old obscure building to new premises, where it is much more serviceable to the community. In politics he was an ardent Liberal. He was a member of the Free Church, but though often asked to accept office in it, he always declined. In his younger days he was a keen sportsman, and in bowling and curling proved himself a match for all comers. He had been married for fifty-one years and he and

Mrs. WATT who survives him, celebrated their golden wedding about eight months ago. He had nine children, including two sons, the elder of whom, FRANK WATT, survives. He is a barrister in London, and has also made a name in literature, among his books being a 'Life of John Bright' and 'Picturesque Scotland.' Mr. WATT was greatly respected by all who knew him as a man of integrity and high principle. He possessed a good deal of Scotch tenacity and caution, carefully considering every detail before expressing an opinion. A few weeks ago he appeared in better health than for many years, but he was suddenly struck down by a paralytic shock about a fortnight ago and passed away peacefully on Sunday last at the ripe age of 78 years. His brother, DONALD WATT, chemist, Lybster, Caithness, died in 1895.

PHARMACY AND THE UNIVERSITY OF LONDON.

THE new Regulations made for the University of London by the Commissioners appointed under the University of London Act, 1898, which have now been published, confirm in the main the information published in the *Pharmaceutical Journal* for September 16, 1899, page 289. Provision is made for the existence of thirty-two Boards of Studies, including a Board of Pharmacy, and the names of the Pharmaceutical Society's three professors appear in the list of members of the teaching staffs of public educational institutions, within the appointed radius, who are recognised as teachers of the University, thus:—

AT THE SCHOOL OF PHARMACY OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN

Collie, John Norman	Ph.D. (Würzburg), F.R.S., F.L.S.	} <i>Chemistry</i>
Green, Joseph Reynolds	Sc.D. (Cantab), F.R.S., F.L.S.	
Greenish, Henry George	F.I.C., F.L.S.	} <i>Pharmaceutics</i>

The names of the three professors also appear as Teachers of the University, in the list of members of the Faculty of Science of the University.

An interesting point in the new regulations is that Students of the University are to be permitted to submit the results of research as qualifying them to receive the degree of Bachelor of Science. The intermediate examination must previously have been passed, and, at least two years before it is proposed to submit the results, application must be made to the Senate for permission so to do. Each application must be accompanied by (i.) a certificate that the Student is at least nineteen years, (ii.) a statement of the general nature of the research, and (iii.) evidence of the applicant's fitness to prosecute it. The application may be referred for consideration to the Board or Boards of Studies dealing with the subject in which the Student proposes to prosecute his research, and the Senate may cause the Student to be registered as a research Student, in the event of the Board or Boards making a report to the effect that the proposed research is suitable for the purpose, and that the Student is fit to undertake it. In any list of successful candidates for the degree, successful research Students are to be placed in a separate division.

ANNOTATIONS.

THE APRIL EXAMINATIONS will witness a departure from the course of procedure hitherto followed in respect to the conduct of the Major examination. Hitherto it has been the practice for the Major questions—that is to say for the written portion of the examination—to be prepared jointly by certain of the members of the Society's two Boards of Examiners, but experience has clearly shown that the postal consultations necessitated by that rather cumbersome system involve not only great inconvenience without appreciable advantage, but also possibilities of still graver moment. In future, therefore, the Council has decided that each Board of Examiners shall examine its own Major candidates, precisely as it now conducts the test for its own Minor candidates. To guard against the danger of evolving a condition favourable to a divergence in the standard of examination at the two centres, the questions set in London and those set in Edinburgh will be published in the Journal side by side, unless it be found impossible to arrange for a simultaneous examination. It so happens that the April Major dates cannot be made to dovetail; for in London the practical chemistry test will probably have to be taken on the 7th and 9th of April and the written work on the 10th and 11th, whereas in Edinburgh circumstances render March 29, 30, and 31 more convenient days. Henceforth, however, it is expected that a very much nearer approach to simultaneity will be possible.

THE ANNUAL DINNER OF THE PHARMACEUTICAL SOCIETY is to be held at the Hôtel Métropole on Tuesday, May 15. It was decided at a preliminary meeting of members of the Society, held on March 14, that the time, price of tickets, and general arrangements should be as last year, the details being left as usual to the discretion of the Committee. That body will consist of the President, Vice-President, and Treasurer of the Society, together with Messrs. Allen, Arkinstall, Attfield, Bourdas, Carteighe, Eastes, Hill, Hills, Hopkins, Mathews, Paul, Robinson, Taylor, Umney, and Warren, with Mr. Richard Bremridge as Hon. Secretary. Members of the Society desirous of having their names included in the list of Stewards should promptly notify the fact to Mr. Bremridge.

THE NEW SPIRIT DUTY was referred to at page 256 of last week's Journal, but an error inadvertently crept into column 2, line 6, in copying the figures from the official documents. The line referred to should read "10s. 6d. spirit (excise) . . . 11s. per proof gallon," instead of 10s. 10d. and 11s. 4d. respectively. A letter from Mr. Charles Umney in this week's issue (see p. 289) directs attention to the matter.

ANOTHER BASELESS SLANDER ON CHEMISTS is being circulated, this time in a trivial publication called *Morley's Philatelic Journal*. The March issue of that record of human weakness, as revealed by the stamp-collecting craze, contains some suggestions for improvements in "patent" medicine labels, by a person who styles himself "A Manufacturing Chemist." But the slander referred to is embodied in an editorial note referring to those suggestions, wherein chemists are accused of deliberate fraud. The writer of the editorial note states that he recently visited a number of vendors of "patent" medicines with the double object of securing any old stamps that might be found on preparations now unfashionable, and of asking for such labels as dealers are accustomed to detach from proprietary articles sold in lesser quantities, or used in the course of business. To his great surprise he found, as he alleges, that "it is the almost invariable practice to use over again all the current labels thus obtained, and that this is done as a matter of course without any attempt at concealment." Further, he alleges that "chemists of high repute and eminent respectability have freely admitted their habitual fraudulent evasion of what seems to be regarded as 'an unreasonable duty,' and that "the Exchequer is annually defrauded to the extent of many thousands of pounds by the general indulgence

in this practice." With regard to all the statements quoted an unqualified denial may be offered; in fact, we venture to stigmatise them as deliberate falsehoods.

THE POSITION IN BRIEF, in connection with the Companies Bill, is thus pithily stated by the Secretary of the Pharmaceutical Society, in a circular letter sent to all local officers of the Society:—"The ultimatum of the Government, clearly conveyed through the Minister in charge of the Bill, is—*Clause 2, or nothing*. The Council feels that circumstances do not justify the acceptance of Clause 2, and that the present condition would be preferable both on public and pharmaceutical grounds." It is also explained, as already reported in the Journal, that at the Council meeting last week the President explained the result of his interview with the President of the Board of Trade in regard to Clause 2 of the Companies Bill, and stated that, in view of the strong expression of opinion by Mr. Ritchie, the Law and Parliamentary Committee had felt that in the circumstances no other course was open to the Council than to oppose the Clause. After careful and prolonged discussion, the conclusions of the Committee were adopted, and the Parliamentary Watch Committee, which has been charged with the duty of arranging details for opposing the Bill, hopes to have the cordial co-operation of all local officers of the Society in carrying the decision of the Council into effect when the Bill reaches the Committee stage. Meanwhile, those officers are asked to intimate to their Parliamentary representative their strong desire that they should oppose Clause 2 of the Bill when it reaches the Committee stage, also to suggest similar action on the part of their colleagues. It is further intimated that, immediately before the Committee stage, all local officers and other members of the Society will again be asked to communicate with members of Parliament on the subject.

THE COMPETENCY OF PUBLIC ANALYSTS is, in future, to be properly attested, the Local Government Board having issued an order prescribing regulations with respect to the appointment of such officials. Subsection (1) of Section 3 of the Sale of Food and Drugs Act, 1899 (62 and 63 Vict., c. 51) provides that it shall be the duty of every local authority entrusted with the execution of the laws relating to the sale of food and drugs to appoint a public analyst; and Subsection (5) of the same Section provides that any public analyst appointed under the Sale of Food and Drugs Act shall furnish such proof of competency as may from time to time be required by regulation framed by the Board. The Board has, therefore, framed a regulation requiring that every person appointed on and after January 1, 1900, to the office of public analyst shall furnish such proof as the Board may deem sufficient of his competent skill in the knowledge of (a) analytical chemistry; (b) therapeutics; and (c) microscopy; and the order proceeds to indicate the nature of the documentary evidence to be comprised in such proof. Such evidence of competency is to be furnished by the public analyst to the local authority by whom he is appointed; and it is to be transmitted to the Board by that authority when applying for the Board's approval of the appointment. In the case, however, of any person who was appointed to the office of public analyst with the approval of the Board between January 1, 1891, and the date of the order, or who is appointed to that office for the first time after the last-mentioned date, the regulation will not apply in the event of his subsequent appointment as public analyst.

THE BRITISH PHARMACOPEIA has been so freely quoted from by the compilers of works of reference during recent years that the book has come to be looked upon as common property, the contents of which might be drawn upon and utilised at will. Apparently, however, the Executive Committee of the General Medical Council is of opinion that the time has come to protest against such a view of the matter, for a small committee has been appointed to prepare

statement on the subject and report to the President, with the view of obtaining the opinion of Counsel as to whether extracts from the Pharmacopœia which have been incorporated, or are proposed to be incorporated, in certain publications infringe the copyright of the work.

BOTANICAL MATERIAL FOR MICROSCOPIC WORK can now be obtained with much less difficulty than was the case a few years ago, but many readers of the Journal will doubtless be glad to know that Messrs. James Backhouse and Son, Limited, of York, are now prepared to supply such material, having established a special department for the purpose, under the management of Dr. Arthur H. Burt. Specimens can be obtained to illustrate the myxomycetes, algæ (including diatoms), characeæ, fungi, hepaticæ, musci, pteridophyta (prothallia and vegetative organs), gymnosperms, and the more important orders of angiosperms. The histological section includes carefully made microscopical preparations guaranteed to illustrate all the more interesting and important structural and anatomical features of the usual types of plants employed in botanical demonstrations. The list issued by the firm consists of fifty quarto pages, and a number of convenient order forms bound up with it are arranged so as to facilitate the ordering of specimens for class purposes.

THE PROPOSED TAX ON PRODUCE CONTRACT NOTES does not commend itself to traders, and deputations from the London Chamber of Commerce and London and Liverpool trades have waited upon Sir M. Hicks-Beach to explain their objections to the tax. It was pointed out that it would be a heavy and unjust burden on brokers, would be easily evaded, and would embarrass trade operations. The Chancellor of the Exchequer, in reply to both deputations, explained the precise nature of his proposals, expressed his sense of the value of the views set before him, which he undertook carefully to consider, and mentioned as a matter which he might have to weigh, the expediency of repealing one of the exemptions to the Stamp Act of 1891, which would make the proposed taxation more general in its application.

THE OXFORD AND DISTRICT CHEMISTS' ASSOCIATION, at its annual meeting, has unanimously passed a resolution urging—as a just protection of chemists' titles—the amendment of Clause 2 of the Companies Bill, and suggesting that the Clause should provide that no company of unqualified persons may use the description of a pharmaceutical chemist or chemist and druggist, or any other title implying registration under the Pharmacy Act, 1868. It will be seen, by reference to the reports at page 296, that the Manchester and Sheffield Associations have also adopted resolutions on the same subject.

THE MANX PHARMACY BILL has been further modified, the clause referring to companies now providing that “No joint-stock company may carry on the business and use the description of chemist and druggist, or chemists and druggists, unless at each place of business of such company the retailing, dispensing, and compounding of poisons or medical prescriptions is conducted exclusively by a pharmaceutical chemist, or by a person registered as a chemist and druggist under the provisions of the Pharmacy Act, 1868, and unless the name of the person so qualified is conspicuously posted in the place where the business is carried on. Anyone acting in contravention of this section shall be liable to a penalty not exceeding £10.” As thus amended, the Bill has again been passed by the House of Keys, after a conference between a deputation from that body and the Legislative Council. It was also agreed to strike out certain additions to the Poisons Schedule and to arrange that any future addition to the British Schedule should become automatically included in that of the Isle of Man.

ENGLISH NEWS.

EXETER ASSOCIATION OF CHEMISTS AND DRUGGISTS.—The annual supper of this Association was held at Wilson's Guildhall Restaurant, High Street, on Tuesday, March 13. The newly-elected President (Mr. T. C. Milton) occupied the chair, and Mr. P. F. Rowsell (vice-President) the vice-chair. After supper the Chairman, in patriotic terms, proposed the loyal toast, which was musically honoured.—Mr. C. J. Moor (City Analyst), in proposing “The Exeter Association of Chemists and Druggists,” took the opportunity of thanking the members for electing him a member of the Association, and said that if the different Chemists' Associations throughout the country adopted that course and elected their local analysts members, a good deal of that friction which sometimes existed would be avoided.—The President, who was received with musical honours, regretted that although that was one of the largest gatherings of chemists the Association had held, many of the Exeter chemists were not present. Some, it appeared to him, did not know the value of such an Association as theirs. In his opinion subjects were discussed at their meetings which were of great benefit to the members. He then referred to Mr. Moor's recent address to the Association, and said that as honest traders they should endeavour to support him whenever circumstances might arise to necessitate it. He concluded by expressing the hope that in future Exeter chemists generally would attend their meetings. The meetings were not confined to principals, but they would be delighted to see managers and assistants present.—Alderman Gadd gave “The Visitors,” to which Mr. F. W. Kitts responded.—Mr. D. Reid suggested that arrangements should be made for the holding of an outing next summer, if possible in conjunction with the Plymouth and District Chemists' Association.—The President and Mr. J. H. Lake concurred in the suggestion, which was referred to committee.—The remainder of the evening was spent in conviviality, and the proceedings terminated with the singing of “God save the Queen” and “Auld Lang Syne.”

LANCASHIRE CHEMISTS AND THE COMPANIES BILL.—On Friday, the 9th inst., Sir Wm. Coddington, M.P. for Blackburn, invited a deputation of the North-East Lancashire Chemists' Association to meet him at the County Club, Blackburn, on the matter of the Companies Bill. Councillor Critchley, Messrs. C. Parkinson, W. Wells, and R. L. Gifford attended, and Mr. Wells gave Sir William a concise account of the history of the grievance complained of, and showed how it came about owing to the omission of the words “or persons” in the Act of 1868. He said the intention of the Act was to institute personal qualification and personal responsibility, but the whole effect of the Pharmacy Act had been nullified by limited companies being able, by this fault of the Act, to practise as chemists. The hon. member discussed the matter thoroughly, asking for information on cardinal points. Mr. R. Lord Gifford asked him to note that it was not a “trade” question. “Quite so,” replied Sir William; “I am quite clear about that. It is a professional matter, just as in the case of a doctor or a lawyer. The two clauses are a contradiction, and I cannot understand their appearance.” In further answer to the hon. member's questions, Mr. Gifford said the Lord Chancellor had been impelled to try to regulate the matter by the absurd extent to which the abuse had grown, and the fact of its being included in the Companies Bill was doubtless due to expediency. The hon. member said no settlement would be just except the putting of chemists in Clause 3. He was informed that a suggestion had been made that a qualified directorate would meet the case, but he said that would be impossible and unworkable; in fact, the House would not listen to any such scheme. In conclusion, Sir William said the deputation had a clear case. No limited company should be enabled to do that which it was illegal for individuals to do, and no employé could properly control the business. He hoped the Pharmaceutical Society and the chemists in other towns were enlightening members of Parliament on the

subject, because the opinion of two or three, without general support, would be useless.

ADULTERATED DRUGS IN YORKSHIRE.—In his latest annual report as public analyst to the West Riding of Yorkshire, Mr. A. H. Allen states that out of seventy-eight samples of camphorated oil examined no less than twenty-eight were found to be seriously defective. In most of these the proportion of camphor was materially below the prescribed amount, varying from 17.5 per cent. to as little as 1 per cent. In addition, mineral oil was sometimes substituted for olive oil, and in other cases a mixture of mineral and vegetable oils was so substituted. In one case, where the preparation was found to consist of 5 per cent. of camphor and 95 per cent. of mineral oil, the bottle containing the sample bore a printed label with the following words:—"Camphorated Oil, Beehive Brand. Prepared with finest olive oil and pure camphor." The numerous variations were, he thought, intentional, or due to gross carelessness in the preparation of the article. There was no foundation for the statement, sometimes urged by the defence in mitigation, that the preparation is liable to deteriorate on keeping, owing to the volatility of the contained camphor. Spirit of nitrous ether, or sweet spirit of nitre, is liable to deteriorate by keeping, especially if kept in an imperfectly closed bottle or if exposed to light. It is evident that the potency of a drug depends upon the proportions of its active ingredient, and it is eminently important that its activity should be as nearly constant as practicable. Nothing is more dangerous than a drug which varies materially in its composition, and therefore in its medical activity. That is fully recognised by pharmacists, but unqualified shopkeepers naturally have not the knowledge of the character of drugs which is desirable, nor do they in many cases appear to recognise the responsibility attached to their sale. The plea that a drug has lost its active principles through long or careless storage may be used in mitigation of an offence by such a vendor, but the sale of a drug thus unfitted for use is comparable to the sale of fish or meat unfit for human consumption. A practical difficulty in all proceedings in connection with the sale of defective drugs arose from the fact that the British Pharmacopœia is not established by law as the official standard for the drugs named therein, but is simply accepted as evidence of what such drugs may reasonably be expected to be.

SALE OF BEESWAX.—Cornelius Ryan, grocer, 223, Broadway, Bexley Heath, Kent, was fined 10s., at Dartford Police Court, on Saturday, March 3, for selling beeswax which was not of the nature, quality, and substance demanded, it being certified to contain 41 per cent. of resin. For the defence it was stated that the beeswax in question was part of the stock taken over by defendant with the business.

SCOTTISH NEWS.

ABERDEEN PHARMACEUTICAL ASSOCIATION.—The sixty-second annual meeting of this Association was held in the Governor's Hall, Robert Gordon's College, on Wednesday evening, the 7th inst. There was a good attendance of members, and Mr. Charles Simpson, President, occupied the chair. The various reports for the year were adopted. The secretary's report showed that the Association had been very active throughout the year. Besides the quarterly meetings there were six special meetings to discuss such questions as the storage of Poisons Regulations and the adopting of a uniform poisons' bottle, the Federation suggestions, etc. The membership again showed a gratifying increase, there being now 53 members, which include almost every registered chemist in business in the city. The treasurer's report was likewise very satisfactory, showing a good balance in favour of the Association, notwithstanding that £6 6s. had been paid out of the funds for the year as prizes to the students at the evening school of pharmacy in the

college. Mr. Giles, convener, submitted the Education Committee's report, which dealt with the progress of the classes in the pharmaceutical department of the college, under Messrs. Ellis and Morris. There was a larger attendance at the evening school than last year, and the number who had passed the qualifying examination of the Pharmaceutical Society since the school was established augured well for its future success. All the office-bearers were, re-elected, viz., President, Mr. Charles Simpson; vice-President, Mr. Andrew Craig; Secretary, Mr. John Cruickshank; Treasurer Mr. Jas. Paterson. It was remitted to the Executive Committee to draw up a petition to be presented to the Hon. Jas. Bryce, M.P., and Mr. Buchanan, M.P. (acting for Captain Pirie, M.P., who has gone to the front), asking them to oppose Clause 2 of the Companies Act.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The annual supper of this Association took place in the Imperial Hotel, Market Street, on Friday, March 9, when upwards of eighty members and friends assembled, and Mr. Fraser McDiarmid, President, occupied the chair. Mr. J. Lennox, in proposing "The Pharmaceutical Society," said the Pharmacy Bill of 1898 rearranged the Society's atoms, and assistants were much obliged to the Society for the different position in which it had placed them. The membership of the Society had increased by about a thousand, and the change had the effect of creating increased interest in the Society with regard to the Companies Bill. All were united as to the restriction of statutory titles to qualified men, but outside that there was endless diversity. The Scotch view was to secure the exclusive use of titles and a regulation of company pharmacy that would secure control by registered chemists. There had recently been a spasmodic discussion on the question of dividing the Minor examination, but it had, apparently, led to no result, as the Council seemed wedded to the idea of uniting a compulsory curriculum to any plan for division. He trusted the matter would not be lost sight of because the present state of affairs called for early amendment. They were all deeply interested in the Society and he felt sure they would all heartily join in wishing it continued prosperity and usefulness. In the absence of Mr. Boa, owing to family bereavement, the toast was acknowledged by Mr. Lunan, who congratulated Mr. Lennox on proposing the toast in a less critical mood than was often adopted at these gatherings. He thought they must recognise the fact that company pharmacy had come to stay and that no policy was possible other than that of securing some satisfactory regulation. One point he wanted to emphasise about the Companies Bill was that the crux of the whole situation was the protection of titles. If that were sufficiently secured they had not much to fear. Mr. J. P. Gilmour, in an eloquent speech, proposed "The Edinburgh Chemists', Assistants', and Apprentices' Association," which was acknowledged by the President. Mr. Rutherford Hill proposed "Kindred Associations," to which Mr. C. F. Henry, Secretary of the Edinburgh District Chemists' Trade Association replied; Mr. W. L. Currie also spoke, and said he believed companies had come to stay, and what they had to do was to see that they carried on the business of dispensing and selling poisons in a perfectly legal manner. The qualified directorate idea was of no use. He did not think they would obtain the sole right to sell and dispense medicines, and should therefore insist that companies carrying on a drug business must do so by the hands of a registered man, and that his name must appear in a conspicuous place both on the place of business and on labels. Mr. Taylor replied for the "Glasgow Chemists' Assistants', and Apprentices' Association," and the evening's proceedings were enlivened by songs, etc., by Messrs. Currie, Murray, Alexander, Rowland, Tait, and Crichton, the latter acting also as accompanist. Dr. Coull proposed "The Chairman," who replied, and a pleasant evening concluded with "Auld Lang Syne" and "God Save the Queen."

FAT STANDARDS FOR MILK AND CREAM.—Some interesting evidence on these points was submitted at a meeting of the directors of the Scottish Chamber of Agriculture in Edinburgh recently. Mr. McCracken, Dunragit, Wigtownshire, whom it is proposed to send as an expert witness to give evidence before the Board of Agriculture Departmental Committee, said that milk and cream, being natural products of varying quality and not manufactured, should be bought and sold without the imposition of any arbitrary standard. If, however, a standard was insisted on, he approved of 2.75 per cent. and 15 per cent. of butter fat as a minimum for milk and cream respectively. Dr. Drinkwater had analysed a number of samples for the Edinburgh Dairy-keepers' Association. He found that the quality of milk stood much higher during the summer months, and especially July, than it did during a winter month like February. The average of twenty samples of morning milk in July was 3 per cent. of butter fat, while the average of forty-five samples of February milk was 2.67 per cent. In the case of individual cows the average varied from 2.1 per cent. to 4.52 per cent. Cows getting a generous feeding of oat straw gave the best results so far as butter fat was concerned. It was a case of breeding for quality of the milk and feeding for quantity. The Ayrshire breed stood very high in regard to quality, though the quantity was small, while Shorthorns gave quantity with less of quality. Cream was found to vary from 15 to 35 per cent. of butter fat. Cream yielding 25 per cent. was regarded as of very good quality, and 15 per cent. was considered the proper minimum. A majority of the Dairy-keepers' Association favoured 2.55 per cent. as a milk standard. Mr. Spier, an expert, considered 3 per cent. not too high, but the Chamber ultimately agreed to 2.75 per cent.

PHARMACEUTICAL SOCIETY OF IRELAND.

At the monthly meeting of the Council, held on March 7, the PRESIDENT, Mr. George D. Beggs, took the chair, and the other members of Council who attended were Dr. Walsh, and Messrs. Bernard, V.P., White, J.P. (Sligo), Kelly, Wells, Grindley, and Simpson. It was stated that the *Medical Press* had apologised for the inaccurate statement referred to at the previous meeting. The receipt of several donations was announced, and a letter was received from a member of the Society stating that through the occurrence of a fire at his premises his license had been burned. It was decided to send him a letter stating that he had passed the license examination. A letter from Dublin Castle sanctioned an arrangement of the Council to commence the Easter examination on the Tuesday before Good Friday. A letter from the Under-Secretary enclosed a copy of a memorial which had been sent to the Lord Lieutenant by James White, of Castleblayney, praying that a penalty of £5, which had been imposed on him for an illegal sale of poison, might be remitted. The matter was referred to the Law Committee to draft a reply, stating that the Council did not think the penalty should be remitted. Some other business having been disposed of, the Council adjourned.

MANCHESTER PHARMACEUTICAL ASSOCIATION.

At a meeting held on March 14, Mr. GEORGE S. WOOLLEY, President, in the chair, some "Pharmacy Notes" were read by Mr. J. H. Hoseason, after which a discussion took place on the Federation suggestions with regard to

THE COMPANIES BILL.

The discussion was taken part in by Messrs. Woolley, Walton, Philips, Kemp, and Pidd, and the unanimous decision of the members present was that the only possible and reasonable course to adopt was to support the Council of the Pharmaceutical Society in opposing Clause 2 of the Bill.

Mr. Kemp moved the following resolution, which was seconded by Mr. Philips:—"That this Association confirms the action of the Pharmaceutical Society, and promises to do all in its power to carry out the advice in the letter tendered this evening."

Mr. KEMP said the danger of having no settled policy was very great, and it was hoped that pharmacists would see the advantage of supporting the Council in opposing Clause 2 as the only feasible plan under the present circumstances. It was also agreed that each individual member would write his member of Parliament to that effect.

Mr. Woolley also moved "That this meeting respectfully suggests to the Pharmaceutical Council the desirability of further agitating for the inclusion of pharmacists along with medical men and dentists in Clause 3 of the Companies Bill."

This was seconded by Mr. KIDD, and carried unanimously.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY.

At a meeting held on March 14, Mr. G. SQUIRE, President, in the chair, the prizes won by students who read papers on "How to Spend a Profitable Half-Holiday" were awarded to A. G. Yates (first) and A. Wright (second).

Mr. SQUIRE then read a paper on "Pharmaceutical Topics," in which he dealt with the present aspect of affairs in connection with

THE COMPANIES BILL,

and explained the position taken up by the Council of the Pharmaceutical Society.

Mr. J. AUSTEN subsequently proposed the following resolution:—"That this meeting is of opinion that the conclusion arrived at by the Council of the Pharmaceutical Society at its meeting on Wednesday last in reference to Clause 2 of the Companies Bill is a correct one and should have the universal support of the chemists of the country."

Mr. J. W. J. TURNER having seconded the motion,

Mr. NEWSHOLME, in supporting, did not think the chemists would be a little better off if Clause 2 were passed. He could not see how it would benefit the chemists of the country. The Companies Bill was brought out to protect capital. If the clause were passed it would place the companies in a far superior position to their present one and the chemists in a much inferior one, from the fact that capital would be used to a far greater extent than at present in running the so-called drug stores, and limited companies would be placed on a far higher pedestal than ever. He did not admit that the companies had any vested interest in the trade. The decision which allowed them to carry on placed companies outside the Pharmacy Act, and those who gave that decision ought to have made it say also that there must be no company pharmacy. It ought to be made perfectly clear that chemists had neither the wish nor the power to prevent the stores from selling ordinary drugs. The Act placed responsibility upon pharmacists in selling poisons, and that really was the only privilege—if he might use the word—that the chemists of the country had. What they were fighting for at present was simply the question of titles and the compounding and selling of poisons. They would like to be able to control the sale of every drug in the Pharmacopœia, but they knew that that was utterly impossible. He believed that if they made their views known to members of Parliament, they would see the matter in a new light. He agreed with the President that nothing ought to be done in connection with pharmacy except in a Pharmacy Act, and he was also of opinion that before the Board of Trade did anything they should consult the Council of the Pharmaceutical Society.

The resolution was carried, and a copy will be forwarded to the Pharmaceutical Society.

CHEMICAL SOCIETY.

There was an unusually large number of contributors present at the meeting held on Thursday, March 1, the President, Professor T. E. THORPE, occupying the chair, therefore requested the authors to communicate the results of their work as briefly as possible.

A paper was read by Dr. JOWETT, on

PILOCARPINE AND THE ALKALOIDS OF JABORANDI LEAVES.

Dr. JOWETT said he had taken up this subject on account of the conflicting accounts given by previous workers. He has repeated the experiments described by them, and finds that he can mainly confirm the results of Petit and Polcnowsky, but entirely disagrees with the statements of Hardy and Calmels, who claimed to have not only proved the constitution of the alkaloid, but also to have synthesised it. He gives the name isopilocarpine to an alkaloid of the same composition as pilocarpine, namely, $C_{11}H_{16}N_2O_2$, which appears to have been mistaken in an impure condition for a pilocarpidine. He has also failed to confirm the existence of jaborine; that which is sold as jaborine being a mixture.

It is probable that the confusion of pilocarpidine and iso-pilocarpine arose from the fact that the leaves now on the market are not those of the original plant *Pilocarpus jaborandi*. Iso-pilocarpine is the principal alkaloid of the leaves now in use.

Mr. Kingzett rose to point out that the composition of the alkaloid was almost identical with that stated by himself in 1876, and should have been noticed by the author.

Mr. DUNSTAN said he was glad to see that the existence of jaborine had been finally disposed of; he hoped the Society would soon hear further results of the continuation of the work. He also reassured Mr. Kingzett that reference was made in the paper to his own work.

Two papers were then communicated by Professor Kipping, one by himself on

ISOMERIC PARTIALLY RACEMIC SALTS CONTAINING PENTAVALENT NITROGEN,

and the other by himself and Mr. Harold Hall on

A NEW SYNTHESIS OF INDENE.

The former paper was a continuation of work begun by the author, together with Mr. W. J. Pope at the Central Technical College, on pseudo-racemic substances. He now attempted to resolve into its dextro and laevo optically active components the externally compensated substance hydrindamine.

The bromo camphor sulphonate of this base was made, and by fractional crystallisation, two different salts, which were not enantiomorphous, were obtained. A long series of experiments upon the nature and differences of these salts was made, but they were undoubtedly composed of the same acid and base in one proportion. It was clear also that their inactivity was not due to autoracemisation. The chloro camphor sulphonate was also made and gave two corresponding salts. Further, if the acid from one salt was regenerated, then, on again neutralising with the base, it gave the two salts as before. The explanation of this behaviour Professor Kipping intimated was difficult; he was prepared to suggest an explanation, but since he had arrived he had been advised not to do so. He believed, however, that four substances were formed, and that these united in pairs to form partially racemic compounds. Professor Armstrong said that although he had been one to advise Professor Kipping not to give this explanation, yet there was here an important discovery in the chemistry of nitrogen. Mr. Pope offering a few comments upon the subject, said that the matter required mature consideration, and suggested that another a symmetric carbon atom might be introduced into the molecule of hydrindamine, and so render it capable of resolution into its optically active components.

Professor KIPPING in reply, stated that derivatives of hydrindamine were being made with this object in view.

The PRESIDENT next announced papers by E. Divers, D.Sc., F.R.S., and T. Haga, D.Sc., on

CERTAIN POTASSIUM SALTS,

the first on potassium nitrito-hydroximido sulphates, and the non-existence of dihydroxylamine derivatives, and the second on the identification and constitution of Fremy's sulphazotised salts of potassium.

Dr. DIVERS rose to say that as time was so limited, he did not wish to say anything of his paper, but on the wish of the President he briefly described the nature and properties of the substances named in the title of the paper.

SOME ACIDS FROM α -DIBROMOCAMPHOR.

A paper by A. Lapworth, D.Sc., and E. M. Chapman, from the laboratory of the Pharmaceutical Society, was read by Dr. LAPWORTH.

The authors converted homocamphoronic acid into a lactone. This hydrolysed giving a ketonic acid. The ketonic acid combined with hydrocyanic acid, and the resulting compound after hydrolysis formed a hydroxy dicarboxylic acid which was capable of yielding an anhydride; the ketone cannot therefore be a δ lactone, but must be a γ lactone.

The ketonic acid, moreover, gave a tribromolactone with bromine.

The conclusions drawn from these facts and from its derivation from α dibromcamphor is that the only formula admissible for it is not in agreement with Bredt's formula.

A paper by W. N. Hartley, F.R.S., and J. J. Dobbie, M.A., D.Sc., was also read on

SPECTROGRAPHIC STUDIES IN TAUTOMERISM,

showing the value of spectrographic method in recognising stereoisomeric compounds, and distinguishing enolic from ketonic forms.

Other papers were taken as read.

It was announced by the President that at an extra meeting of the Chemical Society on Thursday, March 8, at 8.30 p.m. a lecture will be given by Professor Warrington, F.R.S. on "Recent Researches on Nitrification."

At an extra meeting held on Thursday, March 8, the PRESIDENT Professor T. E. Thorpe, F.R.S., in the chair, a lecture was delivered by Professor Warrington, F.R.S., entitled

RECENT RESEARCHES IN NITRIFICATION.

The PRESIDENT remarked that it was not necessary for him to introduce the lecturer, as Professor Warrington had so long occupied a distinguished position among the Society, while his father had been one of its founders.

Professor WARRINGTON said he should chiefly deal with what had been done on the subject since nine years ago, when great advances were made through the researches of Winogradsky, of St. Petersburg. There was at that time a great difficulty in obtaining pure cultures of the micro-organisms concerned in the conversion of ammonia into nitrites and the conversion of the latter into nitrates. Pure cultures were obtainable by two methods. The first was the principle introduced by Dr. Percy Frankland of diluting the solution containing the culture and separating it into drops on the chance of each drop containing a separate individual from which a colony could be produced. The other method was to allow a solution of ammonia to ferment until it was just all converted into nitrite. Since a day or two usually elapses before the nitrate fermentation begins, if a drop of the solution in that condition be put into a fresh ammonia solution, then only the nitrite organisms are nourished. By repeating the treatment the nitrate organisms are ultimately crowded out. Similarly, by excluding ammonia from the culture of nitrate organisms, they were obtained free from the other class. Winogradsky had done much in adding to the methods of working and improving them. He was the first to show that solid mediums could replace the mineral solutions

previously used. By dialysing a 2 per cent. solution of silicic acid a silica jelly is obtained. Magnesium carbonate is mixed with this to neutralise the nitrous acid produced. The growth of the colony can then be observed by the clear spots in the medium where the magnesia has been dissolved by the nitrous acid formed. Since the solution of ammonia has to be very weak, a useful and ingenious method of gradually feeding the organisms was invented by the same scientist. Up to a year ago silica jelly was the best medium known, but a mixture of calcium sulphate with magnesia, called magnesia gypsum, is now used. It is less troublesome to prepare, and the organisms grow on it more quickly. Attempts to grow cultures in agar jelly had always failed until recently, when it was found that by soaking the agar in several successive quantities of water, a peculiar fermentable substance inimical to the organisms was removed, and agar now serves very well for the culture of both the nitrous and nitric kinds. The presence of a little ferrous sulphate in the culture, though apparently favourable, has little effect. As to the nature of the organisms, many different soils from various parts of the world have been examined, and while only one species of the nitric kind has been found, many and often very decided differences have been found in the nitrous. Specimens were shown collected from different countries. They all occur as zooglea, a jelly-like mass of individuals; but some species are capable of changing the zooglea form for a mobile one, in which each individual is free and provided with a tail. They are all capable, including the nitric kind, of absorbing carbon dioxide and converting it into organic material. Quantitative determinations upon this phenomenon have been made by Winogradsky. The conversion of nitrites to nitrates may go on in a neutral medium, and the presence of carbonate is beneficial; but the presence of carbonate is not sufficient for its nourishment; it must have free carbon dioxide. This fact contains a subject of great interest: from whence is the energy derived? It has been suggested that it is supplied in the oxidation of the ammonia and nitrous acid, and it is found that there are as much as thirty-five parts of nitrogen oxidised for one part of carbon fixed; but, on the other hand, bacteria have been found which live in inorganic solutions, use up carbon dioxide, and do not nitrify at all. Sensible heat has been suggested as the source of energy of these, but this is as yet hardly acceptable by scientists. The interesting features of nitrifying organisms have been studied, notably their behaviour towards organic substances. Experiments have been made taking into account the time occupied by similar numbers of bacteria in doing work under different conditions, the basis being the time taken in a totally inorganic solution. In no case was it found that organic substances favoured the action, but with an increase of the amount present the action became suspended, although the organism was not killed. One instructive case occurred, when a solution containing sufficient glucose to render it inactive became accidentally contaminated with a species of mould. The mould ate up the glucose, and nitrification ensued. A remarkable feature of this effect is that the quantity of glucose or peptone necessary to suspend the action of the organism is quite as small as the quantities of carbolic or salicylic acids generally sufficient to stop the action of bacteria. Moreover, it is possible to educate the organism by gradually changing its surroundings. A little ammonia prevents the conversion of nitrites into nitrates. The lecturer had found long ago that sixty-four parts per million was sufficient to prevent the action. According to Winogradsky, as little as five parts per million perceptibly retards the conversion, and although this action of ammonia is so energetic as to compare with that of mercuric chloride on bacteria, yet nitrites are not found in soils at any stage of the fermentation, it is all as nitrate from the beginning. The reason of this is probably twofold: the ammonia solution in the soil is very weak, since the soil absorbs it from solution, and secondly it is due to the large proportion of the nitric organism existing there. An instructive experiment recently published in the *Comptes Rendus* showed that after intensifying the action of the nitric germ, more and more ammonia could be added up to

240 parts per million. Winogradsky has carefully studied whether asparagin urea, and such nitrogenous substances, can be broken up by the ferment, and he finds that when ammonia is excluded and the solution is filtered through porcelain to free it from other organisms the action ceases. The help of other organisms is required to break down such organic substances, and therefore in sewage decomposition the septic chamber is necessary for this breaking down before nitrification can take place. Concluding, the lecturer remarked that one cannot help admiring the organism and its marvellous working. We can chronicle what he does, but there our knowledge ends.

Sir WILLIAM THISTLETON DYER proposed a vote of thanks to the lecturer, remarking that he had said a great deal of Winogradsky's work, but had modestly omitted mention of his own.

The vote of thanks was seconded by Dr. HUGO MULLER and carried with hearty applause.

CHEMISTS' ASSISTANTS' ASSOCIATION.

Thursday, March 8, was "Queen's Day" in London; it was also Chemists' Assistants' Day—the one day of the year when the assistant occupies the higher, and the master the lower, seat at table. Consequent on the first-mentioned event the Holborn Restaurant had been gaily decorated outside with flags, banners, and plants; inside—very appropriately—that magnificent room the "King's Hall" was set apart for the use of some two hundred odd of her Majesty's loyal pharmacists.

The occasion was, of course, the

Annual Dinner

of the Chemists' Assistants' Association, being the twenty-second such.

The PRESIDENT, Mr. F. W. Gamble, was in the chair, Mr. Wm. Martindale (President of the Pharmaceutical Society) being on the right, and Dr. Wm. Murrell, F.R.C.S., on the left. There were also present, in addition to representatives of most of the wholesale houses, Mr. E. M. Holmes (President of the British Pharmaceutical Conference), Mr. G. T. W. Newsholme (Vice-President of the Pharmaceutical Society), Professor Greenish, Dr. J. Attfield, Mr. W. S. Glyn-Jones, and other well-known pharmacists. The spur tables were presided over by Messrs. Arrowsmith, Hymans, Latreille, Martin, Morley, Pearson, Solomon, and Strother.

After a well-served dinner came dessert and a flash-light photograph of the company; then the toast of

THE QUEEN EMPRESS,

proposed in a right loyal manner by the PRESIDENT, and honoured as only a British assembly can honour the toast—with patriotic fervour.

Mr. A. LATREILLE then proposed the toast of

THE MEDICAL PROFESSION.

He said it was, of course, covering old ground to point out the close relationship that existed between pharmacists and members of the medical profession in general. Probably there was never a time in the history of the Association when the affinity and mutual esteem was so great as that which holds at present. The toast was one which had always held an honourable position at the annual dinner of the C.A.A. It was of special interest on that occasion, when the thoughts of all were turned to the South African war. He thought all would agree with him that one of the brightest spots in the campaign was the admirable and most complete way in which the whole of the medical arrangements had been carried out. Our Continental neighbours might venture—with small success, it was true—to sneer and cavil at British methods of military administration, but he did not think for a moment that even the most bitter of the critics could possibly find fault with the way in which the hospital and ambulance work had been and is being carried out for friend and foe alike. No one, on reading Mr. Treves' graphic article in the *British Medical Journal* of the battle of Spion Kop, could fail to realise, with much thankfulness, the account of the

manner in which the tending of the wounded was proceeded with. And again, they must recognise the great patriotism which has been shown by so many members of the medical profession in offering their services for the front. He might instance the splendid example set by Sir William MacCormac—an example which had been cheerfully followed by scores of others, many of whom had gone out with probably small chance of much glory or distinction, but who, nevertheless, had the satisfaction of knowing that they were fulfilling a duty not less noble than those who might be more actively employed. In associating the name of Dr. Murrell with the toast, he, Mr. Latreille thought, required little or no introduction on his part. He was probably well known to most of those present, and the fact of his having connected himself with work which was of great interest to all chemists would insure the cordial welcome which he (Mr. Latreille) anticipated would be extended to him that evening.

Dr. WM. MURRELL, in reply, thanked those present for the cordial way in which the toast had been proposed and received. He especially wished to thank the Association for the honour conferred upon him by associating his name with the toast. He found it by no means an easy task to speak to that toast when he remembered that in previous years they had been addressed by so eminent a man as Sir James Crichton Browne. However, his presence there that evening recalled the days when he was a student at University College, and had for his teacher in pharmacy and dispensing the present President of the Pharmaceutical Society, Mr. Wm. Martindale. At that time he thought Mr. Martindale was a very exacting man. His teaching was thorough and practical; the knowledge he (Dr. Murrell) gained in those days he had carefully treasured up, and had since often palmed it off on students of his own. It was greatly to be regretted that pharmacology had been, practically, dropped out of the medical curriculum. Students were now educated and turned out as medical men knowing little or nothing about pharmacy and dispensing, consequently being unable to prescribe intelligently. Dr. Murrell related several instances bearing out that view of the present system of medical education. One case in point was that of a physician at one of the hospitals, who when prescribing simply indicated the drugs to be compounded, leaving the quantities and dose to be decided by the dispenser. The latter raised an objection to dispensing such prescriptions. On the matter coming before the hospital authorities, the physician said it was the dispenser's business to know the quantities and doses; if he did not know his business he had better be discharged. Having related a few more incidents, Dr. Murrell went on to say that it seemed to him new remedies are now much more frequently introduced by pharmacists than by physicians, and that the pharmacists try them on themselves. The moral of it all was that pharmacists and physicians should work together as much as possible, and in his opinion the more highly educated the physician, the less chance there will be of his dispensing.

A slight digression from the programme was made at this point to enable Mr. E. M. Holmes, the proposer of the toast of

THE CHEMISTS' ASSISTANTS' ASSOCIATION,

to leave at an early stage in the proceedings. Mr. HOLMES having expressed his regret at being compelled to interfere with the arrangement of the programme, said that he thought the members of the British Pharmaceutical Conference who were present should feel highly complimented that their president was asked to propose what he ventured to say without hesitation was the toast of the evening. He said so because the chemists' assistants of to-day will be the masters of to-morrow, and from their ranks will be chosen the future members of Council and presidents of the Pharmaceutical Society; the officers and professors of pharmacy, and possibly other branches of pharmaceutical science. Even the Executive of the Conference and its presidents must be selected from the same source. Moreover, the politicians of pharmacy like Jacob Bell, the men of science like Daniel Hanbury, the men of boundless

energy, the born leaders of men, like the past president of the Society, Mr. Michael Carteghe; the princes of pharmacy, like the present president, Mr. William Martindale—men who have made the name of British pharmacy respected all over the world. All the men of light and leading in pharmacy of the future were bound to arise from the ranks of the chemists' assistants of to-day. He then congratulated assistants as a body on the progress they have made during recent years. Fifty years ago there was no Chemists' Assistants' Association, neither was there any Conference or a "Year-Book of Pharmacy" to keep them up to date in pharmaceutical progress. He hoped the Association would continue to prosper, and he called upon all his fellow members of the Conference present—and the others who ought to be, but as yet are not—to drink the toast in the heartiest manner. He coupled with the toast the name of the President, Mr. F. W. Gamble.

The PRESIDENT, in reply, mentioned that the dinner this year was being held a week later than usual, otherwise they would have been able to celebrate the good news of the previous Thursday—the relief of Ladysmith. However, they were assembled that night on but a little less auspicious an occasion—the Queen's visit to London. Having read a letter from Mr. J. F. Harrington, President of the Western Chemists' Association (of London), regretting his inability to be present, he then referred to a remark made by Mr. Holmes, to the effect that the Association was a training ground for pharmacists of the future. He thought Mr. Holmes had spoken truthfully in that respect. The Association had suffered somewhat during the war-time, as many of the assistants had left the feet of Minerva to follow the god of Mars. He should be delighted if he could persuade all present to join the three bodies mentioned by Mr. Holmes—the Chemists' Assistants' Association, the Pharmaceutical Society, and the Conference, but he could ask all to join the Association, and he felt sure they would then gain that devotion to their craft that they would doubtless join the other bodies. On behalf of his colleagues and himself, he thanked those present for the cordial reception they had given to the toast.

Mr. C. MORLEY (Vice-President) said it was down in his name to propose the toast of that most maligned body,

THE PHARMACEUTICAL SOCIETY.

Although he called it a "maligned body," it was possessed of one or two virtues; he would not enumerate them, however, for he thought they were well known by the general body of chemists. He believed that the reason why many, after passing the Minor examination, became dissatisfied with the Society was because it does not confer upon them all the benefits which they think they ought to have. Of course all present knew that it was quite beyond the power of the Society to confer the benefits many chemists would like to have. Still, he believed that the Society does very well, on the whole, and that the Council does the very best it can, under the circumstances. He would couple with the toast the name of the worthy President and illustrious pharmacist, Mr. Martindale.

Mr. MARTINDALE thanked all for the manner in which the toast had been proposed and received. Mr. Morley had said that the Pharmaceutical Society possessed some virtues. It not only possessed some virtues, but it had many duties to perform. Those duties Mr. Martindale enumerated, and then went on to say that the members of the Council of the Pharmaceutical Society are something like the members of the House of Commons, in that they are part of the great unpaid, and suffer, like members of Parliament, by being the most criticised and maligned of bodies. Both suffer for the doings of their predecessors. He meant that they had their Majuba Hill. The Parliamentary Majuba Hill was being avenged at the present time; that of the Pharmaceutical Society had not yet been avenged. He referred, of course, to the case that the Society lost in the House of Lords twenty years ago. Mr. Martindale here referred to the decision of the Pharmaceutical Council the previous day, to oppose Clause 2 of the Companies Bill, and said it came to that conclusion as being the best way to meet the wishes of

pharmacists generally. They certainly could not accept the clause as it passed the House of Lords last session, and they could not quite agree to regulate pharmacy to be carried on by limited companies. With regard to the judgment of the House of Lords twenty years ago, it gave chemists' assistants a place in pharmacy which much improved their position. He meant that the assistant now takes the place of the qualified proprietor. It necessitated that the actual seller of poison must be the qualified pharmacist. However, he hoped that assistants would be true to their calling and endeavour to uphold the traditions of their craft. He asked them to remember who trained them. They were trained and educated by pharmacists, not by limited companies; therefore he hoped they would not become slaves to the Moloch of free trade. He should be sorry to see pharmacy degraded to big limited companies. In reference to Dr. Murrell's remark about the instruction he received at University College, he was glad to know that his teaching was not quite in vain. He was afraid at the time that the seed sown fell on rather stony ground. It was a pity that medical students were not better trained in pharmacy; they would then be better qualified to prescribe. The practice of keeping ready-made medicines did not enable medical men to select their drugs as they used to do. He again expressed his thanks for the kind way in which the toast had been received.

The next toast should have been that of

THE VISITORS,

but owing to some misunderstanding on the part of the usher, it was not proposed by Mr. Hymans as per programme, Mr. Charles Umney being called upon to respond to the toast before it had been proposed. However, he made the best of the matter, and, commenting on the fact that although forty years ago there was not such an association of chemists' assistants as at present, yet they had the evening meetings of the Pharmaceutical Society, which all the youth of the trade attended. He expressed a hope that they would not neglect the opportunity now, but would attend the evening meetings of the Society in large numbers.

An excellent musical programme had been arranged, and was gone through with but slight alterations.

LIVERPOOL CHEMISTS' ASSOCIATION.

A meeting was held at the Royal Institution on Thursday evening, the 8th inst., the PRESIDENT, Mr. A. S. Buck, in the chair.

Dr. SYMES gave a short account of the work done at the last meeting of the Council of the Pharmaceutical Society and of the position it was intended to take with reference to the Companies Bill. This was followed by a short discussion, and then the PRESIDENT made several announcements, which were as follows:—

1. The annual dinner of the Association will take place at the Exchange Station Hotel on Thursday, the 22nd instant, at 7.15 for 7.30 prompt. Tickets 5s. each.

2. The General Purposes Committee of the Association had proposed that a book should be kept at the Royal Institution in which members should be invited to enter the names of any new or out-of-the-way drugs, chemicals, or other preparations in their stock, so that other members in want of such preparations for filling prescriptions might know where to obtain them.

3. It was proposed to hold a meeting at an early date to consider the terms of the Companies Act.

A telegram had been received from Mr. Theo. H. Wardleworth, F.L.S., who was down for a lecture during the evening on his "Reminiscences of a Tour in the Western Hemisphere," saying that as he was confined to the house with a bad chill, he would not be able to attend. In his absence an address was given by Mr. R. C. COWLEY on the

STORAGE OF DRUGS AND GALENICALS, AND PHOTO-CHEMICAL INFLUENCES.

After some preliminary remarks upon the phenomena of sight, and the effects of various parts of the spectrum in causing chemical

changes in substances, Mr. Cowley considered in detail the various bodies and preparations of the Pharmacopœia and the action of light upon them. The changes in silver, mercury, and iron salts were alluded to; the deoxidation of permanganates, and solution of H_2O_2 , the conversion of soluble morphine and other alkaloidal salts to basic and less soluble compounds, the coloration of phenol and resorcin as well as of santonin, and the complex and interesting effects of light upon fats and oils (both fixed and volatile) were explained as fully as the amount of knowledge of these phenomena existing at the present time enabled the lecturer to venture. In conclusion, it was remarked that the best way to ensure activity and permanence in either drugs or chemicals was to guard them carefully from the light, and that one of the best methods of doing this was to use orange or red glass bottles and jars, so as to prevent the violet and other highly refrangible so-called actinic rays from coming in contact with the contents.

Dr. SYMES proposed a vote of thanks to Mr. Cowley for having filled the hiatus caused by Mr. Wardleworth's enforced absence with such an instructive and practical address. The influence of light on many substances was due to the presence of organic matter, silver salts being more readily reduced in contact with organic matter than when in a pure atmosphere or solution.

The vote of thanks was seconded by Mr. J. SMITH, and supported by Mr. H. O. DUTTON, the latter remarking on the difficulty of obtaining—from English glass-makers, at any rate—shop rounds and jars of the colour advised by Mr. Cowley.

The darkening of silver nitrate in the ordinary white glass bottles was due to the alkalinity of the glass in part, Mr. H. WYATT, jun., observed, but principally owing to the traces of chlorides contained in the air covering the salts with a thin layer of silver chloride, and this being reduced by the light to the silver reduction product.

Mr. COWLEY having replied, the proceedings terminated.

NOTTINGHAM AND NOTTS. CHEMISTS' ASSOCIATION.

The thirty-first annual dinner under the auspices of this Association was held at the Albert Hotel, Derby Road, on Thursday, March 8. Mr. RICHARD FITZHUGH, J.P. (President of the Association) presided, and Mr. R. H. BEVERLEY (Vice-President) occupied the vice-chair. There was a large attendance, including Mr. G. Squire (President of the Sheffield Pharmaceutical Society), Mr. A. Russell Bennett, Mr. A. Eberlin (Secretary), and Mr. J. Wilford (Treasurer), and the Chief Constable of the city (Mr. P. S. Clay).

Mr. A. RUSSELL BENNETT proposed the toast of the

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

He said the Society had been abused by many people, but those people were not its adherents. They all knew it was weak, but at the same time they wondered how they could best strengthen it, as it was quite apparent that, considering the number of chemists on the Register, there was an abnormally small number of members of the Pharmaceutical Society. He thought the Council was not sufficiently representative; there were too many London members. A pharmaceutical territorial representation would do more for the Pharmaceutical Society than anything else. In that way they would get representative members from all parts of the two countries. He thought they ought to be elected by constituencies, as was the case with members of Parliament. Even though it were a mixed Council, it would be more thoroughly representative, and that was what was needed. He thought he was right in saying that half of the present members of Council were in possession of high-class and well-to-do businesses, and did not feel the brunt of commercialism as those engaged in the trade on a more modest scale. They in the provinces had to be content with all sorts of things, and he thought all chemists ought to adapt themselves to their environment. If they found that their business was affected by large companies, the chemist was the proper man to do analyses for doctors,

and to deal with optical, photographic, and scientific goods. The Minor examination at present was far too searching in science and too little searching in commercialism. He did not think that any person could become a very successful chemist if he was filled with scientific principles and lacked a commercial training.

Mr. F. R. SERGEANT, whose name was coupled with the toast, said he was the local secretary of the Pharmaceutical Society, and it was a great pleasure to him to call upon different chemists in the city and help the Society to prosecute those people who broke the laws by which they were governed. There was a time when there were only fifteen subscribers to the Society in Nottingham, but they were now reaping the benefit of the services rendered by Mr. Bolton, for the subscribing members of the Society in Nottingham now numbered nearly sixty. During the ensuing year the Society would enter upon a new system of examination which would be beneficial, and, he thought, would keep out many men who ought never to be in the trade. The higher and more difficult the examination, the more likely were they to get a better class of men in the Society. Personally, he would like to see the Minor examination divided. If a man at the conclusion of his first three years' service could be examined in botany, materia medica, and prescription-reading, it would be a distinct advantage, for he could devote his energies to those subjects only, and the remainder of his apprenticeship could be given to the more strictly scientific subjects of chemistry and physics. The welfare of their profession was bound up with the Pharmaceutical Society, and as it increased in power local associations would continue to prosper.

Mr. G. SQUIRE next submitted the toast of

THE NOTTINGHAM AND NOTTS. CHEMISTS' ASSOCIATION.

He spoke in very complimentary terms of the Association, and said that in its educational work Sheffield had imitated the Nottingham Association. With regard to Mr. Newsholme's local organisation scheme, they in Sheffield were already prepared for it, and they hoped that before very long the matter would be dealt with by the Council in London. Mr. Eberlin told him that the Nottingham Society was likewise already prepared, and he was sure they would all drink with heartiness to the Nottingham and Notts' Association.

The CHAIRMAN, in reply, said that he and the Executive Committee had endeavoured to do what they could for the benefit of the young men who had adopted pharmacy as their profession, and he did not think they had laboured without success. Up to the present time the Association had held a position which the country had respected. They had taken a prominent position in the education of the young members, and shown an anxiety to see them prosper in life, and he only hoped that the work of the Association in the future in that direction would not be less marked than it had been in the past. He was afraid that he was little more than a figure-head to the Association now, but his interests in it did not wane, and, if it was their wish, he hoped to retain the presidency for some years to come.

The VICE-PRESIDENT, who also acknowledged the toast, said he should like to recognise the great benefit he had derived from the Association thirty years ago as an apprentice, when they used to meet in the little room in Pelham Street. They had some very pleasant classes there, and it had always been the business of the Association to do what it could for the young members. He should like to see the members of the trade take up the Association better than they did. Many of them showed a great deal of apathy. Their President was not so much a figure-head as he had tried to make out. Personally, he looked upon Mr. Fitzhugh as the Lord Roberts of the pharmacists of Nottingham, and that really they ought to take up the enthusiasm of their President and work shoulder to shoulder, the same as our Army was doing in South Africa, and do all they could for the good of the trade and pharmacists generally.

Mr. EBERLIN said there were a number of chemists who ought to belong to the Association, and if nothing was done by the Association except hold the annual dinner, he thought that should be enough to attract them. There they met on common ground, came

into contact with each other, and rubbed off a great many of those angles that might make their relationships not quite so smooth. But they also kept in order a piece of machinery which was ready to be set in motion at any time when called upon. That machinery might at any time be wanted to bring them in contact with legislators, as at present. The Executive had kept in touch with the local Members of Parliament, and kept those Members informed upon their position, and that in itself was something. Recently he had thought that they must do something more. Depend upon it, when their enemy began to attack them in public, there was something more about the Association than it was usually given credit for. Recently, as they knew, they had been attacked in public most unjustly and unfairly because of the position they had taken up as an Association. When it was necessary to use the public Press to attack them, there must be some justification for their existence. It was something like the fortieth year of the Association's existence, and during that time it had never been stronger than it was at the present moment. The membership now stood at fifty-five or fifty-six, and there were others waiting to be members, which would bring the membership up to about sixty. Quite recently the Council of the Association adopted what he thought was a very wise course when it decided to admit to membership qualified assistants. That had been the means of increasing the roll of membership, and he was sure it was bringing into the Society just the very element they most required; so that at the present moment he might say that the Association was flourishing, and he, as their secretary, would spare no effort to ensure a continuance of that prosperity.

The other toasts included "Prosperity to the City of Nottingham," proposed by Mr. R. FRANK VALLANCE, and responded to by Mr. E. GASCOYNE; "The Visitors," submitted by Mr. A. E. BIELBY, and acknowledged by Mr. G. SQUIRE and the CHIEF CONSTABLE; and "The Chairman," proposed in very fitting terms by Mr. C. A. BOLTON. The speeches were punctuated by a delightful little musical programme, Messrs. G. F. Sands, A. C. Vallance, W. Brinson, and Bert Clarke contributing songs, and the Chief Constable clarionet solos, which were greatly enjoyed.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.

A well-attended meeting of the above Association was held in the Lecture Theatre, at 17, Bloomsbury Square, on Friday, March 9, Mr. T. E. WALLIS in the Chair. The minutes of the last meeting having been read and confirmed, the Chairman called upon Mr. R. GOMPERTZ, B.Sc., to read a paper upon—

THE PHYSIOLOGY OF THE CENTRAL NERVOUS SYSTEM AND THE RESULTS OF INJURIES TO IT.

Mr. GOMPERTZ introduced the subject from an anatomical point of view, and then pointed out the many peculiar effects which are produced in animals by injuries to the brain. The paper was concluded by notes on the effect of certain drugs upon the central nervous system. The CHAIRMAN rose to thank Mr. Gompertz for his interesting paper, and remarked upon the excellency of the diagrams with which the paper was illustrated. He then invited members to bring forward questions.

Miss E. Rayner, and Messrs. Pollard, Lenton, Garsed, Deane, Heslop, Woolcock, and Allen, thanked Mr. Gompertz, and asked various questions.

Mr. GOMPERTZ having replied, the CHAIRMAN, said that before closing the meeting he had a very pleasing announcement to make, viz., that the President of the Association, Professor J. Norinan Collie, Ph.D., F.R.S., F.I.C., had consented to deliver a lecture on Friday next, March 16, upon "The Alps." Microscopic slides showing the structure of the various parts of the brain and spinal cord were arranged under microscopes upon the lecture table, explanatory sketches being placed beside each. Great interest in these was displayed by many of those present.

Obituary.

BOA.—On March 5, at Rose Cottage, Dailly, Ayrshire, Andrew Boa, late of Balkail, Glenluce (father of Peter Boa, Chairman of N.B.B. Executive, Pharmaceutical Chemist, 119, George Street, Edinburgh). Aged 70 years.

BURLEY.—On March 13, William Burley, Chemist and Druggist, Edinburgh. Aged 51. Mr. Burley, who was a native of St. Cyrus, near Montrose, completed his education at Montrose Academy and thereafter served an apprenticeship with the late Mr. George Burrell, Montrose. In 1873 he went to Edinburgh to manage the retail business of the late John Mackay, at whose death, in 1881, he started business for himself at 137, George Street. In 1896 he acquired the old-established business of James Robertson and Co. 35, George Street, and disposed of his other business to Mr. John Brown, a former assistant. He was a member of the Society, and took an active interest in its affairs, becoming a member of the Executive of the North British Branch last year. He also took an interest in the Edinburgh District Chemists' Trade Association, of which he was Treasurer at the time of his death.

GILES.—On March 3, Theophilus Ridgway Giles, Chemist and Druggist, Liverpool. Aged 47. Mr. Giles had been a member of the Pharmaceutical Society since 1895.

MALTBY.—On March 7, Joseph Maltby, Chemist and Druggist, Lincoln. Aged 69. Mr. Maltby who had been a member of the Pharmaceutical Society since 1869, was a native of Faldingworth, Lincolnshire. He was educated at Lincoln Grammar School, and after leaving school was apprenticed to his uncle Alderman Battle, of "Battle's Vermin Killer" fame, and eventually became a partner in the firm. He was for many years the Society's local secretary for Lincoln, and on one occasion was an unsuccessful candidate for a seat on the Pharmaceutical Council. He was actively associated with the municipal life of Lincoln, having been connected with the City Council since 1867. In 1873 he was elected mayor, and in 1878 was made a magistrate of the city. Among other public offices which Alderman Maltby held was Chairman of the Waterworks Committee of the Corporation; President of the Lincoln Chamber of Commerce; Chairman of the Directors of the Lincoln Tramways Company, and of the Lincoln Coffee Palace Company; a Director of the Royal Insurance Company. He was also a Governor of Christ's Hospital, and a Representative Governor of the Grammar School.

MCDIARMID.—On March 7, John Buckwell McDiarmid, Pharmaceutical Chemist, Deal. Aged 70. Mr. McDiarmid had been a member of the Pharmaceutical Society since 1853, and had carried on the business of a chemist in Deal for upwards of forty-nine years.

MCLAREN.—On March 8, at Alloa, Mrs. McLaren, mother of David McLaren, President of the Edinburgh District Chemists Trade Association. Aged 78.

MALCOLM.—On March 10, at 3, High Road, Willesden Green, N.W., Ellen Frances, wife of James Malcolm, Chemist. Aged 32 years.

NEWSHAM.—On February 23, William Newsham, Chemist and Druggist, Preston. Aged 57.

SAYERS.—On March 7, William John Sayers, Chemist and Druggist, Lewisham. Aged 63.

SLATER.—On March 1, Arthur Slater, Chemist and Druggist, late of New Whittington, Derbyshire. Aged 89.

THOM.—On March 5, John M. Thom, Chemist and Druggist, Forest Gate, London, E. Aged 35. Mr. Thom was a member of the Pharmaceutical Society.

WATT.—On March 11, James Watt, Pharmaceutical Chemist, Haddington. Aged 78. Mr. Watt had been a member of the Pharmaceutical Society since 1853. (See p. 292.)

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Carbo Ligni.

WOOD CHARCOAL is the carbonaceous residue of wood charred by exposure to a red heat without access of air, the wood of the beech, hazel, oak, poplar, and willow being employed for the purpose. It possesses antiseptic, absorbent, and deodorising properties. The powder is administered diffused in water, mixed with chocolate, prepared in the form of biscuits, or enclosed in capsules or cachets. The dose is from 60 to 120 grains.

CHARACTERS AND TEST.—Wood charcoal is a black, tasteless, and odourless powder, free from gritty matter; it should not leave more than 7.5 per cent. of ash when heated to a high temperature, with free access of air, and may leave considerably less.

NOTES.—The distinctive characters of wood charcoal are its freedom from taste and odour, and the small proportion of inorganic matter left when the powder is burned. Animal charcoal, prepared by burning bones in partly-closed iron vessels, contains about 90 per cent. of calcium phosphate, and is not absolutely free from taste and odour, even when purified.

Cardamomi Semina.

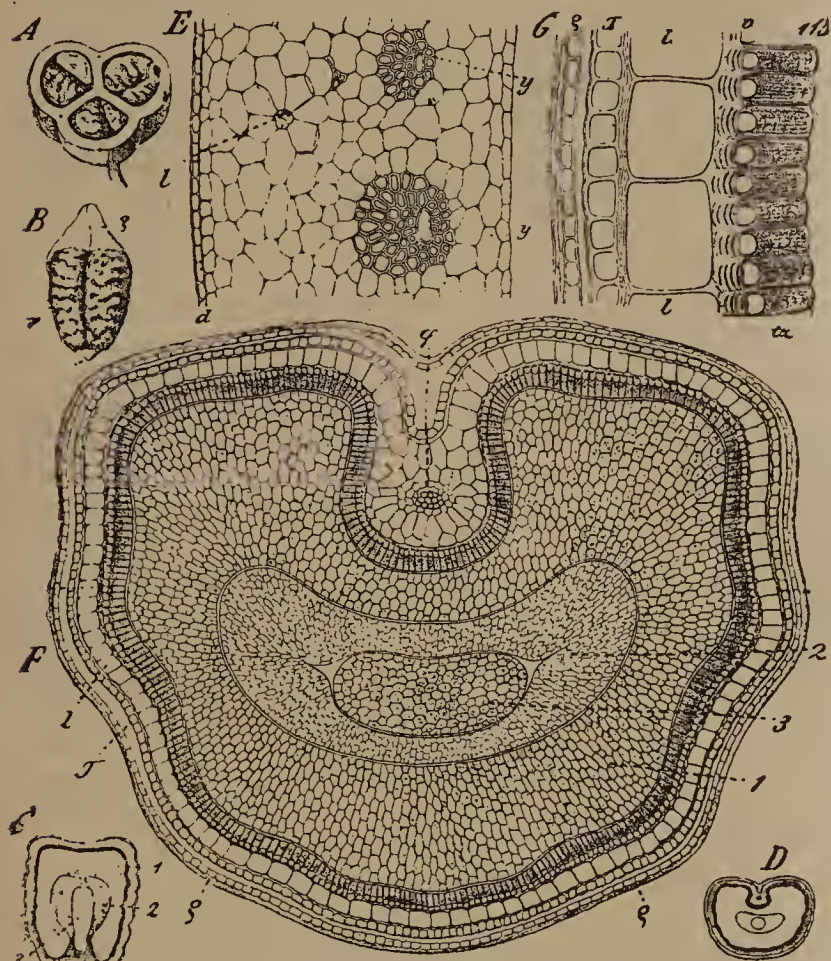
CARDAMOM SEEDS are obtained from *Elettaria cardamomum*, Maton (N. O. Scitamineæ), a plant which grows wild in the forests of Southern India and is cultivated near the Malabar coast, as well as in Ceylon. The inflorescence of the plant is a long, loose raceme, and the small, inferior, capsular fruits are cut from the rachis before they are quite ripe. They are then bleached and cured by exposure to the sun whilst wet, the bleaching being sometimes assisted by subjecting the fruits to the action of steam and then exposing them to the vapour of sulphurous acid. The cured fruits are trimmed and freed from impurities by picking. The dried, ripened seeds should be preserved in their pericarps until required for use; fruits which have fully ripened on the plant open and discharge the seeds, which are then exported freed from their pericarps, but such seeds are excluded by the official description. The seeds possess carminative, stimulant, and stomachic properties; they are used for preparing *Extractum Colocynthis Compositum*, *Pulvis Cinnamomi Compositus*, *Pulvis Cretæ Aromaticus*, *Tinctura Cardamomi Composita*, *Tinctura Gentianæ Composita*, *Tinctura Rhei Composita* and, indirectly, *Decoctum Aloes Compositum* and *Mistura Sennæ Composita*.



CARDAMOM SEEDS.—a, b, c, d, Commercial varieties of cardamom fruits. e, Transverse section of fruit. f, Seeds, natural size.

CHARACTERS AND TESTS.—Cardamom fruits occur in several varieties, which differ in size and shape. They are usually from 10 to 20 Mm. in length, ovoid or oblong in shape, bluntly triangular in section and three-celled; they are also usually shortly beaked at the apex with the remains of the calyx, pale buff or yellowish in colour and longitudinally striated, though sometimes they are nearly smooth, the striations having disappeared during the process of bleaching. Each cell contains two rows of small dark reddish-

brown seeds, about 3 Mm. in diameter, attached to axile placentas; they are irregularly angular in shape, transversely wrinkled, and enclosed in thin, colourless, membranous arils, which become more evident when the seeds are soaked in water. The hilum is depressed and the position of the raphe is indicated by a channel extending from the base to the apex of the seed on one side. A transverse section of a seed shows the thin dark seed-coat, enclosing a whitish perisperm grooved on one side, a small yellowish translucent endosperm, and a minute embryo. The odour and taste of the seeds are agreeably warm and aromatic, owing to the presence of volatile oil, of which they may contain as much as 5 per cent. On incineration the powdered drug should not yield more than 4 per cent. of ash, but if the pericarps have been ground up with the seeds the proportion of ash will be 5.5 per cent. or more.



CARDAMOM SEEDS.—A, Transverse section of fruit with seeds *in situ*. B, Seed magnified, showing base of arillus. C, Longitudinal, and D, transverse section of seed. E, Transverse section of pericarp. F, Transverse section of seed. G, Transverse section of integuments of seed. After Berg.

NOTES.—The distinctive characters of cardamom fruits are their pale colour, plump appearance, and abruptly tapering apex; those of the seeds are the dark reddish-brown colour, aromatic taste, transverse wrinkles, depressed hilum and raphe, and the appearance of transverse sections. Mysore, Malabar, and Mangalore cardamoms all meet the official requirements. The first are the largest, varying from about 6 to 20 Mm. in length; their cream colour and the smoothness of their pericarps are due to the use of artificial bleaching agents. Malabar cardamoms are somewhat smaller, rarely exceeding 12 Mm. in length; they are generally pale brown or yellowish in colour, have a pointed apex, and are longitudinally striated. Mangalore cardamoms are less common than the other two varieties; they resemble the Malabar fruits, but are small and almost globular in shape. Grey cardamom seeds and shrivelled (unripe) seeds are inferior and should not be used. Ceylon (wild) cardamom fruits, the product of *Elettaria cardamomum*, var. β *major*, Smith, vary in length from 25 to 38 Mm., are commonly greyish brown in colour, and not plump in appearance; the seeds

are larger and paler than those of the Malabar cardamom. Siam cardamoms, from *Amomum cardamon*, Linn., and Korarima cardamoms, from *A. korarima*, Pereira, are also occasionally met with (see *P. J.* [4], 6, 280). Grains of Paradise are distinguished from cardamom seeds by their rich reddish-brown colour, minutely and irregularly wrinkled surface, and the presence of the remains of a thick fibrous funicle.

Carui Fructus.

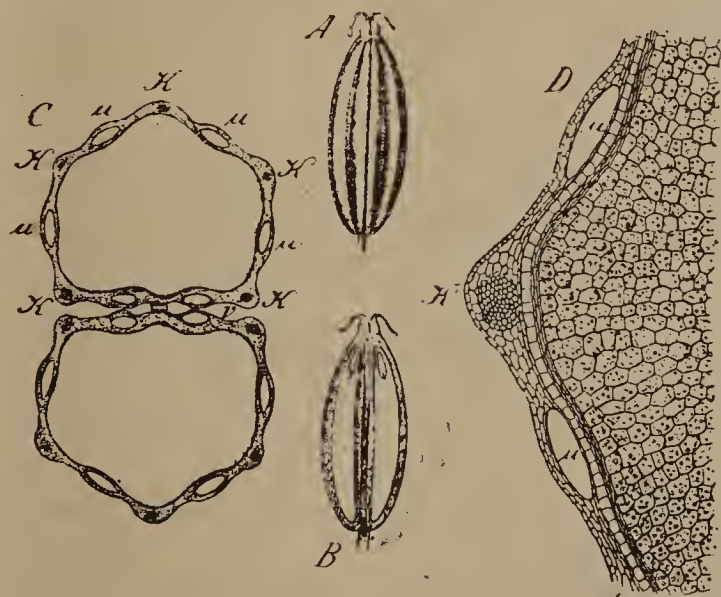
CARAWAY FRUIT is the product of *Carum carvi*, Linn. (N. O. Umbelliferæ), an erect biennial herb distributed over Central and Northern Europe, and cultivated in Holland, Germany, Sweden, Norway, Russia, France, Mogador, and England. The inferior, two-celled ovary of the caraway develops into a cremocarp (schizocarp), the component carpels (mericarps) of which separate by splitting



CARAWAY FRUIT.—a, Russian variety, natural size and magnified. b, English ditto. c, Mogador ditto.

away from the central axis or carpophore, without liberating the seeds. Caraways possess aromatic, carminative, and stomachic properties; they are used for preparing Aqua Carui, Confectio Piperis, Oleum Carui, Pulvis Opii Compositus, Tinctura Cardamomi Composita, Tinctura Sennæ Composita and, indirectly, Pilula Aloes Barbadosensis.

CHARACTERS AND TEST.—Caraways usually consist of the separate mericarps, which are each 4 to 6 Mm. long and about



CARAWAY FRUIT.—A, Entire fruit magnified, showing ridges. B, Longitudinal section, showing embryo and albumen. C, Transverse section of fruit. D, Portion of ditto, showing structure. After Berg.

1 Mm. broad. They are quite glabrous, brown in colour, slightly curved, tapering towards the ends, and traversed from base to apex by five narrow yellow primary ridges. Each ridge contains a fibrovascular bundle, and is thus distinguished from the secondary ridges on coriander and other umbelliferous fruits. There are no secondary ridges on caraway fruits, but in the depressions between

the primary ridges are situated elongated vittæ or oil glands, imbedded in the pericarp and extending from base to apex of the fruits. Four such vittæ occur on the dorsal or outer side of the mericarp, between the ridges, and two on the commissural or inner surface, by which it was originally attached to the carpophore. The vittæ are best seen in a transverse section, appearing as minute dark brown spots or cavities. The section will also exhibit the narrow pericarp, enclosing a large oily endosperm which is not grooved near the commissural surface; the embryo occurs near the apex of the fruit. The agreeable aromatic odour and taste of the fruit are due to the presence of volatile oil, of which about 5 per cent. of can be obtained from the fruits by distillation. Powdered caraways should not leave more than 8 per cent. of ash on incineration, this test serving to detect the presence of sand or other extraneous mineral substances.

NOTES.—The distinctive characters of caraway fruits are their glabrous surface, the presence of six vittæ in each mericarp, and the ungrooved endosperm. The volatile oil contains carvol, which is also found in oil of dill. English caraways are of brighter tint than the Dutch, the latter being of a dark brown colour. Russian fruits are smaller and often mixed with much dirt and debris of the fruit stalks; Mogador fruits are large and pale in colour.

Caryophyllum.

CLOVES are the dried flower-buds of *Eugenia caryophyllata*, Thunb. (N.O. Myrtaceæ), an evergreen tree native to the Molucca Islands, where it is still cultivated, though the bulk of the cloves now produced come from the islands of Zanzibar and Pemba. Small quantities are also exported from Java, Ceylon, the Seychelles, etc. The inflorescence of the plant is a compound raceme which bears white buds that turn green as they develop,

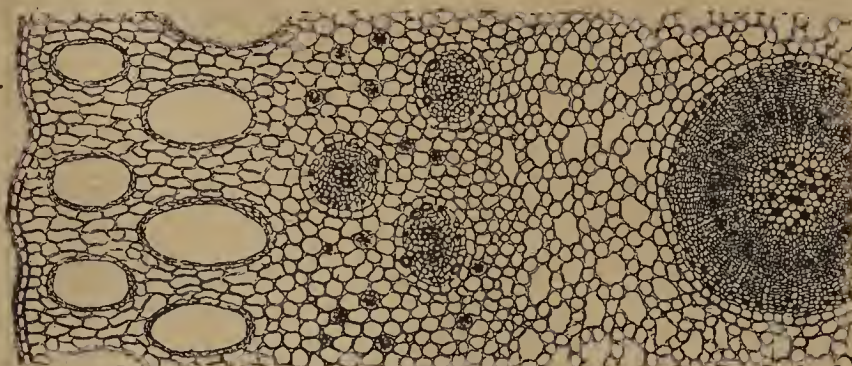


CLOVES.—*a*, Natural size (Penang clove). *b*, Longitudinal section, magnified. *c*, Transverse section through the ovary, magnified. *d*, Pollen grain, magnified. *e*, Bast fibre

and finally become crimson. They are collected before the corolla expands and dried in the sun, the crimson colour changing to dark reddish-brown in the process. Cloves possess aromatic, carminative, and stimulant properties; they are used in the preparation of Infusum Aurantii Compositum, Infusum Caryophylli, Oleum Caryophylli and Pulvis Cretæ Aromaticus, the oil being contained in *Pilula Colocynthis Composita* and *Pilula Colocynthis et Hyoscyami*.

CHARACTERS.—Cloves are about 15 Mm. long, and consist of the dark-brown, wrinkled, nearly cylindrical, but somewhat angular,

calyx tubes, which taper downwards and are each crowned by four thick, rigid, divergent teeth, within which appear four paler coloured, unexpanded, overlapping petals. On removing the petals, after soaking for twenty-four hours in water, the presence is disclosed of a stiff, erect style and numerous stamens; the style arises from a small disc, below which is a two-celled ovary containing numerous ovules. The solid, fleshy, lower part of the clove contains a large number of oil-glands and similar glands occur in the calyx-teeth and petals. The volatile oil present imparts a fragrant, spicy odour and a pungent, aromatic taste.



CLOVES.—Transverse section of half the calyx tube. After Planchon and Collin.

TESTS.—Cloves should emit oil on indenting them with the finger-nail, and they should also sink in water, thus showing that the oil has not been removed. On incineration cloves should not leave more than 7 per cent. of ash, the absence of clove stalks and, in the case of powdered cloves, inorganic adulterants being thus indicated.

NOTES.—The distinctive characters of cloves are their general appearance, odour and taste. The cloves imported from the Molucca Islands are the best, those from Penang being large, and of a bright brown colour, and those from Amboyna rather smaller and of a darker brown. Zanzibar and Pemba cloves are still smaller, dark coloured, with the buds frequently broken, and with stalks and foreign matters intermixed. Cloves contain from 10 to 13 per cent. of gallo-tannic acid, to a crystalline substance—caryophyllin—which is colourless, and odourless, and about 15 to 20 per cent. of volatile oil of which 77 to 90 per cent. consists of eugenol. Spent cloves, "clove stalks," or peduncles, and "mother cloves" or ripe clove fruits have been used as adulterants of whole and powdered cloves. The first emit no oil when indented with the finger-nail, and do not sink in water, the other two are readily distinguished by their general appearance, also by their microscopic characters (see *P.J.* [4], 6, 513). The stalks are dry and woody, contain much less oil than cloves, and yield a greater percentage of ash. The ripe fruits are ovoid in shape, brown about 25 Mm. long, and contain but little oil; they also contain starch, which is not present in the flower-buds.

CINNAMON IN TROPICAL DIARRHŒA.—Henderson, of Shanghai, has directed attention to the remedial value of cinnamon bark in the treatment of psilosis and chronic diarrhœa, while Myers, of South Formosa, has used it with success in all cases, ranging from ordinary diarrhœa to severe dysentery. A. Norris Wilkinson, of Twatutia, North Formosa, again states that the powdered bark, taken in drachm doses night and morning together with a quinine mixture, is a valuable remedy in severe tropical diarrhœa.—*B.M.J.*, 2,041, 317. [Since the remedial action is probably due to the volatile oil of the bark, it might be interesting to determine its value in such cases; the oil would be both more pleasant and more convenient to take than the crude powdered bark.—Ed. *P.J.*]

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

PSATHURA ANGUSTIFOLIA.

The leaves of *Psathura angustifolia*, a Rubiaceae plant, indigenous to Réunion and Madagascar, have been stated by Kobers to yield caffeine. E. Heckel and F. Schlagdenhauffen, however, state that neither this nor any other alkaloid or glucoside is contained in the leaves of the plant, or of other members of the same genus.—*Repertoire*, 56, 54.

FUMING NITRIC ACID.

L. Vanning points out that fuming nitric acid can be prepared by allowing polymerised formic aldehyde to react with ordinary nitric acid and heating moderately. Hyponitric acid is given off, and gives a product rich in nitrogen binoxide when passed into nitric acid. An acid rich in nitrous fumes can be obtained, without distillation, by gradually adding polymerised formic aldehyde.—*Verichte*, 32, 1392.

BOTANICAL NOMENCLATURE.

C. B. Clarke read a paper on this subject at a recent meeting of the Linnean Society. He showed that the new rule adopted at Berlin—not to disturb names that had fifty years' user, on the ground of priority alone—resulted in a practical uniformity with the system of naming adopted by Mr. Bentham and Sir J. D. Hooker. The Old World, he said, had thus reached a fair general agreement in nomenclature. The American botanists follow a new system which aims at finality on a so-called "non-shifting basis" in which the genus or species, as the case may be, is established on a type-specimen. Mr. Clarke's paper was devoted mainly to showing by selected instances that this system did not ensure finality; that the errors in determining what should be ranked as the type are enough to discredit the system; and the author commented on the disputed question whether a plant should be given the oldest specific name bestowed upon it, or the oldest specific name it bears in the genus in which it is now placed.

MANGANESE OXALATE.

According to B. Denigès, the formation of manganese oxalate from citric acid and permanganate of potassium may be shown as follows:—Citric acid 300 Gm. is dissolved in water 600 Gm., cooled to 15°-16° C., and poured into a solution of potassium permanganate 90 Gr., in water 3,000 Gm., similarly cooled, the mixture being surrounded by water cooled to 10°-12° C. The mixture quickly changes colour and evolves abundance of CO₂; the temperature rises, but should not be allowed to exceed 30°-35° C. When gas ceases to be given off the liquid should be rapidly cooled to 25°-28° C., and then set aside for four or five days. It will then be found that a plentiful crop of crystals has formed, and that the acetone-carbonic acid, which was at first present in the mother liquor in considerable quantity, has totally disappeared. On washing the crystals by decantation, and drying over H₂SO₄, they will be found to consist of two forms. Some much larger rose-coloured prisms may easily be picked out from the smaller groups of white hexagons. The former on analysis are found to contain 3 molecules of H₂O, the latter 2 molecules. The larger crystals may be obtained direct by the double decomposition in the cold, of solutions of ammonium oxalate and manganese sulphate, acidulated with acetic acid; and the small hexagonal form by the same means, employing boiling solutions. It is evident, therefore, that in the case of the citric acid mixture the smaller, less hydrated crystals are deposited first from the tepid solution; the larger, trihydrated prisms, formed by the gradual decomposition of the acetone-carbonic acid, are more slowly deposited in the cold liquid.—*Journ. Pharm. Chim.* [6], 11, 102.

POISONING BY CASTOR OIL SEEDS.

A fatal case of poisoning, following the eating of two castor oil seeds, is recorded. The victim, a dock labourer, succumbed to exhaustion due to irritant poisoning six days after swallowing the seeds. The necropsy showed the stomach to be highly congested, with attenuation of the mucous coat, and with scattered small erosions; the small intestine was extremely congested, the duodenum and cæcum were less affected, and the large intestine least of all.—*Brit. Med. Journ.*, 2041, 317.

GUAIAMAR.

This is a glycerol ester of guaiacol obtained by the action of anhydrous glycerin on guaiacol. It forms a white crystalline powder melting at 75° C.; its solubility in water is 1:20, and it is dissolved by most solvents. It is not hygroscopic, and has a bitter, aromatic taste. It is given in doses of 20 centigrammes to 1 Gm. G. Butler has employed guaiamar in twenty cases of typhoid with the best results; it appears to act as an excellent intestinal antiseptic. It has also been applied to the joints, in cases of acute articular rheumatism, in the form of an ointment composed of guaiamar, 7 to 8 Gm., lanoline, 30 Gm. In cases of gonorrhoeal arthritis, guaiamar, combined with belladonna ointment, or with mercurial ointment, has been serviceable. Guaiamar has also given good results in pulmonary affections, and has the advantage of acting as a digestive tonic. In the form of lotions its antiseptic properties have been shown in many directions, in the treatment of burns, ulcerations, and syphilitic sores. Internally it has also been beneficial in cystitis, chronic gonorrhoea, and all kinds of gastro-intestinal affections.—*Nouv. Rem.*, 16, 32.

MECONIN AND ITS DERIVATIVES.

Emile Leroy finds that the calorimetric constants obtained by the combustion of meconin confirm the theory that it is a dimethyl-oxypthalide. On oxidation it furnishes the acid aldehyde, opianic acid, C₁₀H₁₀O₅, which forms crystalline salts with alkalis, and gives two isomeric methyl esters. One of those, melting at 82°-84° C., is obtained by the action of methyl iodide on silver opianate; the other, melting at 103°-104° C., is derived by boiling a solution of opianic acid with methyl alcohol. By oxidation, opianic acid yields hemipinic acid, C₁₀H₁₀O₆, which, from its calorimetric constants, is shown to be a dimethoxyphthalic acid.—*Comp. rend.*, 130, 508.

NITROGEN IODIDE.

The different formulæ given by various experimenters for the detonating substance obtained by the action of ammonia on iodine has induced C. Hugot to investigate the matter. He finds that when iodine, contained in a tube surrounded by a freezing mixture, is treated with gaseous ammonia under pressure, the black liquid at first formed becomes decolorised, and deposits a crop of dark green crystals. This body appears to be fairly stable below 10° C., but above that temperature it readily undergoes decomposition. Direct decomposition is only effected by violent explosion. The constitution of the body was therefore determined by allowing it to decompose slowly and spontaneously. In this way results were obtained which established the formula, NI₃·3NH₃ for these crystals. The mother liquor from which they were separated was found to consist of the triammonio-ammonium iodide NH₄I·3NH₃ formerly described by Troost. The reaction may be expressed by the equation, 16NH₃ + 6I = 3(NH₄I·3NH₃) + NI₃·3NH₃. The green crystals, maintained *in vacuo* at a temperature of 30° C., lose a molecule of ammonia, and leave a yellowish white crystalline residue, NI₃·2NH₃. That, when exposed to 0° C. *in vacuo*, parts with another molecule of ammonia, the fine violet crystals left having the formula NI₃·NH₃. This last body decomposes *in vacuo* without explosion when slowly warmed to 30° C. If heated above that temperature a violent detonation results. The author was unable to remove the last molecule of ammonia.—*Comp. rend.*, 130, 505.

THE OFFICIAL PROCESSES FOR THE ASSAY OF IPECACUANHA, BELLADONNA, AND NUX YOMICA.**

BY F. C. J. BIRD.

I.—Ipecacuanha (Continued).

The Relation of the Results of the Official Method to Those Given by Other Processes.—The figures hitherto published indicate a very wide variation between the gravimetric determinations of the Pharmacopœial process and the gravimetric and volumetric results of other methods. H. Wilson* obtained figures higher by about 8 per cent., and Farr and Wright† found that Wilson's process gave an excess of from 7 to 16 per cent. W. A. H. Naylor,‡ on the contrary, records one instance in which Wilson's process came out below the B.P. method, the deficiency amounting to about 0.5 per cent. Farr and Wright and W. A. H. Naylor have given examples of results obtained by their respective processes in which the gravimetric figures have been in most cases very much higher and the titration figure generally lower than the corresponding ones by the official method. No constant relation has

approximate, but a second titration with ether-amyl-alcohol gave results in much closer agreement. On the other hand, the residues from B, being quite pale, permitted of exact titration.

The composition of any liquid extract likely to be met with will probably fall between that of A and B, which may be taken as representing two extreme types. The one, A, as has been already mentioned, was dark in colour, less resinous than B, and evidently contained a considerable amount of free alkaloid and its decomposition product, whilst B was an example of a carefully prepared extract in which the proportion of free alkaloid had been kept low and undue exposure to heat avoided. When assayed by the B.P. process, the gravimetric yield from A was 1.75 per cent, but the wash water continued to extract colour from the precipitate, and even when 400 C.c. had been used the filtrate was still coloured, showing that continued washing would have further increased the gravimetric percentage. With the amount of washing described this figure became 1.84. It is, therefore, evident that when dealing with an extract containing much free alkaloid, such as the one under consideration, very prolonged and tedious washing is

Process.	Quantity taken for Assay.	(Liquid Extract (A.))			(Liquid Extract (B.))		
		Weight per cent.	Titration per cent.	Colour of Residue.	Weight per cent.	Titration per cent.	Colour of Residue.
(1) B. P. method as described on page 176, but without preliminary acidification. Wash water 30 C.c.	20 C.c.	1.75	1.30	intense brown.	1.87	1.71	pale
		} 1.84	} 1.36		} 1.945	} 1.77	
(1a) B. P. method. Liquid extract first faintly acidified. Wash water 30 C.c.	20 C.c.	1.86 (d) 1.84	(1.25) 1.36	"	1.95	1.78	"
(1b) B. P. method. Liquid extract acidified, but alcohol not removed. Wash water 30 C.c.	20 C.c.	1.88	1.38	"	1.955	1.78	slightly darker
(1c) B. P. method. Precipitate, not heated; washed on an ordinary conical paper filter	20 C.c.	1.69	(1.21)	"			
(2) H. Wilson's*	20 C.c.	1.75 (d) 1.74	(1.40) (d) 1.36	very deep brown	1.90	1.73	brown
(3) Farr and Wright's †	5 C.c.	1.70	(1.22)	intense brown	1.92	1.68	darker than (4)
(d) (four washings)	5 C.c.	(d) 1.76	1.36	brown	(d) 2.00	(d) 1.76	
(4) W. A. H. Naylor's ‡	5 C.c.	1.76 (d) 1.76	(1.35) (d) (1.34)	"	2.0	1.76	darker than (5)
(5) F. H. Alcock's §	5 C.c.	2.0 (d) 2.04 (d) 2.0	(1.22) (d) (1.24) (d) 1.41	" very deep brown	2.1 (d) 2.1	1.8 (d) 1.8	pale brown

therefore been shown to exist between the weight of the residues obtained by the several published processes and those of the B.P. method, although there is an exception in the statement by H. J. Henderson§ that Alcock's method yields a residue corresponding very closely in weight with the residue yielded by the B.P. method. The variable composition of the samples of liquid extract used for comparison would prevent any accurate deductions being made from the figures referred to above. Therefore, in order to observe the working of the various processes with the same sample of liquid extract the two extracts A and B were assayed by all the published methods and the results tabulated.

Whenever the figures appeared abnormal they were confirmed by a duplicate experiment (d), and in some instances the assay was performed a third time. With cochineal as an indicator, very great difficulty was experienced in determining the end-point in the titration of the residues from sample A, on account of their intense brown colour. The figures obtained with cochineal are placed between brackets in the table, and must only be considered

necessary in order to avoid figures considerably below the truth, and that entire solution of the sparingly soluble free alkaloids by repeated treatment with water is the only means of arriving at a correct result when working the strict B.P. process.

This latter fact probably accounts for the lower gravimetric figures credited to the B.P. assay by previous workers, for the discrepancies would be still further intensified (See result 1c in Table) if treatment of the precipitate as a gelatinous magma on an ordinary conical filter were adopted in place of the mode of manipulation described on page 176. Nor by this method have the differences (in some cases as high as 0.50* per cent.) between the figures given by the B.P. method and the published alternative processes, been found to exist.

Although as might be expected there is some want of concordance amongst the gravimetric results from sample A and the titration figures (cochineal having been used as an indicator in an intensely brown solution) appear rather erratic, the latter process applied to the residues from A in ether amyl-alcohol solution and directly to those from sample B show very fair agreement. Some

** Continued from page 178, whence the first paragraph has been repeated.

* P.J. [4], 7, 3. † P.J. [4], 9, 86. ‡ P.J. [4], 9, 88. § P.J. [4], 9, 602. ¶ P.J. [4], 8, 494.

* P.J. [4], 9, 88.

of the residues were much paler than others; the depth of colour appeared to roughly correspond with the titration value, the pale residues giving the highest figures.

The five processes, placed according to their results, fall into the order indicated by the numerals :—

Process.	Liquid Extract. A.		Liquid Extract. B.		Excluding Alcock's process. Compared with B. P.									
	Weight.	Titration.	Weight.	Titration.	A.		B.							
					W't	Tn.	W't	Tn.						
Alcock's (highest)	1 (2.0)	1 (1.41)	1 (2.1)	1 (1.8)	Greatest excess of any process....	0.0	0.0	0.05	0.00					
Naylor's ..	3 (1.76)	3 (1.35)	2 (2.0)	3 (1.76)										
B.P.	2 (1.84)	2 (1.36)	3 (1.95)	2 (1.77)										
Farr and Wright's	3 (1.76)	2 (1.36)	2 (2.00)	3 (1.76)						Greatest deficiency of any process	0.09	0.01	0.05	0.04
Wilson's..	4 (1.75)	2 (1.36)	4 (1.90)	4 (1.73)										

Alcock's process with both A and B gave the highest results, the excess being, in the case of A, 0.16 per cent. weight and 0.06 titration, and with B, 0.15 per cent. weight and 0.03 titration. Probably the latter figure is very near the actual truth, as the lower B.P. result would be increased by alkaloid retained in the lead precipitate, and the mother liquor.

In processes 1b and 1c the mother liquors from (A), after washing out the alkaloid with Chloroform were further extracted, three times each, with the same solvent. The weighed alkaloidal residue from 1b amounted to 0.09 per cent., and that from 1c to 0.06 per cent.

As the two samples, A and B, may be considered to represent extreme types, it is evident that the B.P. method operated as described, either with preliminary acidification or (as a more troublesome alternative) thorough washing of the precipitate, gives about the same gravimetric figures as processes 2, 3, and 4, the difference being less than 0.10 per cent., and, consequently, only affecting the second decimal place when those processes are employed. No. 5 gives the highest figures of all (about 0.15 above the B.P.), and it is necessary to remember this fact when using it as an alternative method of assay.

All the samples yet submitted to the modified B. P. method, as described, have behaved in a similar manner, as far as the time required for the assay is concerned. With the alternative processes the time is lengthy or otherwise, according to the nature of the liquid extract under examination; none of the processes are more expeditious (No. 5 takes about the same time), and all are liable, with certain samples of extract, to some delay through failure to obtain an immediate and sharp separation of the immiscible solvent owing to the presence of precipitated matter and partial emulsification. So much of the latter took place with Process No. 4 that four washings with chloroform were necessary before the whole of the alkaloid was extracted.

The following considerations point to the conclusion that the impurity in the alkaloidal residue, indicated by titration, probably consists in great part of some decomposition product of the alkaloid rather than of any constituent existing naturally in the drug. (1) A strong percolate from ipecacuanha, obtained without heat or the use of lime, yields a nearly pure residue, pale in colour and having a high titration value, with a difference between the two figures rarely exceeding 5 per cent. (2) The residue from extracts prepared with lime, and which have been subjected to excessive heat in distillation, is usually of a very dark colour, and the figures by weight and titration exhibit a great discrepancy, sometimes 25 per cent. or more. (3) With such extracts the chloroformic solution of the alkaloids is dark brown in colour and highly fluorescent. Fluorescence is a known characteristic of the heat-decomposition product of cephaeline.*

* Paul and Cownley, P.J. [4], 1, 2.

Chloroform as a Solvent in the final Extraction of the Alkaloids.
—The foregoing processes including that of the B.P., prescribe either chloroform, or a mixture of chloroform and ether, for the final washing out of the alkaloid from ammoniacal solution. That chloroform alone, or any combination containing it, is the most suitable for the purpose appears doubtful when the behaviour of this solvent, as compared with others, towards a coloured solution of ipecacuanha alkaloids is taken into consideration. The free alkaloids themselves, dissolved in either petroleum ether, ether, benzene, chloroform or amyl alcohol, give colourless or at most pale straw-coloured liquids. If, however, the solvents named be employed in combination with ammonia for extracting a coloured acid alkaloidal solution the resulting washings with petroleum ether and ether will be observed to be very pale in colour, those with benzene slightly deeper, with chloroform still more coloured, and with amylic alcohol of an intense brown colour, showing that the last mentioned extract other substances besides the alkaloid. But ether alone is not entirely satisfactory as a solvent, for it is very difficult to remove the last traces of alkaloid from an alkaline solution by this agent. In order, if possible, to throw some light on the question of the suitability or otherwise of chloroform for washing out the alkaloid in the final stage of the B.P. and other processes the following experiments were made with the acid filtrate from 10 C.c. of liquid extract (A) after the precipitation of the lead sulphate. The solution whilst acid was of a bright yellow colour, but the addition of ammonia changed it to deep brown, light brown flocks of alkaloid being at the same time precipitated. Ether was then added, the washing with ether repeated until traces only of alkaloid were removed, and the mixed ethereal extracts, which were of a light straw colour, evaporated, weighed and titrated, the residue being quite pale. The mother liquor was still found to contain alkaloid when acidified and tested by Mayer's reagent; it was therefore agitated with successive quantities of benzene. The benzene washings were of a greenish yellow colour, rather deeper in tint than the ethereal washings, and the evaporated benzene extract light reddish brown. The highly coloured liquid which remained after treatment with ether and benzene was washed three times with chloroform. This removed the greater part of the colouring matter and became itself of an intense brown hue, almost opaque by reflected light, with a green fluorescence. The mother liquor now contained the merest trace of alkaloid; extraction was therefore complete. A small portion of the deep orange brown chloroformic residue dissolved in acid to a yellow solution which afforded an orange flocculent precipitate with Mayer's reagent, but whether this precipitate was due to the substance itself or to the coloured bodies carried down with a trace of precipitated alkaloid, is uncertain.

The following figures were obtained on weighing and titrating the three residues :—

FROM 10 C.C. LIQUID EXTRACT (A).

	Colour.	Alkaloid per cent.	
		Weight.	Titration.
Ether extract	Pale greenish yellow..	1.34	1.22
Benzene extract	Greenish yellow	0.12	0.09
Chloroform extract.....	Intense orange brown	0.39	0.08

Whilst ether alone is not a satisfactory solvent for extracting the alkaloids of ipecacuanha from alkaline solution a mixture of ether and benzene (3 and 1) effects their removal more completely, and the evaporated residue is quite pale, even when the alkaloids have been shaken out of a highly coloured liquid. From the figures given above it is evident that the presence in dark-coloured residues of the substance causing the greater part of the

discrepancy between the results by weighing and titration is due to the employment of chloroform for the final extraction of alkaloid. Further experimental evidence is needed before it can be decided whether the brown decomposition substance dissolved by chloroform should or should not be included in the weighed residue. It would be reasonable to assume that it does not possess the same physiological effect as the alkaloids themselves, but a careful comparative trial of two preparations similar to A and B, or administration of the decomposition product itself, isolated and purified, can alone settle this point satisfactorily.

(To be continued.)

ON THE ACTION OF CHLOROFORM AND SIMILAR SOLVENTS ON ALKALOID SALTS.

BY PROFESSOR EDW. SCHAER, STRASSBURG.

The observations relating to "Strychnine Salts and Chloroform," published by Mr. J. Rutherford Hill (*Pharm. Journ.*, Feb. 24, 1900, p. 185), seem to me to be of such great interest, theoretically and in their practical bearing, that they will induce me to carry out an already devised plan for a thorough investigation of the behaviour of solvents not miscible with water towards neutral as well as acid aqueous solutions of alkaloid salts.

Apart from the theoretical aspect of the matter a knowledge of the action of solvents like chloroform, ether, benzene, etc., on alkaloid salts is of importance in relation to methods for isolating and identifying vegetable or animal poisonous alkaloids for toxicological purposes. In fact, as the author of the paper referred to justly says, the methods of Stas-Otto, Erdmann-Uslar, Dragendorff, etc., are based on the assumption that, generally speaking, alkaloid salts are scarcely at all soluble in the above-mentioned liquids, and, therefore, that ether, chloroform, and analogous solvents will not extract alkaloids from aqueous solutions of their salts though those liquids readily extract them from alkaline solutions containing the free alkaloids. That is the leading principle in forensic analysis, also of many methods introduced into pharmacopœias for ascertaining the amount of alkaloid in various drugs, and even of some processes for extracting alkaloids on a commercial scale by manufacturing chemists.

In most manuals of analytical and toxicological chemistry it is stated that some alkaloids, as, for instance, caffeine, colchicine, some of the opium alkaloids, like narcotine, as well as atropine and veratrine, are extracted by ether or chloroform from their acid solutions to an extent depending upon the physical and chemical conditions of the liquids. This abnormal behaviour has been taken advantage of for separating certain bases from others which are only extracted from alkaline solutions by the above-mentioned solvents. Observations relating to that difference of behaviour are very limited, applying especially to ether and chloroform, and to a relatively small number of alkaloids.

The effect produced by these liquids upon alkaloids in acid solution may be attributed either to the solubility of certain salts of some alkaloids, like narcotine or colchicine in ether or chloroform, or to dissociation of the salts of alkaloids in aqueous solutions when shaken with liquids which are good solvents of the alkaloids. This latter view is generally held, and it may be considered quite beyond question in reference to caffeine or narcotine, which are but feebly alkaline, and, therefore, do not form stable compounds with many acids. The very weak stability, for instance, of some salts of these alkaloids may account for the fact of caffeine being extracted from an acid solution by chloroform, and, in like manner, narcotine by ether. Such cases of extraction of sensible quantities of alkaloids out of solutions of their salts are generally considered to be exceptional, but whether or not it is a more general phenomenon has not been ascertained, nor is it known whether the alkaloid extracted by one or other solvent is extracted as free alkaloid or in the form of salt. That may not be dependent upon the so-called alkalinity of an alkaloid, so that

while a feebly alkaline base like colchicine was extracted from an acid solution by ether, a strongly alkaline base like atropine would be extracted only in the state of the salt. In a paper published some years ago* I endeavoured to show that many chemical reactions, especially those with coloured "indicators," commonly used for the determination of the alkaline nature of vegetable bases, are not at all uniform in their expression of the value to be assigned to their indications with regard to different alkaloids, and that sometimes an apparently strong vegetable base may show but a low degree of alkalinity with one indicator, and the contrary with another. The observations of Mr. Rutherford Hill point to the conclusion that a knowledge of the chemical stability or the tendency to dissociation of an alkaloid salt does not afford any certain indication concerning the behaviour of acid or neutral solutions of the respective salts when shaken with ether or chloroform. For instance, it is stated that chloroform extracts from solutions of strychnine hydrochloride a certain amount of the alkaloid as hydrochloride, while, on the contrary, from solutions of the arsenate and of the sulphate the alkaloid is extracted by chloroform in the state of free alkaloid with only a very small proportion of the salt. From a theoretical point of view it might rather be thought that the salts of strychnine with the two oxygen acids would be least liable to dissociation and that the alkaloid would not be extracted from their aqueous solutions although the salt might be. Still, it must be borne in mind, that similar unexpected irregularities exist in other cases, as, for instance, in the hydrolytic dissociation of ferric salts, shown years ago by the magnetic experiments of G. Wiedemann, as well as by observations of my own, which I hope to publish before long in another periodical.

In toxicological analyses conducted by students in the Pharmaceutical Institute of this University numerous observations have been made, showing that the extraction of alkaloids from solutions of their salts by solvents like chloroform and ether is not restricted to the cases of caffeine, colchicine, narcotine, papaverine, atropine, delphinine, and veratrine, but seems to be a more general occurrence well deserving thorough investigation. We have been especially struck by the relatively large quantities of veratrine salt extracted, even from acid solutions, by chloroform, a fact already noticed by Otto in his excellent manual. A certain quantity of veratrine dissolved in a weak solution of tartaric acid was extracted, when the solution was treated with pure chloroform, which, by evaporation, yielded a mixture of veratrine tartrate and some free tartaric acid. The extraction of the alkaloid was relatively less considerable in cases where there was a large excess of tartaric acid in the solution. While chloroform extracted a rather considerable percentage of veratrine from an acid solution of the alkaloid, ether extracted very much less, especially in cases where the solutions were distinctly or even strongly acid. Similar results were obtained in extracting solutions of atropine salts with chloroform or ether; for instance, a solution of 0.102 Gm. atropine in water, acidified by tartaric acid, yielded to chloroform by successive treatment with 30 C.c. (*in toto*) of this liquid, 0.0623 Gm.; under equal conditions ether extracted the larger quantity of 0.0913 Gm., or almost the whole of the alkaloid present in the aqueous solution. The two alkaloids veratrine and atropine appear from these data to differ, the first being more easily taken up by chloroform, and the latter by ether from acid aqueous solutions.

To settle the practically important questions of the behaviour of alkaloid solutions to solvents, it will be necessary to make an extensive series of experiments: (1) as to the action of different solvents on neutral and acid solutions of the most important alkaloid salts, with special regard to the behaviour of different acids and concentrations; (2) as to the influence exercised by inorganic and organic substances, present in the aqueous alkaloid solutions, upon the extraction of alkaloids by ether, chloroform and similar liquids.

* "Neuere Beobachtungen über Alkalinität von Pflanzenbasen," *Zeitschr. d. Allg. oesterr. Apoth. Ver.*, 1896, 10 and 20 Jan.

THE ASH PERCENTAGE OF COMMERCIAL COCHINEAL.*

BY GEORGE F. MERSON, F.C.S.

Recently there came under my observation a sample of cochineal which was so obviously adulterated that I had the curiosity to ignite a little of it, and was surprised to find the yield of ash to be nearly half the weight of the sample weighed out. The Pharmacopœia allows 6 per cent. of ash, and the question at once suggested itself to me why should an insect such as this contain so much inherent mineral matter. Reference to authorities gave no satisfactory answer, one stated that genuine cochineal gave about 0.5 per cent. The examination of thirty-one commercial samples gave results shown in column 2 of the tables 1 and 2. The samples included both D.G. and silver insects. I arranged them according to their colour value; as is to be expected the dark variety is much the better as far as freedom from adulteration is concerned, although a considerable amount of sand and grit was adherent to the insects, and readily noted on rubbing a little down in a mortar.

TABLE I.

No. of Sample.	Percentage of Ash.	C.c. of Chlorinated Solution Used per Gramme.	Colour Value.
1.....	4.0	22.4	112
2.....	3.7	20.8	114
3.....	4.7	20.0	100
4.....	4.8	19.8	99
5.....	8.0	18.4	92
6.....	12.4	17.6	88
7.....	5.2	20.8	104
8.....	2.4	20.0	100
9.....	3.1	19.2	96
10.....	3.7	19.2	96
11.....	17.3	18.8	94
12.....	6.4	18.4	92
13.....	23.2	18.4	92
14.....	3.6	17.6	88
15.....	4.1	17.6	88
16.....	6.8	16.8	84
17.....	2.9	16.0	80
18.....	3.1	16.0	80
19.....	5.2	16.0	80
20.....	11.2	16.0	80
21.....	24.8	16.0	80
22.....	2.9	15.2	76
23.....	6.1	15.2	76
24.....	23.6	15.2	76
25.....	25.4	15.2	76
26.....	20.8	14.4	72
27.....	41.8	12.0	60
28.....	42.7	12.0	60
29.....	43.6	12.0	60
30.....	31.8	10.4	52
31.....	33.2	9.6	48

The first six samples were Dark Grain Cochineal, and the remainder Silver Grain. The ash determinations were made in duplicate. When ash percentage is small removal of last traces of carbon is difficult. Ignition is facilitated by intimately mixing a little pure silica with the powdered sample. The known weight of silica being deducted from the total residue.

The samples of Dark Grain Cochineal call for no special comment. Numbers 5 and 6 were sandy, and the adherent grit readily separated on maceration in water. The Silver Grain insects varied much in size and appearance. Genuine silver grain has the ridges well defined, or grooves or crinkles only have a white appearance, while the sophisticated article looks in many instances like a bad sample of a badly coated pill. In some cases two or three insects are aggregated into a nugget with the facing or coating over all. Less glaring instances, of course, are common, but they are all easily detected by the naked eye. The ridges are all more or less blurred and ill-defined, owing to the filling up of the crevices with adulterant. It is remarkable that commercial samples of slightly and bold appearance are more or less faced with powder, and prices seem based upon the appearance of the insect rather than upon its

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, March 21, 1900. (See page 314.)

tinctorial value. In some instances, a nice slightly lot of insects conforming to the official requirements in ash, is seen to be a mixture of light and dark varieties, probably in order to reduce the ash to proper limits. On picking a sample such as this the lighter coloured insects yield more ash than the darker variety, although the latter cannot be said to be a truly Dark Grain insect—quite grey in appearance—yet lacking the characteristic striated conformation of the genuine silver grain. The figures for ash in the table are based upon the commercial condition of the insects. On drying at 100° C., the loss varies from 10 to 15 per cent., and this will materially increase the ash percentage, more especially as the most heavily faced samples contain, as a rule, most moisture. The process adopted in “doctoring” cochineal is described by Loewe in ‘Year-Book of Pharmacy,’ 1883, page 254. If the insects are moistened in any way in order to make the surface adhesive the coating is more or less tinted pink or purple. Number 3 sample illustrates such a product. It yields over 40 per cent. of ash. Numbers 30 and 31 on the table were very similar in appearance to number 2 sample shown herewith. From my experiments I judge that the average normal percentage of ash in genuine cochineal does not exceed 2.5 per cent., and this being so, I fail to see why the Pharmacopœia should allow so wide a margin as 6 per cent. An article can be had on the open market without the slightest trouble which will conform easily to a lower ash standard than that which is official. Not only that, but the price for such is very much lower than that which rules for many of the adulterated kinds. Granted they are not so slightly, but that surely is immaterial seeing that cochineal is official simply as a colouring agent. I am inclined to think from data in my possession that the “preparing” of this drug is a special branch of manufacture, and is carried out after the insects have been exported from the collecting districts.

A SIMPLE METHOD FOR VALUATION OF COCHINEAL AND CARMINE.*

BY GEORGE F. MERSON, F.C.S.

The results of my experiments on the ash yields of cochineal were such that, having regard to the Pharmacopœia giving only an ash limit as the standard of quality, I determined to compare each of the samples with a view to finding if there was any relationship between the ash content and the colour value. The potassium permanganate process published by Merrick some thirty years ago I did not find so speedy nor so accurate as the following, by means of which a dozen samples can be comparatively valued in an hour. Several bleaching agents were tried, but chlorinated lime (or soda) solution was finally fixed upon as a decolorising agent. Various methods of preparing a solution of the colouring matter of the insect were also tried, keeping in view simplicity of manipulation, economy of time, and an assurance of concordant results.

The valuation is conducted as follows:—

Weigh 0.5 gramme of finely-powdered cochineal; place in a 100 C.c. flask with 30 C.c. of distilled water and 5 drops of liquor ammonia. Heat to boiling point, strain through cotton wool into a 100 C.c. flask, and wash with sufficient water to produce 100 C.c. The marc on the wool should now be quite colourless. Put 25 C.c. of the liquid into a 100 C.c. stoppered test mixer, add 5 C.c. of strong hydrochloric acid and sufficient distilled water to produce 100 C.c. Run in 0.5 C.c. at a time of solution of chlorinated lime (or soda) containing 1 per cent. available chlorine till the cherry-red colour changes to dull orange, shaking briskly after each addition. Continue adding chlorinated solution in 0.1 C.c. portion as long as the colour is being bleached. When almost completed note the burette reading, and after adding a further 0.1 C.c. of solution, shake the liquid slightly, and see if the top layer is lighter than the lower. If there is no difference the reaction is finished; if the lower stratum is darker continue to add

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh March 21, 1900. (See page 314.)

chlorinated solution drop by drop till the reaction is quite complete. The description may seem complicated, but in practice it can be performed with the utmost ease, and the end point is well-defined and reliable. The titration should be performed a second time more carefully. The number of C.c. of chlorinated solution used, multiplied by eight, gives the quantity of solution required to destroy the colouring matter of 1 gramme of cochineal. In examining a series of samples it is immaterial what strength of chlorinated solution is used. The official solution of either lime or soda, diluted with an equal volume of distilled water, answers very well, and gives the relative values of a series of samples, but for strict comparison, I suggest a 1 per cent. solution as a convenient standard.

In columns three and four of the table under the previous paper I give respectively the number of C.c. of 1 per cent. chlorinated solution required to decolorise 1 gramme of cochineal and the colour value of each sample, assuming as a standard that 20 C.c. are required to bleach 1 gramme of high-grade cochineal, and counting that as 100. On comparison of the colour value with the yield of ash, it is seen that there is no relation between the two factors. Numbers 11 and 13, with ash, yield respectively of 17.3 and 23.2 per cent., are almost 20 per cent. better in colour value than number 22, with 2.9 per cent. of ash. Again, numbers 17 to 21 inclusive have a uniform colour value of 80, while the ash yield ranges from 2.9 per cent. up to as much as 24.8 per cent. The next four lower samples are equal to 76 in colour value, with ash from 2.9 to 25.4 per cent.

The samples of dark grain relatively of better quality than the silver variety.

It may be objected that lime salts precipitate the colouring matter of cochineal, but while this is so, it does not in the slightest degree affect the delicacy of the reaction, nor the accuracy of the results. Mineral acids act as precipitants, whilst 50 per cent. acetic acid is a solvent of the colouring principle. As, however, it is not advisable, even if practicable, to titrate in presence of a large bulk of acetic acid of this strength, and as any precipitate of the colouring matter by the hydrochloric acid is so finely divided and diffused through the liquid, the latter is preferably employed.

Experiments were made to see whether a larger or smaller proportion of acid added to the cochineal decoction before titration in any way modified the results. Too little acid—say, just what is theoretically necessary to decompose the chlorinated solution—does not liberate the chlorine with sufficient rapidity, and consequently does not give so sharp a reaction as the proportion I suggest, whilst a larger amount is in no way objectionable. In preparing the cochineal decoction the trace of ammonia is used to ensure perfect and rapid exhaustion, thus ensuring the uniformity which might not be attained using water only. The fineness of the powder in different samples might vary, and the proportion of fatty matter is by no means constant. Some insects powder much more readily than others which contain more fat. One cannot judge of the value of a sample of cochineal with any degree of accuracy simply by its appearance. Its colouring power may be defective, either through careless collection, or storage, or by other causes, such as partial exhaustion and redrying with or without mineral facing. Moreover, one cannot judge quality from the depth of colour or "body" possessed by a decoction made with distilled water. Dark grain yields an infusion of a brighter red than does silver grain, the latter being brought to the tint of the former by a trace of acid. In other words, the dark grain is more acid than the silver. On moderately acidulating two such samples it is noticed that the infusion made from the dark grain is of greater tinctorial power. This is not universal, but it goes to show that cochineal cannot be judged by the eye from the depth of colour it imparts to distilled water.

From the foregoing, together with the results obtained in the ash estimations, I suggest (1) That the ash limit given in the

Pharmacopœia is too high, and should, if retained in future issues, be placed at not more than 4 per cent. This is a liberal margin to allow; (2) that in view of the wide variation in tinctorial power shown by commercial cochineal, as also the absence of any relationship between the ash content and the colour yield, some test for colour valuation on the lines indicated above should be added to the present official tests.

Time has prevented the examination of the whole series of ash residues to ascertain the adulterant used. Barium sulphate undoubtedly exists largely in some of them, also fragments of earthy impurity, French chalk, etc. I hope later on to be able to report if any noticeable feature occurs.

The foregoing process also answers admirably for the valuation of commercial carmines. I append results obtained in seven samples which I examined:—

TABLE II.

No. of Sample.	Ash.	C.c. Chlorinated Solution used.	Colour Value.
	Per Cent.	Per Gramme.	
1	6.5	32	100
2	8.5	31	97
3	7.0	30	94
4	6.0	28	87
5	4.8	24	75
6	5.2	24	75
7	6.8	10	31

As in the case of cochineal, moisture present is of no moment, and ash content is only of secondary importance and unreliable. Note samples 1 and 7, which have practically the same ash yield, and yet sample 1 has more than three times the colour value of sample 7. The colour value, therefore, is the only reliable basis upon which to form an opinion as to the quality of the sample. In estimating the colour value, 0.1 gramme of the sample is treated precisely in the same way as the cochineal, except that boiling and filtration are not necessary. A high-grade carmine is taken as standard and called 100.

THE VOLUMETRIC DETERMINATION OF RED LEAD.*

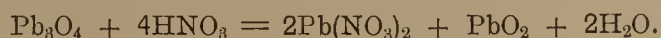
BY JAMES F. TOCHER, F.I.C.

On examining a few samples of red lead recently, I was struck with the unsatisfactory end reaction in the volumetric method described by Sutton as suitable for technical work. It is true that the percentage of Pb_3O_4 may readily be calculated from the result of gravimetric determination of Pb in the PbO_2 produced by the interaction of Pb_3O_4 and nitric acid. But an accurate and rapid method of volumetric determination is very much to be desired, and none of the methods described seem to be both accurate and rapid. With this object in view, a large number of experiments with various substances and samples were carried out by myself and Mr. John Don, B.Sc., who has assisted me in these experiments.

It was apparent that the transient character of the permanganate coloration was to be attributed to the excess of nitric acid, and, accordingly, the object was to secure the permanency of the coloration by suitable means. Acetic acid and other solvents were tried instead of nitric acid with indifferent success. It was found, by using normal nitric acid (sp. gr. 1.05) in place of the comparatively strong acid (sp. gr. 1.2) recommended by Sutton, that very satisfactory results could be obtained. It may be here mentioned that Sutton's method is as follows:—"2.064 grammes of red lead is placed in a 300 C.c. porcelain basin, and 20-30 C.c. nitric acid (sp. gr. 1.2) poured over it, then warmed gently with stirring. In a few minutes the lead oxide is dissolved and the peroxide left insoluble. 50 C.c. of N/5 oxalic acid is added and the mixture boiled. This decomposes and dissolves the peroxide,

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh March 21, 1900. See page 314.)

leaving undissolved any adulterant such as baryta, lead sulphate, oxide of iron, gypsum, or sand; while still hot N/5 permanganate is added in moderate portions until the colour is permanent for a few seconds. The volume of permanganate deducted from 50 gives direct the percentage of lead existing as peroxide." Red lead is easily decomposed by very dilute nitric acid (sp. gr. 1.05) approximately of normal strength. If the quantity recommended above (2.064 grammes) is treated with 50 C.c. of nitric acid (sp. gr. 1.05), the Pb₃O₄ is completely resolved into PbO₂ and Pb(NO₃)₂ in the cold. If now the mixture is brought nearly to boiling, and 50 C.c. of N/5 oxalic acid run in, the PbO₂ is almost completely dissolved, and, after boiling, some dilute H₂SO₄ is added, and the mixture is ready for titration. A little water is added and the mixture treated with N/5 permanganate until a permanent coloration is obtained. Several experiments were conducted with nitric acid (sp. gr. 1.2) and various means tried for the purpose of removing the excess of acid or reducing its strength, keeping in view that the amount of oxalic acid present had to remain intact. After many unsuccessful trials with such substances as Zn, Mg, etc., etc., Ba(HO)₂ was tried with complete success. The introduction of this substance after decomposition of the residual peroxide by N/5 oxalic acid and the nitric acid sufficiently neutralises the solution, at the same time partly precipitating the oxalic acid. Neutral sodium sulphate solution is now added, forming NaNO₃ and BaSO₄. The addition of dilute H₂SO₄ releases any oxalic acid that may have gone into combination with the barium, and prepares the mixture for titration, which is now simple and certain. A third and very suitable technical method suggested itself on noting the breaking up of the peroxide by oxalic + nitric acid; but for complete success the nitric acid must be strong (sp. gr. 1.3). If about 50 C.c. of nitric acid of this strength is added to a weighed quantity (2.064 Gm.) of red lead, and, after heating, N/5 oxalic acid gradually run in, the final disappearance of the dark PbO₂ can be readily noted. Towards the end the mixture clears up and the remaining peroxide settles in small grains at the bottom of the basin, and on the addition of sufficient oxalic acid, the mixture being kept nearly boiling and well stirred, it completely disappears. To properly note the end of the reaction, the Bunsen is momentarily removed and the fumes blown aside. Very accurate results were obtained in each case except No. 1, which was very poor in red lead, and contained much lead sulphate, but even in this case the difference was only 0.5 per cent. The following were the results obtained. If 2.064 Gm. of red lead are taken, it is obvious that 1 C.c. of N/5 oxalic or N/5 permanganate is equivalent to 1 per cent. of Pb, while if this is multiplied by 3.3, the percentage of red lead is ascertained, as is evident from the following equation:—



It is the quantity of lead in the PbO₂ which is determined.

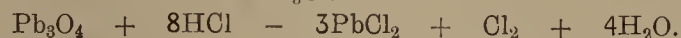
The molecular weight of Pb₃O₄ is 683.5 and $\frac{683.5}{206.4} = 3.3$.

Sample.	Nitric Acid 1.05 and H ₂ SO ₄		Nitric Acid 1.2 Ba(OH) ₂ and H ₂ SO ₄		Nitric Acid 1.3 and oxalic acid alone.		Gravimetric as sulphate.	
	Pb	Pb ₃ O ₄	Pb	Pb ₃ O ₄	Pb	Pb ₃ O ₄	Pb	Pb ₃ O ₄
No. 1	3.4	11.2	—	—	3.3	10.89	3.79	12.5
No. 2	17.8	58.7	18.0	59.4	17.9	59.0	18.45	60.9
No. 3	21.4	70.6	21.5	70.9	21.6	71.2	21.51	71.0
No. 4	24.1	79.5	24.0	79.2	23.9	78.8	23.99	79.2

In determining gravimetrically, the PbO₂ was well washed and treated with dilute nitric acid and hydrogen peroxide. The PbO₂ was completely decomposed by this means, and the lead was then thrown down as sulphate.

An entirely different method of approaching the problem is

indicated by the reaction which occurs when strong pure HCl is brought into contact with Pb₃O₄:—



This method has not been mentioned as suitable and applicable to commercial red lead, although, of course, it is well known that metallic peroxides can be most accurately determined by collecting the Cl in the usual apparatus. Where other peroxides are found to be present, the chlorine method is inapplicable to red lead. This is seen in sample No. 1, where the difference is 4.3 per cent.; otherwise the method is very applicable, as great accuracy is obtained. The sample was placed in a small flask fitted with a paraffin-soaked cork, through which a glass tube was passed and connected with a bulbed U tube containing a suitable quantity of a saturated solution of KI. A small U tube was connected to the other end of the large tube containing also a little KI. The U tubes may be put in a large beaker and surrounded with water to keep them cool during the operation. Strong HCl was added to the flask and the apparatus connected together. This apparatus is described by Fresenius. A desirable improvement would be the substitution of glass throughout for cork. An apparatus of this character is being made and will be shown at a future meeting. If 3.415 grammes of red lead is taken and N/10 thiosulphate used each cubic centimetre of thiosulphate will represent 1 per cent. of Pb₃O₄. The following results were obtained by this method:—

Sample.	Pb ₃ O ₄ per Cent.	Gravimetric Figures.
No. 1	16.8	12.5
No. 2	61.2	60.9
No. 3	70.2	71.0
No. 4	78.4	79.2

The percentage of red lead may be accurately determined by applying Mohr's alkalimetric method. There was here, however, a difficulty. When sugar, alcohol, etc., were used with HNO₃ to decompose the PbO₂, it was found, naturally enough, that other bodies of an acidic nature had been developed to an uncertain extent in the reaction, and consequently the results were unreliable. However, a method that promised so well was not to be abandoned without an attempt to discover a solvent which was free from the objections attached to those already mentioned. The solvent satisfying these conditions was found to be hydrogen peroxide, which proved to be an excellent medium. The sample was first treated with dilute nitric acid, as before, which decomposes the Pb₃O₄, and forms PbO₂ and Pb(NO₃)₂ with excess of nitric acid. The point of neutralisation was not easily distinguished owing to the presence of the dark PbO₂, but filtration and washing was resorted to, and as the filter paper with its contents can be subsequently digested together with a known quantity of normal nitric acid, the determination by normal alkali may be readily performed. Filtration may be dispensed with by the pouring of the decomposed mixture on to a concentrated solution of KNO₃ (or better, a mixture of NaNO₃ and KNO₃) contained in a conical vessel, which permits the PbO₂ to sink through the heavy liquid, leaving the acid at the surface to be subsequently siphoned off. The following results were obtained by the alkalimetric method just described:—

Sample.	Filtration.	Method of Subsidence.
No. 1	3.7	—
No. 2	18.1	—
No. 3	21.4	21.5
No. 4	23.9	—

Arising from the foregoing, it will be interesting to show a ready method of determining volumetrically the total lead present in commercial samples. The fact that H_2O_2 was found to effect the complete solution of the oxides at once suggested the means of obtaining this result. A standard solution (N/5) was prepared and 20 C.c. poured on to a weighed quantity of the sample along with about 20 C.c. of neutralised H_2O_2 . The operation was conducted in a retort, the drawn-out neck of which dipped into standard (N) soda. The lead oxides all decompose and dissolve as the liquid is brought to boiling. The source of heat is removed, and the normal soda (which is not in excess) is quickly drawn into the retort. Neutral sodium sulphate is now added, and phenolphthalein as indicator, and the excess of acid determined. If 1.032 gramme of red lead is used, 10 times 100 (representing 20 C.c. N/5 nitric acid) — number of C.c. of N soda required for neutralisation give the percentage of total lead in the sample. The amount of total lead by this method agrees closely with the results from gravimetric analysis and assay:—

Sample.	Alkalimetric.	Gravimetric.	Assay.
No. 3	89.4 to 91.5	90.9	90.3

Several other rather interesting facts were brought to light in the examination of red lead, but they were not considered of practical importance. What is of chief practical interest in this paper is the fact that the percentage of red lead can be determined by several methods very accurately and in a few minutes:—

(1) Nitric acid 1.05, with H_2SO_4 with oxalic acid and permanganate.

(2) Nitric acid 1.2, with $Ba(OH)_2$, Na_2SO_4 , H_2SO_4 , with oxalic acid and permanganate.

(3) Nitric acid 1.3, with oxalic acid alone.

(4) Hydrochloric acid, with KI and thiosulphate.

(5) The alkalimetric method with subsidence.

The first three modifications of the nitric acid method are distinct improvements and can be recommended, particularly Nos. 1 and 2, where ease, rapidity, and accuracy are all combined, and pharmacists interested in this substance can arrive at the commercial value of red lead with very little trouble, waste of time, or inconvenience.

Publications Received.

RICHTER'S ORGANIC CHEMISTRY, OR CHEMISTRY OF THE CARBON COMPOUNDS. Edited by Professor R. ANSCHÜTZ (assisted by Dr. G. Schroeter). Authorised translation by Edgar F. Smith. Third American, from the eighth German edition. Vol. II. (Carbocyclic and Heterocyclic series). Pp. xvi. + 671. Price 15s. London: Kegan Paul, Trench, Trübner and Co., Limited, Paternoster House, Charing Cross Road. 1900. From the Publishers.

DIE MIKROSKOPISCHE ANALYSE DER DROGENPULVER. Von Dr. LUDWIG KOCH. Pp. 76 and plates. Price 3mk. 50pfg. Berlin: Gebrüder Borntraeger, Schönebergerstr., 17A, S.W. 46. 1900. From the Publisher.

WEST INDIAN BULLETIN: THE JOURNAL OF THE IMPERIAL AGRICULTURAL DEPARTMENT FOR THE WEST INDIES. Vol I. No. 2, Pp. 143-228. Price 3d. Barbados: Issued by the Commissioner (Dr. D. Morris). London agents: Dulau and Co., 37, Soho Square, W. From the Commissioner.

BUBONIC PLAGUE: Its Course and Symptoms and Means of Prevention and Treatment, according to the Latest Scientific Discoveries; including Notes on Cases in Oporto. With an Appendix specially written by the author for the English edition. By Dr. JOSE VERDES MONTENEGRO. Authorised translation by W.

Munro, M.D. Pp. 84. Price 3s. 6d. nett. London: Baillière, Tindall and Cox, 20 and 21, King William Street, Strand, W.C. 1900. From the Publishers.

LESSONS IN ELEMENTARY PHYSIOLOGY. By THOMAS H. HUNLFY, LL.D., F.R.S. Pp. xxiv. + 611. Price 4s. 6d. London: Macmillan and Co., Ltd. 1900. From the Publishers.

ANALYTICAL NOTES.

RAPID DETERMINATION OF URIC ACID.—The following rapid method for the clinical determination of uric acid is due to E. Gautrelet. Twenty C.c. of unfiltered urine are taken, exactly neutralised with weak alkali, then acidulated with 5 C.c. of 15 per cent. acetic acid. An indicator, freshly prepared from potassium ferricyanide, 20 centigrammes; hydrochloric acid, 5 drops; distilled water, 100 C.c., is spotted out on a white porcelain plate. The acidulated urine is then titrated with the following standard copper solution, added drop by drop. Copper sulphate, 2.4 Gms.; sodium sulphite, 5 Gms.; acetic acid, 5 Gms.; distilled water to 1,000 C.c. A drop of the urine is repeatedly removed during titration and applied to a drop of the indicator. The end of the reaction is shown by the appearance of a red colour in the mixed drops. Every 0.1 C.c. of standard solution used is equivalent to 0.01 Gm. of uric acid per litre of urine.—*Bull. Com.* 27, 519; after *Bull. de Pharm. de Lyon*.

COPAIBA BALSAM.—Gehe and Co. dispute the value of K. Dietrich's figures for copaiba (see *ante* p. 227), and assert that the data obtained by the latter's method of examination yield results which would pass as pure, Para and Maracaibo balsams adulterated with 20 to 40 per cent. of colophony. They point out that it is not so much East Indian balsam, as the thin fluid Para copaiba balsam, which is used for the adulteration of Maracaibo balsam. They give the following comparative figures:—

	Sp. gr.	Acid No.	Ester No.	Sap. No.
Balsam Copaiba Para (pure)	0.931	30.32	8.11	38.43
With 20 per cent. Colophony	0.956	55.11	7.44	58.55
" 35 " " "	0.973	70.94	5.8	76.02
" 40 " " "	0.982	77.73	2.27	80.00

While the figures given by Dietrich are:—

	Sp. gr.	Acid No.	Ester No.	Sap. No.
For Para balsam	0.95 to 0.97	40-60	2-8	30-60
For Maracaibo balsam	0.98 to 0.99	75-85	3-6	80-90

—*Pharm. Centralkh.* 40, 269.

HAZELNUT OIL.—I. Hanus gives the following characters for this oil:—Specific gravity at 15° C. 0.9169; saponification number 193.7; Hehner number 95.6; Reichert number 0.99; iodine number 90.2; acetyl number 3.2; saponification number of the fatty acids 200.6; iodine number of fatty acids 90.6; saponification number of the unsaturated fatty acids 198.5; iodine number of the unsaturated fatty acids 91.3; mean molecular weight of the unsaturated fatty acids, 272; rise in temperature by Mauméné's reaction, 36.2 C. The oil, on examination, gave—Oleic acid, 85 per cent.; palmitic acid, 9 per cent.; stearic acid, 1 per cent.; glycerin, 10.41 per cent.; phytosterin, 0.5 per cent.—*Pharm. Zeit.* 44, 779, after *Chem. Zeit. Repert.*

DETERMINATION OF ESSENTIAL OIL IN CINNAMON WATER.—Duyk accomplishes this by converting the cinnamic aldehyde into the corresponding hydrazone. The cinnamon water is treated at ordinary temperatures with an excess of a 1 per cent. aqueous solution of phenyl-hydrazine hydrochloride containing 15 per cent. of potassium acetate. The mixture is thoroughly shaken, and filtered off from the precipitated hydrazone, which is washed, dried, and weighed. From 100 C.c. of cinnamon water he obtained 0.175 Gm. of hydrazone, corresponding to about 1 per cent. of cinnamic aldehyde.—*Chem. Zeit.*, 23, 264, after *Annal. Chim. anal.*

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Commerce of Drugs.

The gratifying success of the Evening Meeting at which the Pharmaceutical Society's Curator discoursed upon the commerce of drugs goes to prove two things—first, that there is no difficulty in attracting an audience on such an occasion, when the weather is favourable, provided an appropriate subject is to be dealt with; second, that Mr. Holmes has, up to the present, missed a great opportunity in not disclosing to the world of pharmacy more of the lesser known facts with which he is conversant regarding drugs. As he well remarked, the knowledge of drugs possessed by the retail chemist is often derived exclusively from text-books, and, as a rule, he is only imperfectly equipped so far as practical commercial knowledge is concerned. The obvious remedy is that a book should be published in which drugs shall be primarily treated from the commercial point of view, and I am sure no one is more competent to produce such a work than Mr. E. M. Holmes. He has published an enormous mass of matter during his long and useful career, but I hope to see an important book from his pen before the world is many years older, and no work is so likely to do justice to his reputation as a well-planned and exhaustive treatise on the commerce of drugs. Naturally, the task of producing such a work will be far from easy, particularly in connection with the accumulation of up-to-date information regarding the different commercial varieties of drugs, but surely there are enough persons sufficiently interested in the subject to render Mr. Holmes any assistance in their power. He has given assistance to so many people, so willingly and so freely, during a long series of years, that he need not hesitate to call upon some of those he has helped to collect information to assist him in return. Moreover, the work would be for the common good and everyone who assists in it would thereby be helping himself.

Why Drugs Become Scarce.

Some of the drugs referred to in Mr. Holmes' interesting paper were among those concerning which I had occasion to write a few weeks ago, in connection with the question of B.P. standards, and it is gratifying to find that our worthy Curator's opinions correspond so closely with my own. He attributes the occasional scarcity of some high-class drugs to "the keen competition in trade, which leads buyers to purchase at as low a rate as possible," and that undoubtedly is the key to the situation. For shippers will not send drugs to the London market if they are faced with the almost certain prospect of loss thereon, and, naturally, collection of those articles will flag or even cease entirely when the demand falls off. Jaborandi leaves and pareira root were specifically mentioned by Mr. Holmes as drugs which have been sold at a loss to the shipper, and, consequently, become scarce and unnecessarily high-priced. Again, English aconite root, which may or may not be better than German, can readily be procured if only the growers are assured of a fair remuneration; in fact, there is plenty to be got at the present time, though we have been told that in consequence of the supply failing, it is necessary to use foreign aconite root to make certain official preparations. Indeed, we may safely assume that almost any high class drug can be procured in ample quantities, and at a reasonable price, if there is a steady demand for it. But if there is too great a tendency to buy cheaply, and the price drops below the cost of production, the natural results will be scarcity and unnecessarily high prices. The chief moral to be derived from the discussion on this subject is, evidently, that pharmacists should educate themselves regarding the commerce of drugs. They will then learn that it is not to their advantage to know enough only to enable them to classify drugs as "B.P." and "not B.P." respectively.

What to Know about Drugs.

I sympathise strongly with Professor Greenish's views that pharmacists should acquire as complete a knowledge as possible of genuine drugs, and depend mainly upon that knowledge to help them to guard against the use of substitutes. It is a hopeless task which faces anyone who sets out with the idea of attempting to make himself familiar with the characteristics of all substitutes for official drugs, as well as those of the genuine articles; perhaps only one person in a thousand can expect to attain to an intimacy with the subject that will enable him to succeed in such an attempt. But it ought not to be beyond the powers of most of us to learn that a certain article is not what it professes to be. We may not be able to declare positively, say, what is the origin of a particular sample of gum, but we ought to be able to assert that it is not gum acacia, B.P. Again, we may be unable to say what species of aconite has yielded a particular sample of foreign root, but we need be under no misapprehension with regard to the point whether it is English root or not. Nor is it necessary for this purpose that pharmacists should "go into the histology of the whole of the official drugs," as Mr. Martindale put it, at the Evening Meeting. I hardly think that even Professor Greenish would suggest anything of the kind as a necessity in every instance. A rational view appears to be that if the macroscopic characters of a genuine drug clearly suffice to distinguish it from everything else, nothing further need be considered in an ordinary way; whether a histological, chemical, or physiological examination is required in addition must depend entirely upon the circumstances of each particular case.

Is there a New Panacea?

Is Mr. Glyn-Jones' circular letter, published last week, to be regarded as the precursor of another "wonderful panacea," or does it simply indicate a natural curiosity to know what is going to happen? There are various recognised ways of attempting to find out before the first Wednesday in April what persons have been nominated as candidates for seats on the Council, and which of them have accepted nomination, but all possess the same defect—that of yielding incomplete and, therefore, unsatisfactory results. I doubt much whether Mr. Glyn-Jones' new method, if such it be, will prove any more satisfactory in that respect, but it is certainly ingeniously conceived, as—for the matter of that—are all schemes evolved from the same fertile brain. Apart, however, from the novelty and ingenuity of Mr. Glyn-Jones' latest move, it comes somewhat as a shock to find a member of the Council, whose own seat is secure for two years to come, inviting the electors to assist him in ousting three or four of his colleagues. Presumably, however, he despairs of doing all he could wish, unassisted, and the idea has occurred to him that the members who elected him may be disposed to elect three or four other persons who hold similar views. It was rumoured that he was arranging to run seven candidates whose chief qualification should be that they had never before held office as Councillors; but, apparently, the stock of suitable material available will not permit of more than three or four persons being put forward as being, in all respects, free from any taint that might be supposed to be acquired by sitting at the Council table. Are we to assume, by the way, that Mr. Glyn-Jones himself will, by his own reported ruling, be ineligible for re-election in 1902, or is the coming demonstration intended only for the instruction and improvement of the representatives of historic houses? The retiring members of Council are Messrs. Bateson, Cross, Grose, Hills, Storrar, Symes, and Warren. Are two of those to be opposed, if they offer themselves for re-election, because they are Londoners and representatives of historic houses? Of a surety, either reason would be an absurd one for rejecting a past-President of the Society, who has done much good work for the Society, or an Hon. Secretary of the B.P.C., who, I understand, does equally good work in a modest and unobtrusive manner, as will probably be proved to a large number of us when,

four months hence, we become personally acquainted with him. It is the height of absurdity to assume that a member of Council, and particularly a London member, does nothing in the Society's interest because he does not deliver long speeches when reporters are present. But, unfortunately, the reports of such speeches afford the only clue available to electors who are anxious to have their interests properly cared for. So far as the five retiring country members are concerned, it is difficult to see what reason can be advanced in favour of rejecting any three or four that will not apply to the lot. But, doubtless, Mr. Glyn-Jones will solve his own problem, and disclose his new panacea, if such a thing exist, in his own good time.

PHARMACEUTICAL SOCIETY.

Evening Meeting in Edinburgh.

The fourth evening meeting of the session was held in the Society's House, 36, York Place, Edinburgh, on Wednesday, March 21, Mr. PETER BOA in the chair. The minutes of last meeting were read and approved, and apologies were intimated for Messrs. Ewing, Davidson, Coull, Merson, and Tocher. The Chairman referred to the loss sustained by the Society in Scotland, in the death of Mr. James Watt, of Haddington, and Mr. Wm. Burley, of Edinburgh, and the meeting agreed to send letters of sympathy to the relatives of each.

The first paper read was on

THE VOLUMETRIC DETERMINATION OF RED LEAD,

by Mr. James Tocher, F.I.C. It is printed in full at page 310.

Dr. DOBBIN said one good point was that Mr. Merson had attacked the problem of devising an apparatus for this determination, in which the great objection due to absorption of chlorine or iodine by the cork was obviated by using glass throughout. He understood an apparatus on that principle had recently been put upon the market in Germany, but was not to be had yet in this country. He hoped Mr. Tocher's would be an improvement even on that one. A curious use of red lead had recently come under his observation. Some ingenious person had discovered that when flashed with an aniline dye it could be sold as vermilion. The sophistication was discovered in the examination of a so-called vermilion which on analysis yielded no mercury. The sample had given rise to great trouble among some students to whom it was given as vermilion.

Mr. LUNAN said this practical paper was an object lesson in what a pharmacist could do in adapting himself to the work of his district.

Mr. DOTT said that for nearly all purposes for which red lead was used the presence of small quantities of impurities was unimportant.

Mr. HILL said that, being used for technical purposes, in which a little impurity was not important, red lead seemed liable to considerable contamination, which unfitted it for those technical purposes. In glass-making other metallic oxides, such as those of iron and copper, were especially objectionable.

The next papers, printed at page 309, were on

THE ASH PERCENTAGE OF COMMERCIAL COCHINEAL and

A SIMPLE METHOD FOR VALUATION OF COCHINEAL AND CARMINE,
by Mr. George F. Merson, F.C.S.

Dr. COULL had sent a note of ash percentages of cochineal samples, examined by him during the last six years. Those varied from 1.6 to 27.9 per cent. A sample giving 9.5 was priced a halfpenny per pound dearer than one yielding 1.6, and one yielding 2.4 was a halfpenny cheaper than the first. In another case a sample giving 10.5 was quoted one penny per pound dearer than one yielding 2.8; four samples approached 20 per cent., two 30 per

cent., and one 25 per cent. The average of good samples was between 2 and 4 per cent., and he thought it reasonable that the pharmacopœial limit of ash should be altered from 6 to 4 per cent especially as the enormous percentages of ash cannot but be the result of flagrant adulteration.

Mr. LUNAN said he was astonished at the statement that the colour value of cochineal could not be estimated by the eye. The chlorine bleaching method was open to the danger that other substances than the colouring principle of cochineal might use up the chlorine.

Mr. DOTT said it was evident that in this case, as perhaps in some others, the official ash standard was not satisfactory. The one weak point in the colour valuation process was that other colouring matters, such as aniline colours, might mislead. Still the papers were very interesting, and would be useful in determining the value of cochineal and carmine.

Mr. COWIE said he could corroborate Mr. Merson's statement that ash percentage in no way distinguishes good or bad cochineal. He had examined a sample containing 20 per cent. of barium sulphate.

Mr. BOA said he had observed it stated that cochineal yielded about 1 per cent. of ash. He thought the eye could pretty well determine the colour value, and would also detect any aniline dye tint. He had been so dissatisfied with cochineal as a colouring agent that he had discarded it altogether. He was surprised to hear that dark grain was considered the best, as that was contrary to his experience.

EXHIBITION OF SPECIMENS.

The ASSISTANT SECRETARY directed attention to a fine sample of asafetida in tears, sent by Messrs. Wyleys, Limited, Coventry; a sample of so-called Uganda aloes, sent by Mr. Jones, Coventry; and galls of *Retinea resinella*, on *Pinus sylvestris*, presented by Mr. R. Stewart Macdougall.

On the motion of the CHAIRMAN, votes of thanks were awarded to the authors of papers and the donors of books and specimens. The meeting then closed.

EXTRACTS FROM CONSULAR REPORTS.

ENGLISH PHOTOGRAPHIC MATERIALS of all descriptions, are, according to Consul-General Hertslet, much appreciated in France, although the difference between the standard sizes in the two countries is a hindrance to their general use. One English firm is stated to have produced an excellent illustrated catalogue of fifty-four pages, entirely in French, with the photographic sizes measured according to the French standards, and with the prices given in French currency.

THE SOLE RIGHT TO SELL DYNAMITE in Venezuela is possessed by the French Nobel (Monopoly) Company, which charges thirty-seven dollars (about £6) per box of 50lb. of dynamite supplied to the mines. This, according to Consul de Lemos, is double what it would cost to import the same article from the United Kingdom or Germany; and he is informed that the price charged is found to be so excessive by the consumers, that they have to restrict their mining works in consequence.

THE VALUE OF VANILLA exported from Tahiti (Polynesia) in 1898 was £15,000, as against £16,000 in 1896. Owing to an exceptional rise in price in 1897, vanilla then ranked far higher than in 1898. The price is reported to have again fallen seriously, but it is estimated that the production will increase from 20 to 30 per cent. during the next two years, as the result of the formation of new plantations.

CHEMICAL SOCIETY.

At the meeting held on Thursday, March 15, the PRESIDENT, Professor T. E. Thorpe, F.R.S., in the chair, the papers on the list contained an unusually large proportion of inorganic research.

A paper by H. BRERETON BAKER, M.A., was first communicated, on the

VAPOUR DENSITIES OF DRIED MERCURY AND MERCUROUS CHLORIDE.

Since ammonium chloride when perfectly free from water has been found to vaporise without dissociation, the author determined to investigate the vaporisation of mercurous chloride in as dry a condition as possible. Pure mercurous chloride was prepared by precipitation and washed until a large quantity of washings gave no opalescence with silver nitrate after concentration. On account of the action of light upon it the pure substance was preserved in the dark, and the experiments were carried out in a room kept as dark as it was possible to work in.

The determination was made by Victor Meyer's method, using a bath of boiling sulphur.

The experiments came to a successful issue in showing that the drier the condition the more nearly the vapour density approaches to that value calculated for no dissociation taking place. The apparatus required to be made of hard glass, since soft glass always gave a result indicating dissociation.

The experiments made on mercury itself to determine whether in a very dry condition its vapour has any greater complexity have led to no affirmative conclusions; hitherto it has always appeared as monatomic vapour, but although it has been dried until the water present amounts to no more than the thousandth of a milligramme, the influence of such infinitely small quantities may be very great, and the possibility may still remain of obtaining such a degree of desiccation that the molecule of mercury vapour is diatomic.

The author has also attempted to obtain undissociated phosphorus pentachloride vapour, but has not been able to obtain a sufficiently pure substance until recently, when one experiment gave a result of 89.4 as the vapour density, but he had not had time to repeat the determination.

This contribution gave rise to an animated discussion, in which everyone freely congratulated the author.

Professor ARMSTRONG said he was sure there must be an important personal equation in Mr. Baker's work. He also thought it was to be regretted that the important results of his previous researches on dissociation had not received more recognition.

Professor DEWAR stated that Lord Rayleigh had made a determination of the weight of hydrogen freed from water by condensing the latter with liquid air, and the result agreed so well with that obtained with the use of chemical drying agents that he might suggest the use of liquid air as a drying agent.

Professor McLEOD inquired if the author had determined how great a quantity of water was sufficient to give complete dissociation, to which Mr. Baker replied that the quantity was very small.

Dr. SCOTT, of the Davy-Faraday research laboratory at the Royal Institution, read a paper on the

PREPARATION OF PURE HYDROBROMIC ACID.

He had found some trouble in obtaining pure hydrobromic acid with the use of red phosphorus, owing to the arsenic present in the latter. The method he had to communicate was by covering a quantity of pure bromine with six times its volume of water and blowing sulphur dioxide into the mixture until nearly all the bromine disappeared. On distilling the liquid the remaining bromine goes over first, and is easily got rid of.

If a very pure acid is required it is advisable to distil in hydrogen. To show that the acid obtained is free from sulphur compounds the acid was analysed by Stas's method with silver, and by a remark-

able coincidence the mean of the author's results corresponded to the sixth figure with that given by Stas. Pure sulphuric acid, it was to be noticed, was obtained as a by-product.

A NEW SULPHIDE OF ARSENIC

was described by the same author.

When arsenious oxide is treated with phosphorous acid and sulphurous acid, if heated the sulphurous acid is completely reduced and ordinary yellow arsenious sulphide is precipitated, but if the mixture be allowed to stand for a few hours at the ordinary temperature a brown sulphide of arsenic is precipitated. The analysis of this sulphide indicated a formula As_3S , and the question arose as to whether it was a mixture of arsenic sulphide with elemental arsenic. To answer this question the substance was treated with three successive quantities of freshly-made ammonium hydro-sulphide, and an analysis of the residue made after each treatment. Since the composition remained unaltered by this treatment, it was assumed that this substance could not be a mixture.

It is soluble in yellow ammonium sulphide.

Several members took part in discussing the subject. The PRESIDENT remarked that Dr. Scott had added hydrochloric acid to the solution of arsenic, and inquired if it was necessary; he recalled an experience of his own, in which hydrogen sulphide had failed to produce any precipitate in a solution of arsenic fluoride until hydrochloric acid was added. Professor TILDEN inquired if other evidence had been sought to prove that the substance was a pure compound. The existence of As_3S was readily conceivable, as it is easily seen to be realgar in which an atom of sulphur is replaced by an atom of arsenic.

Mr. DUNSTAN inquired whether the action of heat upon this sulphide had been observed.

In reply to this question Dr. SCOTT stated that realgar volatilises and elemental arsenic is left behind.

A paper was next given by R. L. TAYLOR on

THE ACTION OF IODINE ON ALKALIES.

Mr. TAYLOR recapitulated the work of other authors on the subject, and summed up the conclusions he had arrived at in the statement that the behaviour of iodine is in every respect analogous to that of the other halogens.

The strong bleaching power of a solution of iodine in alkali suggests the existence of a hypoiodite, and this he pointed out was recognised by Schönbein. If sufficient alkali be added to a solution of iodine to completely discharge its colour it still gives a blue reaction with starch, indicating that the reaction indicated by the equation, $I_2 + KOH = KI + KIO + H_2O$, is a reversible and balanced one.

The author showed that the carbonic acid of ordinary aerated water immediately restores the colour of iodine to a colourless solution in potash, whence it must be concluded that the liquid contains hypoiodite when it is not boiled. Another experiment was made in which two decinormal solutions of iodine were decolorised with alkali, and then treated with sodium bicarbonate; to one of these the sodium bicarbonate was added instantly, while to the second it was added after the lapse of a few minutes, by which the first solution became much more deeply coloured with liberated iodine than the second, showing that the action of iodine is first like that of chlorine, but that in a strong solution there is a rapid change, iodide and iodate being formed. Moreover, the action of iodine on mercuric oxide is parallel with that of chlorine, hypoiodous acid being undoubtedly produced. The reason why this has escaped notice is probably because hypoiodous acid does not bleach by itself, but only when alkali is added.

This was experimentally demonstrated by Mr. Baker in concluding, when the hearty applause of the members expressed their appreciation of his contribution.

A discussion followed, in which the suggestion was made by two or three members that alkali alone bleached certain blue pigments

sold as indigo, and, at the President's suggestion, Mr. Taylor proved that his indigo solution was not bleached by alkali alone. The President remarked how much more interest it gives a paper at its reading to give practical demonstrations as Mr. Taylor had done.

A paper, by Dr. EDWARD DIVERS and T. HAGA, on

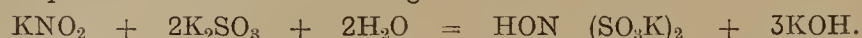
THE INTERACTION BETWEEN SULPHITES AND NITRITES, was also read.

When nitrous fumes are passed into an ice-cold solution of sulphurous acid the principal reaction is expressed as follows:—



oximid sulphuric acid being produced.

The action must be stopped while excess of the sulphurous acid remains, which may be expelled by boiling or a current of air. In the presence of alkali no action whatever takes place between a sulphite and a nitrite; acid must be present although carbonic acid is strong enough, while it is unimportant what base is present. Claus had stated that when potassium nitrite and potassium sulphite are mixed the following reaction occurred:—



That was a mistake which arose from assuming that a solution of sulphite, neutral to litmus contains, the normal salt, which is not the case.

A paper by W. A. BONE and C. H. G. SPRANKLING on the propyl substituted succinic acids was also read.

PROCEEDINGS UNDER THE PHARMACY ACTS.

Recovery of Penalties.

Pharmaceutical Society v. Mottram.

At Birmingham County Court on Tuesday, March 20, before His Honour Judge Whitehorne, the Council of the Pharmaceutical Society of Great Britain sought to enforce a judgment summons against Charles Mottram, chemist's assistant, Balsall Heath. In January judgment was given against the defendant in an action brought by the Society to recover a penalty of £5 under the Pharmacy Act (see *ante*, p. 49).

Mr. Cohen appeared for the plaintiffs, and Mr. Rigby for the defendant.

Mr. Rigby reminded His Honour that this was not an ordinary debt, but a case where the defendant had incurred a penalty for contravening the Pharmacy Act of 1868. The defendant was earning 15s. a week, and out of this had to pay 12s. to his parents for his maintenance. In consequence of this summons and in consequence of his employer having taken over the shop, the defendant would soon be out of a situation. He asked that no order should be made.

Mr. Cohen said no doubt His Honour would remember that this was a quasi-criminal offence.

Charles Mottram, sworn and examined by Mr. Cohen, said he was a chemist's assistant in the employ of Mr. Freeman, chemist, Balsall Heath.—Mr. Cohen: And you are his manager, are you not?—Witness: I am in charge of the shop.—Continuing, witness said he earned 15s. a week. He had to provide his own board and lodgings, and got no commission. He made no offer.

Mr. Cohen submitted that it was a case for a small order.

Mr. Rigby: The defendant has had notice to leave his situation.

Replying to the Judge, the defendant said this statement was quite true.

His Honour: I cannot make any order.

Mr. Cohen: Will your Honour make a new order?

His Honour: You see, the judgment was only obtained in January last, and the defendant has had no chance to pay. He

has only earned between £6 and £7 since, and he has never had the means.

Mr. Cohen: This is not an ordinary judgment summons.

Mr. Rigby: It is worse than an ordinary judgment summons, being a penalty.

His Honour: Your point, Mr. Rigby, is that it is not a debt at all?

Mr. Rigby: It is a debt by Act of Parliament, but not an ordinary trade debt. The defendant is an employé, and it is rather hard upon him that he should be liable for selling the poisons.

His Honour: I can easily see there may be a good deal to be said. It is rather a curious question as to whether the penalty in this action should be paid by the man or his employer.

Mr. Cohen: The proceedings were taken for the public benefit, your Honour.

His Honour: You don't incur debts for the public benefit—that is, within the Debtors' Act. However, I need not go into the question now, because, debt or no debt, you do not prove any means.

Mr. Cohen: Then I ask for a new order. There is a judgment of your own court under which I apply for an order for payment.

His Honour: I am not quite easy in my mind about this.

Mr. Rigby: It is impossible to commit for either, and this is a similar kind of thing.

His Honour: I shall have to decide it sooner or later. I will grant a new order—not under the Debtors Act, but in the action. What do you ask for?

Mr. Cohen: £1 a month.

His Honour: £1 a month! Is it worth your while to ask for that?

Mr. Cohen: I shall have to issue a judgment summons for the first pound.

His Honour: Very well.

PRACTICAL NOTES AND FORMULÆ.

Deep Black Ink.

Extract of logwood, 200, is dissolved in water, 100, on the water bath; the solution is allowed to settle, and poured off from the precipitate. 200 of the solution of the extract is diluted with water, 500, and heated to 90° C.; a mixture of potassium bichromate, 2; chrome alum, 50; oxalic acid, 10; dissolved in water, 150, is slowly added. The whole is now heated to 90° C. for 30 minutes; diluted to 1,000 with water, and carbolic acid, 10, added; allowed to stand two or three days, then filled into bottles.—*Pharm. Post*, **32**, 721.

Wool Fat Cold Cream.

Wool fat (hydrous), white vaseline, wool fat soap, and rose water, in equal parts, are mixed. The soap is dissolved in the water, the wool fat and vaseline are melted together, and the soap solution mixed in.—*Pharm. Post*, **32**, 721.

Tooth Paste.

Powdered orris root, 1,200; powdered myrrh, 30; powdered pumice, 30; precipitated chalk, 240; clove oil, 3.75; lemon oil, 3.75; rose oil, 0.75; glycerin and honey *q.s.*, carmine solution *q.s.*, mix.—*Pharm. Post*, **32**, 721.

Coryza Remedies.

(a) Menthol 1; boric acid, coffee, of each 10. (b) Boric acid, 2.5; powdered starch, 15; cocaine, 0.2; tannic acid and menthol, of each 10. (c) Menthol and iodoform, of each 1; sugar of milk, and powdered coffee, of each 10. (d) Menthol, 1; dermatol, 2; sugar of milk and powdered starch, of each 6.—*Pharm. Post*, **32**, 721.

Waterproof Gum for Paper.

Paper treated with a solution of formalin, to which an ammoniacal solution of casein is added, is rendered waterproof.—*Pharm. Post*, 32, 721.

Mouth Wash.

Alcohol (90 per cent.), 24 Gms.; water, 12 Gms.; glycerin, 3.5 Gms.; white soap, 6 Gms., are mixed, and peppermint oil, 20 drops; wintergreen oil, 40 drops, are added, and the whole is coloured with cochineal.—*Pharm. Post*, 32, 721.

Scurf Pomade.

Benzoated lard, 120; precipitated sulphur, 4; lanolin, 20; alcohol (90 per cent.), 20; salicylic acid, 1; geranium oil, 1; rose water, 60.—*Pharm. Post*, 32, 721.

Squills for Rat Poison.

Cæsar and Lorentz recommend for putting in the rat holes small pieces of a cake made by baking together dough and fat, 2; squill bulbs (finely grated), 1.—*Deuts. Am. Apoth. Zeit.*, 20, 129, after *Ph. Rundsch.*

THE B.P. TEST FOR PHENACETIN.

BY F. H. ALCOCK AND H. W. GREEN.

The B.P. test for phenacetin, in which 0.1 Gm. of the substance is recommended to be boiled with 2 C.c. of hydrogen chloride for half-a-minute, and diluted with ten times its volume of water, cooled and filtered, and solution of chromic acid added to filtrate, does not always prove a success, the resulting liquid frequently being of a green colour, due to reduction of the chromate and formation of chromic chloride. If the boiling with strong hydrogen chloride be conducted for five minutes or more in a flask in the fume chamber, on dilution and cooling no precipitate appears, and on then adding a solution of chromic acid, or potassium chromate or potassium bichromate, the beautiful violet-coloured solution referred to in the test is formed, which passes on much dilution with water to a port wine tint. The colour is said to be due to formation of mauveine, which was the first dye of this nature produced by Perkin.

LETTERS TO THE EDITOR.**The Approaching Council Election.**

I notice in last week's Journal a short letter (in the shape, no doubt, of a feeler) emanating from Mr. Glyn-Jones, a member of the Council, and appealing to the members of the Society, soliciting their views on the important question of the coming Council election, also asking for opinions on the subject and for names of new candidates, so that some concerted action may be taken, with a view, I presume, to the introduction of new blood on the Council. Coming, as this appeal does, from a member of the Council, at a critical period, when it is absolutely necessary for that body to be united and harmonious, it certainly seems remarkable and has a serious claim on our consideration. It is very apparent that Mr. Glyn-Jones is under the impression (rightly or wrongly so) that the present Council would be considerably improved for the better if a few of its present members could be quietly relegated to other spheres, and their places filled by new and inexperienced men. When we carefully read Mr. Glyn-Jones's letter we are driven to ask ourselves these important questions: Can it be possible that a clique still exists on the Council? If so, would it be to the benefit of that body and of all concerned if, through the coming election, it could be broken up or removed?

I hold no brief for Mr. Glyn-Jones, but taking, as I do, a more than ordinary interest in pharmaceutical matters, I have carefully followed him since his election, and must admit that the Council

would be a considerable gainer if it included in its ranks a few more men of the same grit, perseverance, and sound common sense that he has shown since he was elected. That we have most excellent men on the Council, of the Rymer Young and Newsholme type, we admit; we are very proud of them and, at a time like this when it behoves us to be united, we have no desire to drag into light the past apathy, indifference and, perhaps, incapacity of the Council; but if at the present time there is a clique on that body so short-sighted that it still clings to its old, antiquated, worm-eaten policies, that have brought us to our present deplorable and almost desperate condition, the sooner members speak out clearly the better; so that the matter may be known and an understanding may be arrived at, with a view to using concerted action to remedy it once and for all.

Burnley, March 19, 1900.

JOHN A. HEATON.

The Pharmaceutical Position.

The curious anomaly has now existed for more than twenty years that it is not absolutely necessary that a man need pass any examination in order to style himself a chemist and druggist. Whilst the law says that no one shall keep open shop for the retailing and dispensing of poisons without passing the examination which gives the legal qualification, the House of Lords, in *The Pharmaceutical Society v. the London and Provincial Supply Association*, has practically said to young men: "There is really no need to spend time and money over this legal qualification. You can go into business without doing so. All that is necessary is that you allow six of your friends or relations to have at least one share each in your concern, which you may pay for yourself if you like, make a present to them of the share, call the firm a limited liability company, and keep one qualified man as cover to serve out the poisons; then, as far as we care (*i.e.*, the House of Lords in this matter the law), we have not the slightest objection to your describing yourself as a 'chemist and druggist' over the shop door, and on all your printed matter, or to your trading as such, with that magic word 'limited' after your name. Then it will be all right. No one can interfere with you, and to show you how delightfully safe you are, if you like, one or two of us very clever, learned law lords will take a few shares in the concern."

Now, is it not time this condition of things should be put a stop to? What is the good of the law saying that one person must qualify by examination, and the judges saying that, if he so chooses, he need not bother, and they point out the *modus operandi* for evading the Pharmacy Acts as related above? Nothing short of a new clause added to the 1868 Act can remedy this absurd position and make it impossible for seven or more persons to do what one alone is forbidden to. There is the time coming when the trade—at least, that portion which is attached to the Pharmaceutical Society—may show its determination to put an end to this trouble by returning to the Council seven members pledged to do all in their power to alter the preposterous anomaly of one firm qualifying by examination and another by limitation of financial liability.

We hear of vested interests when this is mentioned. In my humble opinion, the only vested interest is that of the properly qualified man. The mere capitalist should not be considered at all, since he has stolen a position which never could be rightfully his. Why should he be allowed to sneak the living of so many chemists whilst the assistant has probably left business for awhile to qualify as a future master? The attitude of the Government in attempting to legalise and regulate the evil from which we, as a class, have patiently and foolishly suffered so long shows plainly that, unless chemists will themselves combine to prevent this grievance extending, then the Government must control it themselves.

London, March 19, 1900.

C. E. PICKERING.

The Companies Bill.

I append herewith copies of letters I have received from John Wilson, Esq., M.P., Falkirk Burghs, and Sir H. Campbell-Bannerman, M.P., Stirling Burghs.

Linlithgow, March 19, 1900.

ALEXANDER SPENCE,

Hon. Local Secretary, Linlithgow County.

[ENCLOSURES.]

(1)

House of Commons,
13th March, 1900.

Dear Sir,—I beg to acknowledge receipt of your letter of 12th inst., along with statement of reasons as to Clause 2 in the Companies Bill coming before Parliament.

Any such representation so largely and influentially signed should have due consideration, and you may depend upon my attention to the same.—I am, yours very truly,

(Signed) JOHN WILSON

To Alexander Spence, Esq.

(Falkirk Burghs).

(2)

House of Commons,
16th March, 1900.

Dear Sir,—I am obliged to you for your letter, with enclosure, written on behalf of the registered chemists of the County of Linlithgow, on the subject of Clause 2 of the Companies Bill, and I will give my best attention to the matter when it comes to be dealt with.—Yours very truly,

(Signed) H. CAMPBELL-BANNERMAN.

To Alexander Spence, Esq., chemist, Linlithgow.

ANSWERS TO QUERIES.

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

BOTANICAL (H. H.—40/12).—It is *Cyanoglossum officinale*.

MAJOR EXAMINATION QUESTIONS (J. W.—40/13).—We fear your suggestion is an impracticable one.

SOAP FOR LAUNDRY PURPOSES (G. H. L.—40/7).—The specimen you send is a piece of ordinary white castile soap.

POWDERS FOR PHOTOGRAPHIC DEVELOPERS (W. B. J.—40/15).—Certainly the ingredients should be dried and mixed before wrapping in paper.

GLAUCIUM LUTEUM (E. P.—40/6).—See the report of the Chemists' Assistants' Association at page 328 of this week's issue. The note you refer to appeared in the *P. J.* for January 28, 1899, page 91.

POLISHING MARBLE (N. E. M.—40/14).—You will find the information you require in the first volume of Spens' 'Workshop Receipts,' which you can see in the Society's Library. The details are too full to be given here.

METALLIC CALCIUM (G. D.—40/10).—It is hardly worth the sum you mention, but the prices quoted for the metal are, nevertheless, very high. You might offer your stock to Messrs. Harrington Brothers, Shandon Chemical Works, Cork.

SIGNATURE TO LETTER (E. W. R.—24/28).—We find the signature appended to the letter at page 267 should have been "O. Routly," but like many other signatures it was indistinctly written, and the compositor had to interpret it as best he could.

MERCURY "SILVERING" SOLUTION (F. W. R.—39/32).—Mercury, 1, nitric acid, 2, by weight. Granulated tin, 1; nitric acid, 4. Dissolve separately and mix. Apply a very little to the surface with a soft rag and rub well. The "silvering" is very bright, but it does not last long.

MYCETOZOA (W. H. B.—39/13).—You will find much information regarding the group in De-Bary's 'Comparative Morphology and Biology of the Fungi, Mycetozoa and Bacteria.' The same author's 'Lectures on Bacteria' may also assist you. Both works are published by the Clarendon Press, Oxford, and can be consulted in the Society's Library.

WIMSHURST MACHINE (G. D.—40/11).—You can obtain a Wimshurst influence machine from any dealer in scientific apparatus. The price will depend upon the length of spark the machine is capable of producing. Messrs. H. W. Cox, Ltd., 10, Cursitor Street, Chancery Lane, London, will quote prices upon application.

BOOK ON PHOTOGRAPHY (A. J. P.—40/5).—You do not explain whether you require a work dealing with the subject from a scientific or a practical point of view, or simply a general work of reference. For the last-mentioned purpose, Wall's 'Dictionary of Photography' (published at 7s. 6d.) is probably as useful a book as you can obtain.

VETERINARY CHEMIST (E. G. C.—40/9).—The only action brought to prevent the use of the description "veterinary chemist" failed in May, 1893. The defendant had described himself as a "pharmaceutical and veterinary chemist," and the judges of the High Court held that the use of the latter term implied only that the chemist laid himself out for the preparation of medicines for animals.

COLOURED FIRES (G. A. B.—39/29).—The recipes you name are very good. You may make them slower burning by mixing a small proportion of fine sawdust with them. For sticks, use sawdust with just enough linseed powder (free from oil) to bind the mass, then roll into sticks, using a piece of wood as a support in the middle. These will want very thorough and cautious drying. Of course, you know that the making of such things, without a special licence, is illegal.

DISPENSING DIFFICULTY (W. G.—39/28).—The result described by you was probably due to the chloroform water containing some free chlorine. That would occur as a result of the decomposition of some of the chloroform. The free chlorine would then liberate an equivalent amount of iodine, which would dissolve in the oil that separates from the mixture. You should try some experiments with the mixture, using distilled water in one case, and omitting the spirit of peppermint in another.

Information Wanted.

**The Editor will be obliged to any readers who can supply the information asked for by correspondents.

PINOLENE (R. D.—40/16).—The address of the makers of "Pinolene," said to be a similar preparation to "Sanitas"?

SULPHOCALCINE (F. W. H.—40/8).—Particulars are wanted regarding a liquid called "Sulphocalcine," believed to be an American preparation, recommended in some pocket formulary as a vaginal injection?

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LONDON: SATURDAY, MARCH 17, 1900.

PHARMACEUTICAL QUALIFICATION.

WHATEVER may be the result of the action taken by registered chemists and druggists in reference to the provisions of Clause 2 of the Companies Bill now before Parliament, there cannot be much doubt that, in spite of the diversity of opinions prevailing on that point, the general tendency of such action will be opposition to the clause. To that extent it may be assumed that the entire body of registered chemists are now agreed and as unanimous as the Council of the Pharmaceutical Society. It is certainly matter for regret that equal unanimity could not be secured in regard to the particular mode in which amendment of the clause might have been attempted that would obviate the necessity of direct opposition; but since the uncompromising attitude of the Government, as well as the irreconcilable nature of the views held by different sections of the body immediately concerned, render such a course impracticable, nothing now remains but to hope for the best that can be effected by opposition to the clause that will be to some extent divided as to the principle on which it is founded. But whatever may be the fate of this clause in the Companies Bill, when its proposals come to be considered by Parliament, whether it be carried or dropped, the experience gained in various ways under the operation of the Pharmacy Act, 1868, will have made clearly apparent the defective nature of that measure, and the urgent necessity of further legislation relating to the practice of pharmacy that would be more consistent with those circumstances of the case which are of chief importance. The very slender success that has hitherto attended the efforts to establish an adequate pharmaceutical qualification is scarcely matter for surprise when the adverse conditions under which those attempts were made are taken into account. In face of the chaotic state into which the practice of pharmacy had fallen, and become confounded with the trade in drugs, druggery, etc., when the Pharmaceutical Society first endeavoured to secure a statutory qualification that would be compulsory, and would require a definite course of education, a certain degree of failure was natural. In the subsequent attempt to extend the voluntary pharmaceutical chemist qualification to all

chemists and druggists, legislation took the form of trade protection to such an extent that it has been very generally regarded as constituting a monopoly, though in reality failing to afford legally qualified persons such privileges in the exercise of their business as should reasonably be expected to result from a professional qualification.

In both these respects the provisions of the Pharmacy Act, 1868, have proved inadequate and unsatisfactory. Under the construction put upon the Act by the House of Lords the exercise of no part of the business of a chemist and druggist is secured to legally qualified persons, while on the other hand the restrictions on the sale of poisons are held to be in some respects an undue limitation of trade without affording such security to the public, in regard to the supply of medicinal agents, as is desirable. Not long ago those views were put forward in the House of Commons when amendment of the Pharmacy Act was under consideration. The arguments then advanced did not call in question the soundness of the abstract principle that, in regard to poisons, the education and training of the vendor constitute the best protection for the public; but they disputed the applicability of that principle to trade transactions in the same manner that it would apply to the preparation of medicine. The Government has always been disposed to take a similar view of the matter and to trust to mechanical regulations for securing public safety, in connection with the sale of certain articles, rather than to the scientific qualification by which individuals are fitted to perform the professional duties appertaining to pharmacy. In other countries procedure is very largely regulated by such considerations, and while the practice of pharmacy, in the more restricted professional sense, is as strictly limited to persons possessing ample educational qualification as the practice of medicine, trade transactions in poisons are made the subject of licences, granted periodically, and of regulations to be carried out under supervision of the police authorities.

Whenever the task of drafting a Pharmacy Bill is undertaken it will therefore probably be desirable, if not absolutely necessary, to distinguish between ordinary trade transactions and pharmaceutical functions more effectually than seems to be possible by making the pharmacist's establishment the only place where poisons can be lawfully dealt in. If that were done the preparation of medicine should be made more completely the business of the pharmacist, and in that way the original object of the pharmaceutical chemist qualification might be more fully realised than it has yet been. As pointed out by Mr. TAYLOR in the paper he read at Manchester on the outlook in Pharmacy, such a discrimination between real pharmacy and the trading transactions accessory to the business of a chemist and druggist may yet be necessary in order to meet all requirements. The protection of the title of pharmaceutical chemist afforded by the Act of 1852 makes it a true Pharmacy Act, and that qualification might reasonably be associated with the professional function of dispensing medicines, while the Act of 1868 being more essentially rooted, on the poison side, in the Arsenic Act of 1851, its provisions place reliance upon mechanical safeguards as the means of effecting its object. The term pharmacy

as now understood comprises so much more of the business of a chemist and druggist than the Pharmacy Act, 1868, applies to, or was ever intended to apply to, that competition in those unrestricted parts of the business cannot be avoided; but the connection between pharmacy and poison, within the meaning of the law, is to a great extent arbitrary and inappropriate; it overlooks the facts that from a medical or pharmaceutical point of view all medicines may be regarded as more or less poison, and that a special qualification is as requisite for preparing and dispensing medicine as for its use in the treatment of disease. While some registered chemists may find advantage in devoting their attention to those branches of the business which are wholly or comparatively open to trade competition, there are many who desire to have a more professional status. Consequently more intimate association of the title of pharmaceutical chemist with the exercise of the art of compounding and dispensing might reasonably be established for those who prefer to qualify for such occupation rather than to rank as members of "a trading community."

CHEMICAL MANUFACTURES.

IN the course of a long review of the progress of chemical industries during the nineteenth century, that has appeared in the *Chemiker Zeitung*, a chapter is devoted to the subject of the remarkable developments that have taken place in the production of preparations for medicinal and pharmaceutical applications. Commencing with the early years of the century, when the discovery of morphine by SERTÜRNER opened up a new era, and was soon followed by the equally important discovery of the cinchona alkaloid by PELLETIER and CAVENTOU, reference is made to STRAKER'S investigation of the constitution of quinine as having been the starting point of research in that direction. Though the object then contemplated, viz., the artificial production of the alkaloids, is far from having been accomplished, a number of compounds have been produced which appear to be more or less adapted to serve as useful substitutes for some of the alkaloids existing naturally in drugs. Thus, in the case of morphine, the ethyl derivative has been recommended under the name of dionine as being less poisonous than morphine, and more certain in its action. Diacetyl morphine or heroine is said to have similar merits, though not altogether free from objectionable characters. Cocaine has been in a similar manner the object of research, which has led to the production of several substitutes, such as eucaine, which is prepared synthetically from triacetoneamine, and as a substitute for quinine the ethyl carbonic ester of that base is said to be probably advantageous on account of its freedom from bitter taste.

As a result of PASTEUR'S investigation of the means of preventing putrefactive changes, pharmacy and medicine were enriched with numerous antiseptic agents, such as carbolic acid, which enabled LISTER to effect an important change in the treatment of wounds, and more recently thymol, resorcin, pyrogallol, β -naphthol, and various derivatives. An especially useful medicinal agent was the methyl ester of pyrocatechin or guaiacol, and no less important than phenol was salicylic acid, when KOLBE effected its synthesis. Next in succession to phenol,

salicylic acid, and its phenol ester, salol, came the multitude of other antiseptics; and lastly formic aldehyde and hydrogen peroxide, both useful on account of their power of killing bacteria, while formic aldehyde in combination with proteids and other substances yields products which are, like dermatol, applicable as substitutes for iodoform. Synthesis has also been successful in producing iodised compounds without odour and free from the poisonous character of iodoform, as iodol, soziodol salts, airol, and europen. Among other useful products may be mentioned the compounds of proteids and fats with halogens and other elementary substances, as well as tannin, etc., as, for instance, protargol, argonin, ichthalbin, etc., and quite recently iodipin and bromipin have been introduced by the firm of E. MERCK.

The successful results of chemical synthesis in the production of useful medicinal articles stimulated investigation with the view of producing quinine artificially or a substitute that would be less costly than quinine then was. Starting from the view that quinine was a quinoline derivative, the first products of this kind were kairine and thalline, which had only a brief application on account of their poisonous properties. Shortly afterwards KNORR produced antipyrine, which still remains unequalled as an antipyretic agent, and has given rise to a number of subsidiary products, such as salipyrine, tolypyrine, etc. The mother substance of a great number of antipyretics, antineuralgics, and anti-rheumatics is aniline—its derivatives, acetanilide and phenacetine, and their variations, play the most prominent part as remedial agents. By mixture of antipyrine with caffeine and citric acid the much used migranine was produced, and pyramidon, more remotely related to antipyrine, has recently been found useful in many cases of consumption by KOBERT.

The high price of cocaine, and its potent toxic properties, have opened up a field for investigation from which valuable results have been obtained. A great number of other synthetic products have come into use as medicinal agents, and, being unfitted for preparation in the pharmacy, have helped to promote manufacture on a large scale, which is now extending to the preparation of tinctures, extracts, etc., a change which requires that the pharmacist should perfect the analytical methods of testing, by the application of which the value of medicinal preparations is to be ascertained. To supply deficiencies in this respect is one of the chief pharmaceutical problems of the present time.

THE PRESIDENT AND THE COMPANIES BILL.

THE reasons why it is undesirable to accept Clause 2 of the Companies Bill, as it stands were clearly put by the PRESIDENT of the Pharmaceutical Society on Wednesday night, and the report of his remarks at page 327, should be carefully connd by readers of the Journal. He showed that it is distinctly inimical to the interests of pharmacists to acquiesce in any scheme for the regulation of companies of unqualified persons, which carry on business as chemists and druggists, for if a duly registered person were now permitted to act as cover for seven unqualified persons, there would be only too good reason to fear that, before many years were past, a similar concession would be demanded by individual capitalists who are not possessed of the legal qualification.

ANNOTATIONS.

THE APPOINTMENT OF LOCAL SECRETARIES is one of the minor problems which, from time to time, engage the attention of the Council of the Pharmaceutical Society, and, as readers of the Journal have already been informed, the General Purposes Committee of the Council has been requested to consider the desirability of rearranging the districts for which local secretaries are appointed, and also of rearranging the duties of those officers. As is well known, Mr. Newsholme, on whose initiative the matter is being taken up at the present time, is anxious to have a local officer of the Society appointed for each Parliamentary division of England, Scotland, and Wales. It has also been suggested that the duties of local secretaries might be revised with advantage to the body they are supposed to represent in their respective districts, and that some better method of appointment might conceivably be hit upon than that which prevails at present. With regard to the last-mentioned suggestion, the question presents itself whether all the local officers of the Society are the best possible occupants of the position of local secretary. If so, how is it that some of them have no clearer conception of what a proper sense of loyalty to the Society demands of them than to hasten to dispatch to the editors of antagonistic trade journals copies of official documents sent to them from headquarters? There was no particular reason why the circular letter sent to all local officers of the Society a few days ago (see *ante*, p. 293) should have been regarded as a strictly confidential document, but it was scarcely a loyal action for recipients to send copies forthwith to adorn the pages of journals which devote themselves in great measure to weakening the Society and thwarting the efforts of the Council to benefit pharmacy.

INCALCULABLE MISCHIEF MIGHT BE DONE by a single local officer of the Society who should feel free to divulge to irresponsible critics the contents of any document of a confidential character sent to him from headquarters, and the fact that one or more individuals are troubled with misconceptions regarding the nature of their duties as local secretary is, unfortunately, proved by what happened last week. Though the information then divulged was not of a private nature, the letter conveying it should have been regarded as such by those to whom the copies were originally addressed. How is the Council to see its way clear to take local officers more into confidence and keep them informed of every move in the difficult game that must be played in dealing with Government departments and other official bodies, when there are individuals of unduly communicative proclivities in the ranks? The great majority of the Society's local officers are beyond the faintest suspicion of disloyalty, but a few are undoubtedly indiscreet, and, with the best intentions in the world, help the enemy by their thoughtlessness much more than is expedient or desirable. To return, then, to the question raised anew by the Vice-President, it is clear that some suggestions which have been offered with regard to the position and duties of local secretaries cannot be seriously entertained. Districts may be rearranged, duties varied, and a much greater scope offered in the direction of improving local organisation, but the Council, as the executive body appointed by Statute, must continue to exercise discretion in deciding what may safely be communicated to its local officers.

THE EARLY CLOSING OF THE LIBRARY at 17, Bloomsbury Square appears to have caused some inconvenience to a few members of the Pharmaceutical Society, one of whom referred to the matter at the last meeting of the Chemists' Assistants' Association. According to the report of Mr. T. Morley Taylor's remarks at that meeting, he has been prevented from investigating a dispensing problem

which presented itself to him, because now that the Library is closed in the evening, an ordinary member has not the chance of looking up references for himself. By that, presumably, he means that he and other pharmacists are prevented from taking advantage of the facilities provided, because they are unable to leave business before the Library closes. In this connection, it may be pointed out that the Library in London was formerly kept open from 9 a.m. to 10 p.m. daily, except on Saturdays. The small and diminishing attendance, however, has been thought by the Council to afford sufficient reason for curtailing the hours from time to time, and at present the Library is open from 9 a.m. to 6 p.m. only, except on Evening Meeting nights, when the Librarian remains in attendance until 8 p.m. But though the evidence afforded by carefully kept statistics appears fully to justify the Council in saving expense by keeping the Library closed in the evening, a member of the Society, who at any time has occasion to make a number of references, not unnaturally feels somewhat aggrieved when he finds he is prevented from doing so because he and others have not combined to keep up a large average of attendances after 6 or 7 p.m. The remedy, however, is with the members themselves, as it rests with them to satisfy the Council that the expense of keeping the Library open in the evening would be justified.

THE EDINBURGH LIBRARY, by the way, is open daily from 10 a.m. to 4 p.m., and from 8 p.m. to 10 p.m., and if any further change is to be made at headquarters, it will be a point worthy of consideration whether a rearrangement on similar lines would not meet the circumstances of the case. But everything, apparently, turns upon the question of what the members and students of the Society actually need. Like so many other problems, the opening of the Library resolves itself into a matter of demand and supply. If there is a reasonably large demand for an extension of the hours during which the Society's premises shall remain open, the arrangements will be adapted to supply that demand. But it must be a genuine demand and seriously made, not embodied in an objectionable paragraph in a trade paper, where it is more than hinted that the opportunities of making references in the Society's Library have been unreasonably diminished to fit the convenience of the Librarian. Mr. Taylor has explained the difficulty of the position, so far as it affects himself, in a fair and open manner; other members of the Society may be expected to do the same, if they feel it necessary, but there is no occasion whatever for impertinent observations by irresponsible critics, who write scurrilous paragraphs about subjects that do not concern them, and of which, apparently, they know but little.

THE EVENING MEETING REPORT in last week's issue contains an error in Mr. Umney's remarks, at page 284, column 1, line 24, where the word "aconite" should read "kino." The error appears to have been caused by the similarity of the shorthand outlines for the two words. The report was unusually long, and the work of transcribing the reporter's notes delayed matters so that, unfortunately, time did not permit of proofs being revised by those who spoke at the meeting.

THE PEREIRA MEDAL AND COUNCIL PRIZES COMPETITION is fixed for Saturday, April 21. Competitors can take the examination either in London or in Edinburgh, and every person entitled to compete will in due course receive from the Secretary a communication furnishing particulars of the conditions of entry. No eligible person can therefore be shut out from the examination, except by his own negligence.

THE LIST OF DINNER STEWARDS for the May dinner at the Whitehall Rooms is assuming respectable proportions, and early publication is contemplated. Gentlemen desirous of being associated with the last annual dinner of the nineteenth century should send their names as Stewards to the Secretary, 17, Bloomsbury

Square. It is understood that musical aids to digestion will again be furnished after the dinner by the Westminster Glee Singers.

REFERRING TO THE COMPANIES BILL, a writer in the *Weekly Times and Echo* points out that the directors of one of the companies affected by Clause 2 of that measure have issued a circular to the heads of their departments and branches "asking" them to copy it out on their own notepaper, as if coming from themselves, and send it to their respective representatives in the House of Commons, asking them to oppose any amendments to the Bill. Such procedure is described as "disingenuous and unfair," and the writer continues; "Men of education, such as the registered chemists are, who serve these big drug companies, ought not to have pressure of this sort put on them by their employers, and members of Parliament who are receiving these requests may judge for themselves what they are worth."

THE CHEMIST'S ASSISTANT is now being misrepresented by a new periodical bearing his name and incorrectly purporting to be the official organ of the Chemists' Assistants' Association. It is a curious production, published at the modest price of twopence per month, and edited in a manner that ought to make the presiding genius of journalism weep. The first number is understood to have had a fairly wide circulation, in spite of the fact that its free distribution was to some extent checked by an indisposition to accept copies on the part of many to whom it was offered, but merit is certain to be rewarded, sooner or later, and the newcomer in the ranks of pharmaceutical journalism may yet come to be a power in the land. Meanwhile, the editor of the new publication has something to answer for in allowing the blood of a member of the staff of the *Star* to be curdled by an article on checking mixtures. A romance about a case of careless dispensing appears in that article, unfortunately, in the guise of a true tale, and as such it has been swallowed by a *Star* young man. He has lost no time in repeating it to the radicals of London who indulge in the luxury of an evening paper, and it is far from improbable that this evidently fictitious case may some time be quoted against pharmacists as evidence of incapacity to dispense medicines in a satisfactory manner. If only the author had located the hero of his tale in a drug store belonging to a company of unqualified persons he might have performed a public service, but alas! he has missed his opportunity, and the mischief is done.

MEDICAL ELECTRICITY was the subject of an interesting paper read at a recent meeting of the Institution of Electrical Engineers, by Dr. H. Lewis Jones, Medical Officer in charge of the Electrical Department at St. Bartholomew's Hospital, and reported in the *Times*. In the course of his paper, which gave an account of the conditions in which electricity has been found to exercise curative effects, and of the apparatus used, Dr. Jones said it was now a hundred and fifty years since the beginning of medical electricity, and during all that time it had to fight its way in the face of many obstacles, the most serious of which had been the passive resistance of medical men themselves. The vitality it had shown under adverse circumstances was very significant. During the last decade progress had been very great, and the commercial application of electricity and its house-to-house distribution had called into existence many new instruments and modes of treatment, while the study of medical electricity was being helped by the simplification of the means for obtaining the current. The discovery of the X-rays and their application to medicine and surgery had done good by bringing electrical apparatus into more extended use. Most of the London hospitals had electrical departments. At St. Bartholomew's about six hundred cases were referred annually to the electrical department from all quarters of the hospital, exclusive of the

cases for X-ray photography, the numbers of which were even greater. There was no branch of medical practice upon which the light of criticism beat more fiercely than upon medical electricity. From conversations with engineering friends, the lecturer said he was disposed to think that the number and extent of the applications of electricity to medical practice were not generally realised by electrical engineers; indeed, any reference he had observed at all to medical electricity in the proceedings of the institution and kindred societies had usually been one of disavowal and dislike. He therefore felt that in making the present communication he was undertaking the task of trying to show that electrical applications had a large and legitimate field of usefulness in medical practice, that it was quite possible to practise medical electricity without thereby becoming an outcast, and that the advertisements of electropathic or magnetic appliances did not represent the position of medical electricity.

SHAMROCK DAY was more widely celebrated on Saturday last, than ever before; but there was a great variety in what was worn as shamrock by different persons. That, however, was quite in accordance with the diversity of opinion prevailing as to what shamrock really is. Some authorities favour the wood sorrel *Oxalis acetosella*, concerning which Bentham says, in his 'British Flora,' "This is believed to be the original of the Irish shamrock, although that emblem is now represented by *Trifolium repens*." He also states that the white or Dutch clover is believed to be of comparatively recent introduction in Ireland, "although it is now taken as the national emblem in substitution of *Oxalis acetosella*, which is asserted by some writers to have been the original shamrock." It is related by a writer in the *Times* that some seven or eight years ago specimens gathered by experts were obtained from eleven Irish counties. The majority of the plants proved to be *Trifolium minus*, a small clover known to farmers as the yellow suckling; the others turned out to be *Trifolium repens*. Cork, Derry, Wicklow, Wexford, Queen's County, and Clare declared for yellow suckling; whilst Antrim, Mayo, and Roscommon were in favour of white clover. Armagh and Carlow divided their votes, for two specimens from each county turned out to be, the one *Trifolium minus* and the other *Trifolium repens*. The seeds of both species are sown largely in Ireland every year and they produce nutritious pasture plants. Putting sentiment on one side, it is thought to be quite certain that either of the species named will serve as an adequate representative of "the sweet little plant," though for choice the yellow suckling may be preferred, as the smaller and rather more elegant. "This, indeed, appears to be the true shamrock, the flowerless shoots of which there should be no difficulty in finding in our meadows and pastures at mid-March."

THE QUESTION OF RECIPROCITY, as between Great Britain and the British colonies, was raised at a meeting of the Western Chemists' Association, held on Wednesday, March 21. The subject was introduced by a visitor—Mr. A. B. Chater, of Brisbane, past-president of the Pharmaceutical Society of Queensland—whose name appears in the British Register of Chemists and Druggists. He stated the case for the colonies in an able and reasonable manner, and his remarks met with much sympathy from the President of the Pharmaceutical Society and other representative pharmacists. The chief objections urged against the interchange of certificates at present are that the colonies themselves are not yet agreed upon the point, and that all colonial certificates are not equal in value to British ones. But, as Mr. Chater pointed out, dissenting colonies might soon be expected to follow the lead of Great Britain, and there is no reason why unsatisfactory certificates should be accepted. Reciprocity must come in time, and, as many of the colonies seem to be ready to deal with the question, it appears only courteous and reasonable to discuss it as a probability of the immediate future.

POLITICAL GOSSIP.

PILLS AND CASTOR OIL evidently represent Mr. James Lowther's conception of medical stores, and it is just possible that he conceives the historic Colonel Pryde to have been a former prominent officer of the Army Medical Corps, and his famous "purge" to have consisted of a particularly efficient cathartic combination of items in charge of the Army Compounder. At any rate, the Right Hon. gentleman strayed into very unfamiliar paths when the House of Commons was in Committee of Supply on the Army Estimates. He had been deeply impressed by the recent disclosures in regard to Army contracts and unscrupulous contractors, and desired to raise a discussion on the whole question of War Office contracts, together with the inadequacy of the punishment awaiting purveyors of putrefaction. All of which was very laudable, but somewhat out of accord with Parliamentary procedure. The only legitimate way to discuss contracts on the medical vote of £555,000 was to talk about medical contracts or stores, and this Mr. Lowther proceeded to do more or less relevantly until chided by his namesake, the Chairman of Committee. He inquired what steps had been taken to prevent fraudulent exactions with regard to medical stores, spoke of medicines over long in stock, and finally showed his profound knowledge of the subject by making supposititious vendors of "bad pills and castor oil" serve as a basis for a £100 reduction in the vote. As no one had ever suggested, or even heard suggested, that malpractices exist in connection with the supply of medical stores, Mr. Lowther's shot lacked direction and fell without effect; but chemists would be glad to know the honourable member's conception of a bad pill, and his personal views on the particular ills and frailties which that class of medicament is heir to.

INCIDENTALLY, in the course of a subsequent discussion on the fraudulent contractor, the advantages of company machinery as a means of dodging Nemesis was well exhibited. It appears that the War Office contracted with A. and Co., Limited, for certain supplies, and received bad goods for good money. Detection of the irregularity—to use a mild term—was followed by the erasure of A. and Co. from the list of official contractors, and the Departmental officials, with the proud consciousness of having performed a fitting sacrifice to Justice, thereupon transferred their custom to B. and Co.—also limited and impersonal. It turns out, however, that B. and Co., the new providers, are merely the old firm under another alias, and on developing the same old fraudulent characteristics they also have to be removed from the list. The contract then goes to C. and Co., and so the game proceeds through the whole gamut of alphabetical variations of A. and Co., with the result that the War Office cannot get out of the vicious circle of deception in which it is invested by the operation of the Companies Acts. Perhaps the outcry in the House may stimulate the progress of Mr. Ritchie's Companies Bill, and lead to some unexpected amendments of the same.

THE NEW PETROLEUM BILL of Mr. Ure and company, which was introduced on the 15th, is brevity itself, for all its virtue is contained in the words: "Section 2 of the Petroleum Act, 1879, from the commencement of the section down to and including the words 'seventy-three degrees of Fahrenheit's thermometer' is hereby repealed." On turning to page 209 of the Society's Calendar, readers of the Journal will be able to see the full effect of the amendment, Section 2 of the 1879 Act, in fact, substitutes the "close test" for the "open test" described in the Act of 1871, but it also substitutes 73° for the 100° mentioned in the earlier Act. Mr. Ure and his associates desire simply to remove all reference to 73° from Section 2, and thus to re-enact the old 100° limit without removing the provision for the Abel "close test." A summary of the objects of the Bill accompanies the printed measure, and informs all who are concerned that the pur-

pose of the promoters is to substitute the "accurate or close test for the inaccurate or open test in the Act of 1871, and to restore the 100° flash point prescribed by that Act." Mr. Alexander Cross, Mr. Tully, and Mr. John Burns are among the scientific advisers of Mr. Ure, who endorse this summary. It is understood that the Government will resist the passage of the Bill.

THE VIGOUR OF DR. TANNER is a thing to tremble at and to admire. On the 15th inst. he was in excellent form, and signalled his appreciation of the approaching Royal visit to Ireland by depositing with the Clerks at the Table fourteen notices to "block" and obstruct the progress of as many Bills—truly a characteristic piece of Cork humour. Among the measures which came in for the attention of the hon. member were Mr. Begg's Companies Acts Amendment Bill and the No. 3 Boilers Bill. The former was opposed by Mr. T. P. O'Connor, but that gentleman withdrew his "block" last week, and left the field clear for the Doctor. With regard to the Boilers Bill, its fate is not in the slightest degree altered by the opposition of the member for Mid-Cork; it was doomed with its contemporaries when the Home Secretary announced the intention of the Government to deal with boiler registration, regulation, and inspection. At the present time Sir W. Walrond has on the Journals of the House a notice for the appointment of a Select Committee to consider and report on the advisability of legislation to secure systematic inspection and certification of boilers. The safeguarding of life and property is a consideration to which Ministers are quite ready to devote earnest attention, but the various proposals introduced this Session to harass employers of steam power do not commend themselves from the purely national point of view.

THE NEW STAMP DUTY, or at any rate the operation of it, is to be modified as the result of concerted action by the Associated Chambers of Commerce and other trade bodies throughout Great Britain. Replying to Sir W. Houldsworth on Monday, the Chancellor of the Exchequer said that in view of the representations made to him and the considerations submitted with which he had not been previously acquainted, he would not press the present clause of the Finance Bill which referred to stamps on brokers' contracts. He further promised to consider the matter and, if necessary, to place a clause on the paper for the Committee stage. This is something of a triumph for Mincing Lane, and conveys so obvious a moral that it would be mere superfluity to state it in words.

REFERENCE was made last week to Mr. Kimber's attempt to soften the sternness of the President of the Board of Trade in regard to those clauses of the Companies Bill which did not originate in Whitehall Place. The hopelessness of the task has now impelled Mr. Kimber to give notice that on the second reading of the Bill he will move that no sanction should be given to a Bill which places contract creditors in a superior position to debenture holders, interferes with freedom of contract, and invalidates millions of commercial securities created in good faith. This bears the semblance of a charge with some go in it, and we should not be surprised if a good deal of the work of the House of Lords Committee were effectually undone in Committee of the House of Commons. Meantime the second reading is not yet in sight, though Easter is drawing nearer. Thursdays and Mondays generally see the Company item on the agenda, but there is no indication of immediate progress. Mr. Balfour is to be asked to give a week's notice of the second reading.

THE FORTUNE of the Shops Bill appears to be at rather a low ebb just now, for there are three notices against it for postponing its second reading six months. The obstructors are General Goldsworthy (Hammersmith), Sir J. Colomb (Great Yarmouth), and Mr. G. Lowles (Haggerston), and as the first-named, at any rate, is a

constant attendant at the House, he is not likely to let the Bill slip through, as it nearly did a week or so ago, by default of opposers. Mr. Provand's Bill to amend the Shop Hours Act has now been circulated, but as it deals only with the hours of employment of females, it possesses little interest for retail chemists. The gist of the amendment is that no woman or young person shall be employed in or about a shop in any capacity for more than sixty-eight hours a week, including meal times, or for a longer period than fourteen hours in any one day, and this does not seem to be an unreasonable thing to ask Parliament to accept, but there will be objections on principle, as there have been to all attempts at legislative interference between employers and employed. The second reading is fixed for April 27.

THE VETERINARY SURGEONS have a Bill before the House which was introduced by Sir T. Gibson-Carmichael on the 15th inst. Before the Bill was printed one rather wondered whether the Veterinary College had decided to revenge itself on the Lord Chancellor for omitting veterinary surgeons from Clause 3 of the Companies Bill, but the appearance of the measure reveals no such intention. The object of the amendment is merely to bring licencees of the Highland and Agricultural Society of Scotland within the jurisdiction of the disciplinary powers vested in the Royal College by virtue of the Veterinary Surgeons Act of 1881. At present the College has no power to punish for unprofessional conduct any holder of a certificate granted prior to 1881 by the Highland Society, for the Veterinary Act does not apply to them, and it is therefore proposed to place such persons in all respects in precisely the same position as those on whom the Statute already imposes the liability to deprivation of professional privileges. It is rather curious that the clause dealing with the use of titles by individuals suffering the contemplated disability should not have been worded in such a manner as to include a possible corporate association of individuals who have been deprived of the right to practise. Dr. Farquharson supports the Bill, and also Lord Dalkeith, Mr. Tennant, Mr. Shaw-Stewart, and Mr. C. Douglas.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

'THE CALENDAR OF THE PHARMACEUTICAL SOCIETY OF IRELAND,' 1900. Pp. 206. Price, 1s. 6d. Dublin: Pharmaceutical Society of Ireland, 67, Lower Mount Street.—Containing as it does the text of the Irish Pharmacy and Sale of Poisons Acts, and full information concerning the Pharmaceutical Society of Ireland, this 'Calendar' constitutes a necessary work of reference for everyone interested in the practice of Pharmacy in Ireland. The statistics of the Irish Society at the end of each of the past two years are compared in the following table:—

Class.	1898.	1899.
Pharmaceutical Chemists.....	573	596
*Members of the Society	190	199
Chemists and Druggists.....	294	292
Registered Druggists	444	458
*Associate Druggists	45	43
Assistants to Pharmaceutical Chemists	23	33

Subscribers to the Pharmaceutical Society of Ireland are indicated in the foregoing table by an asterisk (*), and the total strength of the Society in December, 1899, was 242, as against 235 a year earlier.

'THE MEDICAL ANNUAL AND PRACTITIONER'S INDEX,' 1900. Pp. 729. Price 7s. 6d. net. Bristol: John Wright and Co., Stone Bridge.—There is no handier work of reference for medical practitioners than this annual, now in its eighteenth year of publica-

tion. The therapeutic review of the past year and dictionary of new remedies occupy the first sixty pages, but the bulk of the work is taken up with a series of special articles on new treatment. Other features of the book are an article on "Radiography in 1899," descriptions of new inventions, improvements in pharmacy and dietetic articles, a list of the principal medical works published during 1899, and lists of asylums, nursing institutions, medical and scientific societies, etc., etc.

'AIDS TO PHARMACY FOR MEDICAL STUDENTS,' by A. Campbell Stark. Pp. 170. Price, 2s. 6d. London: Ballière, Tindall, and Cox, King William Street, Strand.—This book is adapted for the examination in "practical pharmacy" of the Conjoint Board, and is intended to replace the author's 'Practical Pharmacy for Medical Students,' of which it is virtually a new and revised edition. It possesses no special interest for pharmacists, but is probably as useful and concise a guide as any to the study of the nondescript subject termed "practical pharmacy," by the Conjoint Examining Board of Physicians and Surgeons in England.

'KIRK'S HAND-BOOK OF PHYSIOLOGY,' by W. D. Halliburton, M.D., F.R.S. Sixteenth Edition. Pp. 872. Price 14s. London: John Murray, Albemarle Street. It is just twelve months since the fifteenth edition of this work made its appearance; but the rapid sale of the book has necessitated a further issue. At the same time this is not a mere reprint, the subject-matter having been brought fully up to date where necessary. There is no better or handier text-book on the subject of which it treats.

'THE FLOWERING PLANT AS ILLUSTRATING THE FIRST PRINCIPLES OF BOTANY,' by J. R. Ainsworth Davis, M.A., F.C.P. Third edition. Pp. 195. Price 3s. 6d. London: Charles Griffin and Company, Limited, Exeter Street, Strand.—The chief purpose for which Professor Davis' book was originally written was to illustrate the first principles of botany by means of common flowering plants, no previous knowledge of the subject being assumed, and the style made as simple as possible. But the book was also adapted for the use of candidates preparing for elementary examinations in botany, and for that purpose it has doubtless been more especially used. In the third edition a special chapter on ferns and mosses has been added, so as to help to give a clearer idea than would otherwise be possible of the life-history and classificatory position of flowering plants. This new matter occupies eleven pages, and will be found a useful addition to the book, which is also enriched by a number of new illustrations.

'EARLY CHAPTERS IN SCIENCE,' by Mrs. W. Awdry. Edited by Professor W. F. Barrett. Pp. 348. Price 6s. London: John Murray, Albermarle Street.—This is described as "a first book of knowledge of natural history, botany, physiology, physics and chemistry for young people." Such a book is, as Professor Barrett points out in the preface, a distinct want, but it is a question whether that want is more than partially supplied by the book under consideration. The work is divided into two parts, the first dealing with "the world of life"—including the animal and vegetable kingdoms; the second part is devoted to "the world of experiment," being an account of the forces of nature. But everything is treated in much too advanced a fashion to appeal to the sympathies of very "young people," using that term in the sense of boys and girls from six or seven up to ten or twelve years of age, *i.e.*, of the class for which a suitable book in general science is most badly wanted. For older persons, indeed for many "grown-ups," Mrs. Awdry's book is probably as well-arranged as is possible with a mass of matter of such extensive scope, and it is admirably got up. The illustrations are numerous, and though the text is somewhat stilted in character, the explanations should suffice to convey fairly clear ideas to readers who are not too young.

ENGLISH NEWS.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.—A large number of members and their friends gathered in the Lecture Theatre at 17, Bloomsbury Square, last Friday evening, March 16, to hear a lecture on "The Alps," illustrated by lantern slides, delivered by Professor Collie, the President of the Association. Professor Greenish was in the chair. The minutes of the previous meeting having been read and confirmed, Professor Greenish said that no one who had had the pleasure of hearing Dr. Collie lecture on the Rockies and the Himalayas would need any stimulus to thoroughly appreciate the lecture they were to hear that evening. He thought the Alps would have for the majority possibly a greater interest than either the Indian or North American mountains, because they are nearer home, and those who had not already visited them were probably looking forward to doing so some day. Professor Collie, who was greeted with loud applause, said he had no story of exploration to give that night, but intended to show some lantern slides made from photographs taken during a pleasure trip in the Alps last year, and to tell them something about the places they represented. He then described how he, in company with Dr. Travers and an officer in the Indian army, who was accompanied by his Ghurka servant, ascended Monte Rosa, Mont Blanc, and other Alpine peaks, and took photographs of glaciers and precipitous rocks. An account of a wonderful and dangerous piece of rock-climbing performed by the Ghurka was greeted with great applause and cheers. All listened intently while Dr. Collie told them how his friend's servant was one of the men who so distinguished themselves at the storming of the Nit Forts in the Hunza-Nagar campaign at the end of 1891, when, under Lieutenant Manners-Smith, they scaled a precipitous cliff and rushed the enemy's sangars. The students of "the Square" were interested to hear that their Professor of Chemistry had attempted to ascend Mont Blanc by a ridge which he had heard no one had been able to climb, the reason being, as he found out, that climbing it is impossible, and, as was remarked afterwards: "If Professor Collie says it's impossible, it is impossible." At the termination of the lecture Professor Greenish moved a vote of thanks to the lecturer, which was carried with enthusiastic applause. Those present then proceeded to the Examination Hall, where coffee and light refreshments were provided.

LONDON COLLEGE OF PHARMACY.—A very pleasant meeting took place at this College on Friday, March 9, in connection with the presentation of a handsome silver cigarette case, a fountain pen, and an illuminated address to Mr. J. Griffith Edwards, on the occasion of his retirement from the College Staff for the purpose of entering the medical profession. Mr. H. Wootton, B.Sc., Principal, presided, and spoke in a very appreciative manner of Mr. Edwards' capabilities as a teacher, and regretted he was losing such an efficient fellow worker, and on behalf of the staff wished him every success in his future career. Mr. Frederick Ashford, in making the presentation on behalf of the students, referred to the great kindness and assistance Mr. Edwards had rendered them, and wished him all possible success in the new profession he was about to enter. Mr. Griffith Edwards, who was received with cheers, in thanking the students for their very handsome presents, stated that they would be very highly appreciated by him, and would help to remind him of the happy days he had spent at the London College, he in return wishing all the students success in their examinations.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY.—The winter session of the above concluded on Thursday, 15th instant, with a smoking concert, held in the Kardomah Café, Church Street. The President, Mr. Prosper H. Marsden, F.C.S., had the satisfaction of seeing a good attendance of members, and at a late hour several of the members of the senior local association dropped in

at the conclusion of their meeting. As usual, an excellent programme of vocal and instrumental items was submitted for the approval and entertainment of members and their friends, who, by their repeated "encores," were evidently satisfied with the efforts of Messrs. Jenner and Patridge to provide amusement of the artistic standard of excellence for which the "students'" smokers are noted. The accompanists were Messrs. Woodward and Matthew Hall, and the following gentlemen contributed songs of uniform excellence:—Messrs. Nicholson, Matthew Hall, Smith, Rousell, and Layfield. Recitations were given by Messrs. Bottomley, Sutton, and Frederick, whilst Mr. W. C. Cooke played a flute solo in good style and with taste. Votes of thanks to the artistes for their kindness, and to the Chairman and officers, were passed, and a collection was, as usual, made for the Benevolent Fund, resulting in a sum of £1 12s. being raised, after which a very pleasant evening was brought to an appropriate conclusion by singing "God Save the Queen."

LEEDS COLLEGE OF PHARMACY.—The students of this College started the summer botanical season on Saturday, March 17, by a visit to "Rural Yorkshire" in the direction of Harrogate. A great number of specimens were found and examined, and everyone thoroughly enjoyed themselves. During the summer botanical excursions will take place to Bolton Woods, Ilkley, Settle, Windermere, and other places.

NORTHAMPTON CHEMISTS' ASSOCIATION.—At a meeting of this Association, held on Wednesday, March 14, it was unanimously agreed that Clause 2 of the Companies Bill should be opposed. Subsequently, a circular addressed to the Parliamentary representatives of the borough was drawn up asking them to do their utmost to secure the rejection of the clause. That was afterwards signed by the whole of the registered chemists of the town, and a copy has been sent to each of the borough M.P.'s.

THE SALE OF FLUID SOAP.—In the case of *Cassie v. Horn*, which came before Mr. Justice Kekewich in the Chancery Division of the High Court of Justice, on Tuesday, March 20, the plaintiff sought an injunction restraining the defendant from manufacturing or selling a preparation known as Dr. Horn's Transparent Fluid Soap, or any other preparation for use in connection with diseases of the scalp, hair, or skin, under or in conjunction with the use of the name O. E. Horn, D.Sc., or otherwise in such manner as to lead the public to believe that such preparations are any of the preparations the sole right to manufacture and sell which was assigned to plaintiff on December 18, 1893. For some time prior to the execution of the indenture of December 18 the defendant had practised as a specialist in diseases of the hair, scalp, or skin, and had invented and manufactured various preparations which he used in the course of his business, and had registered trade marks to protect and distinguish the same. The plaintiff, who carries on business as a chemist and druggist at 49, Newgate-street, E.C., had acted at one time at the agent of the defendant, but on December 18, 1893, he purchased all the right, title and interest in the invention and preparations of the defendant for the sum of £3,600. Defendant covenanted that he would not divulge the secret to anyone else, or sell any preparation himself in connection with diseases of the hair, scalp, or skin. Plaintiff alleged that defendant, who now practised as a specialist at Bournemouth, was selling preparations which were an infringement of the covenant. Defendant contended that the preparations sold by him were totally distinct from the preparations assigned to the plaintiff, and that the covenant was unreasonable, because the business sold dealt with one subject matter and the covenant dealt with another. Mr. Warrington, Q.C., and Mr. Chubb appeared for the plaintiff, and Mr. Robert Frost for the defendant. His lordship found in favour of the plaintiff and granted an injunction, with costs, and an inquiry as to damages.

SALE OF CAMPHORATED OIL.—At Tottenham Police-court on Thursday, March 15, Arthur Henry Jenkins, chemist and druggist, of Green Lanes, Tottenham, was summoned for selling camphorated oil which was deficient in camphor to the extent of 40 per cent.—Defendant stated that he did not dispute the analysis. He made the oil two days before the inspector called, and the sample in question was the first quantity that was sold out of the jar. He was certain he used the proper parts. The Pharmacopœia did not say whether hot or cold oil should be used, and as he used cold oil the camphor did not readily dissolve.—The Chairman (Dr. Daly) observed that it said, "Dissolve camphor in oil." If it would not dissolve in cold oil, warm oil should be used.—The Inspector said he had tested goods at the defendant's shop before and found them genuine.—The Bench imposed a fine of 5s. and costs, with the analyst's fee.

POISONING BY AMMONIA.—On March 16, at Foleshill Workhouse, Dr. Iliffe held an inquest with respect to the death of Charles Johnson, watchmaker, of Foleshill. He was employed at Edgewick and on March 8 complained of headache. He was recommended to take a good sniff at a bottle containing ammonia, but apparently drank some. Subsequently he could not take food, death occurring through exhaustion. The jury returned a verdict of "Death from misadventure."

SCOTTISH NEWS.

GLASGOW CHEMISTS' ASSISTANTS' ASSOCIATION.—At a meeting held on Friday, March 16, Mr. J. P. Gilmour in the chair, Mr. Thos. S. Barrie, Ph.C., delivered a very well received lecture on "Plants and Their Distribution." The lecture was fully illustrated by fossil plants and lantern views of many epochs in the earth's history. Among others, a number of views were shown depicting the flora of Madagascar, New Zealand, and Coral Islands, the dense forest vegetation of Ceylon and Palmyra palms, views in the Scilly Islands, showing tropical vegetation, brought the lecture to a close. There was a very large attendance of members and friends, and a number of ladies were present. At the close of the lecture the Chairman spoke of the pleasure it had given him to listen to Mr. Barrie. He also spoke of the decease of one of their most devoted members, Mr. J. Scott Davie. It was agreed to send a message of condolence to the relatives of the deceased. He then spoke of the arrangements of the Committee for March 23 and 28. On the first date Dr. Coull will deliver a lecture on "Stereo-Chemistry," when a large attendance is hoped for. On the second date the first annual dance of the Association will be held. Tickets may be had from Mr. Gilmour or from members of the Committee. A vote of thanks to Mr. Barrie, also to Mr. Maben, who operated the lantern, and to Mr. Bowie, brought the meeting to a close.

EDINBURGH PHARMACY ATHLETIC CLUB.—The annual general meeting was held in the Pharmaceutical Society's House on the 13th inst. Mr. Geo. Somerville, President, occupied the chair. The Secretary's report showed the club to be in a flourishing condition. The Treasurer's financial statement was likewise very satisfactory. The accounts showed an expenditure of nearly £100, but the income exceeded this, and a substantial balance was carried forward. The ninth annual sports and football competition were intimated for Wednesday evening, May 23. The following office-bearers were elected:—Hon President, John Bowman; President, G. H. C. Rowland; Vice-President, A. R. Smith; Secretary, J. P. Gibb, 8, Cobden Crescent; Assistant Secretary, John Aikman; Treasurer, D. S. Napier; Committee, C. R. Brown, L. S. Lamb, J. McBain, J. L. McIlwrick, A. G. Paterson, George Somerville, and W. C. Taylor. Votes of thanks were awarded to the retiring office-bearers, and also the Pharmaceutical Society for the use of the House for meetings. £1 1s. was unanimously voted to the Benevolent Fund of the Pharmaceutical Society.

EDINBURGH DISTRICT CHEMISTS' GOLF CLUB.—The annual meeting was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Thursday, 15th inst., at 9 p.m., Mr. George Robertson, captain, in the chair. The Secretary's and Treasurer's reports were submitted and approved. It was resolved to make the annual subscription five shillings in place of seven shillings and sixpence. The following were elected office-bearers for next year: Councillor Richard Clark, J.P. (Raines, Clark and Co.), honorary president; George Lunan, captain; W. Charles Baker, vice-captain; James Stott, 10, Royal Crescent, secretary; James Robb, assistant secretary; W. B. Cowie, treasurer; and as members of committee: H. D. Alexander, G. Robertson, A. J. Dey, C. F. Henry, W. Lyon, and J. Kilpatrick.

IRISH NEWS.

PHARMACEUTICAL SOCIETY OF IRELAND.—At the monthly Evening Meeting on March 19, Dr. J. C. McWalter communicated a note on "The Dialysis of Drugs." He pointed out that in the index to the contents of the British Pharmacopœia the word "dialysis" is no longer to be found. For some inscrutable reason the term dialysis had been deleted, and the student of the volume must no longer be assumed to be familiar with the term. That fact served Dr. McWalter as an apology for referring to a few details about a pharmaceutical process which, he said, is familiar to all. He then entered into the question of its wider application, showing that dialysis is the quickest and best process for many purposes. In the course of his lecture, Dr. McWalter compared continental pharmacists favourably with their British colleagues. He also commented on the fact that he found no reference to dialysis as applied to drugs in the last three volumes of the proceedings of the British Pharmaceutical Conference.

CONTRACTS FOR THE YEARLY SUPPLY OF DRUGS to the Irish Unions are now being tendered for. In some instances considerable feeling has been aroused by the proceeding of certain Boards of making themselves acquainted with the tenders of contracting firms and then on the pretext of getting cheaper rates (but with a motive well understood to be a breach of commercial trust), re-advertising the contract. The opinion of the Local Government Board will be sought whether such a method is *bonâ fide*.

POISONER SENTENCED TO DEATH.—At Waterford Assizes, Patrick Dunphy, sixty years of age, was sentenced to death for poisoning with strychnine his young son. Another child had similarly met his death. The vehicle of administration was a bottle of lemonade. The motive alleged was a small insurance and Mr. Justice Johnson condemned the child-insurance system as a direct temptation to crime by placing a premium on the deaths of children.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).

A meeting of this Association was held at the Westbourne Restaurant, Craven Road, W., on Wednesday, March 21; the President, Mr. J. F. Harrington, in the chair.—The minutes of the previous meeting having been read and confirmed, the President announced that two visitors were present—Mr. A. B. Chater, of Brisbane, Queensland, and Mr. Goldby, of Enfield—and in the name of the Association he extended to them a hearty welcome. With regard to Mr. Goldby, they would be very glad to enrol him a member of the Association, as Enfield was quite within the district covered by the Association. Mr. Chater, who was over in this country on a visit, he believed, would like to speak a few words on a subject he was greatly interested in, and he (the President) was sure they would be very pleased to hear him.

Mr. CHATER expressed his thanks for the kind reception given to him, and explained that it was entirely by accident that he was present there that evening. The subject he had at heart was one which they in the colonies considered as very important—that of

RECIPROCITY OF DIPLOMAS

between the British and Australian pharmaceutical authorities—They considered the present to be a very opportune time for the Pharmaceutical Society of Great Britain—which they all looked up to as the parent Society—to seek for reciprocity with those colonies which have a pharmaceutical examination equal with the examination of Great Britain. They were given to understand that the Pharmaceutical Society has not power to reciprocate with the colonies; it seemed to be a great shame that the mother of them all has not the power to reciprocate with her children. Had not the children done their duty by the mother country; were they not doing something for her at the present time in South Africa? They felt rather modest in proposing the subject; they thought that the parent Society should have mooted it first, because the pharmacists of Great Britain had more to gain than the colonies. "How many pharmacists," he asked, "come from the colonies to settle in the old country, and how many go from Great Britain to the colonies?" They, in Queensland, brought this subject forward at the present time because the mother colony—New South Wales—has shut her doors to Great Britain. They did not want to do that, they wanted a united pharmaceutical body of the whole English-speaking race. The question was sometimes asked: "Why don't you reciprocate among yourselves?" The answer to that was that they considered that if the Pharmaceutical Society of Great Britain would take the initiative and fix a standard, her children could then follow suit. If the colonies fixed the standard it might be considered too low, whereas if the Pharmaceutical Society of Great Britain were to fix a standard of examination the colonies would endeavour to bring themselves into line. Now that the Federal Government of Australasia is almost established—and he felt sure that it will be—they wished to be united. They, in the colonies, had a little influence with the authorities, and he thought that union would tend to strengthen the hands of pharmacists in the old country.

Subsequently the President, and Messrs. R. H. Parker, Andrews, and Glyn-Jones spoke on the subject—patriotically—and all expressed themselves favourable to reciprocity, provided that a uniform examination was established in the colonies and Ireland and Great Britain, otherwise the value of the British examination would be lowered. Mr. Glyn-Jones thought that at any rate the Pharmaceutical Society of Great Britain should seize the present opportunity, now that the Imperialistic spirit is in the air, to acquire the necessary power to reciprocate with the colonies.

Mr. WM. MARTINDALE, President of the Pharmaceutical Society, also spoke. While in no way desirous of throwing cold water on the subject, he pointed out the difficulties attending it. If reciprocity was established, the chief difficulty would be to draw a line which would prevent those colonies where the qualification for carrying on the business of a pharmacist is not equal to the British qualification, from participating in its advantages. He was aware that in some respects the British standard of examination is below that of Brisbane, in that they have a curriculum. He also recognised that it would be to Great Britain's advantage to reciprocate with certain of the colonies. Still the subject required a great amount of discretion, and he thought any initiative must come from the colonies; then, when it had been officially brought before the Pharmaceutical Society, it could be discussed. In the meantime it was a subject well worthy of discussion, and he hoped that the associations in various parts of the country would consider it.

Mr. CHATER, with due deference to Mr. Martindale, asked to be allowed to point out that the matter had been brought before the

Pharmaceutical Society of Great Britain on four or five occasions. They in Queensland did not suppose for a moment that the Pharmaceutical Society would accept reciprocity with all the colonies. He only wished that the British Society would send a deputation to Australia to inquire into the examinations held there. He could assure for it a most cordial and hospitable reception.

The PRESIDENT having mentioned that the next meeting of the Association would take place on April 25, when a smoking concert would be held,

Mr. MARTINDALE, on the suggestion of Mr. Hick, referred to

THE COMPANIES BILL,

and the decision of the Council to oppose Clause 2. It came to that decision as the only consistent policy to follow. If the clause passed it would certainly put limited companies in a better position than at present, inasmuch as it would enable them to say that they were regulated by the Pharmaceutical Society. There is now a void in pharmacy law as regards companies, and it was better that it should remain than that it should be filled up by Clause 2 of the Companies Bill. Mr. Martindale went on to point out the difficulty in which the Pharmaceutical Society had been placed by the action of the Federation of Local Pharmaceutical Associations in putting before the country an alternative proposal. With regard to the regulation of companies it was against the interests of pharmacists so to do. It was, so to speak, making a rope to hang themselves. It would give power to the servant to qualify the master. If they consented to allow the qualification of an assistant to cover seven persons there was no reason why in the future individual capitalists should not ask to be allowed to employ a qualified man. The difficulty the Society had to contend with was the lack of unity in the trade.

Mr. MATHER said he had taken advantage of the Federation circular to send resolution (A) to the gentleman who represents him in Parliament, and had received in reply a communication to the effect that he fully recognised the injustice of companies being able to use the titles of chemists, and that it was a matter for legislative consideration. Personally, he (the speaker) was of opinion that titles are the only thing that pharmacists are justified in asking for, and he thought the Pharmaceutical Council should have nailed that to the mast, and gone strong for titles.

Mr. MARTINDALE said that in his interview with Mr. Ritchie, he did, definitely and strongly, claim the chemist's right to his title, pointing out the great injustice in giving companies the right to use it. His reply was that he could go no further than to say that he believed that many of the qualified chemists were not protecting the public as they ought to do, alleging that they ran branch shops by means of unqualified assistants. All he (Mr. Martindale) could say was that the Pharmaceutical Society had always gone strongly for offenders in that respect whenever such cases were brought under its notice.

Mr. GLYN-JONES said he considered that the Council had made a mistake in not first fighting for what it could get, and then, if not successful, to oppose Clause 2. With regard to Mr. Ritchie's allegation, he denied it point-blank. If Mr. Ritchie knew of such cases he ought to point them out to the Society, so that it could deal with them. When he did so, and no action was taken by the Society, it would then be time for him to use his argument, and not till then. In this connection Mr. GLYN-JONES referred to certain advertisements which have appeared in some of the provincial papers, characterising the action of the advertiser as a piece of sharp and not too honourable practice.

Mr. PARKER expressed his opinion that the members of the House of Commons have a sufficient sense of fair play to see the justice of making titles an exclusively personal matter, and he believed that if the question of titles was dissociated from trade,

the chemists could successfully carry their claim before Parliament.

DISPENSING OF PROPRIETARY ARTICLES.

Mr. ROGERS said he had a little matter he wished to bring before the Association—the dispensing of proprietary articles. It was a matter which they could not ignore, and he thought they should discuss it, and see if it could not be regulated.

The PRESIDENT, referring again to the Companies Bill, said personally he believed the Council would have done better to try for titles, but as a divided house is of no use, and the majority had been against his view, and had decided to oppose Clause 2, he thought the pharmacists of the country should draw together and do their best to oppose the clause, and then go in for a new Pharmacy Act. With regard to Mr. Rogers' suggestion, he had no doubt the Association would be pleased to discuss the matter at the May meeting.

DERBY AND DISTRICT CHEMISTS' ASSOCIATION.

A meeting was held at Smith's Restaurant, Victoria Street, Derby, on Thursday, March 15, 1900, Mr. COPE, President, in the chair, having been specially convened to consider the best means of opposing or amending Clause 2 of the Companies Bill, now before Parliament.

After considerable discussion and divergence of opinion, the following resolution, proposed by Mr. DAWSON and seconded by Mr. PEMBLETON, was agreed to without dissent:—"That this meeting is of opinion that Clause 2 of the Companies Bill now before Parliament should be opposed with a view to its entire elimination from the Bill, and that the local borough and county members of Parliament be communicated with, urging them to do their utmost to prevent its passing."

A letter was accordingly sent to the nine members representing Derbyshire, signed by the President and Hon. Secretary, as follows:

SIR,—At a meeting held on March 15, 1900, it was resolved to communicate with the members of Parliament for the County and Borough of Derby, and draw their attention to Clause 2 of the Companies Bill now before Parliament.

"This clause proposes to legalise the use of the titles 'Pharmaceutical Chemist' and 'Chemist and Druggist' by companies of unqualified persons, whilst individuals can only obtain and use these titles after examination and registration. Your constituents who are qualified chemists consider this proposal most unjust, as it sacrifices the vital vested interests of a legal qualification held by nearly 16,000 individuals for the sake of a number of unqualified persons who have invested surplus capital in a business which they are not legally entitled to carry on as individuals.

"Whilst registered chemists do not seek to interfere in any way with the existing free trade in drugs and medicinal preparations, they consider that so far as their strictly professional duties are concerned they are entitled to be placed on a similar footing to medical practitioners, dentists, etc., whose practice it is proposed to protect as against companies by Clause 3 of the Companies Bill. The title 'Pharmaceutical Chemist' or 'Chemist and Druggist' is as valuable to its owner and should mean as much to the public as that of 'physician,' 'surgeon,' or 'dentist,' and in the public interest, as well as in common justice to the legitimate holder of the title, should be as strictly protected. Your constituents, therefore, respectfully beg you to oppose the clause, with a view to its entire elimination from the Bill.

"It is expected that the Pharmaceutical Society will, in the event of the clause being rejected, obtain the introduction of a private Bill dealing with the question."

CHEMISTS' ASSISTANTS' ASSOCIATION.

A meeting of this Association was held on Thursday, March 15, at 73, Newman-street, London, W., the PRESIDENT, Mr. F. W. Gamble, in the chair. The programme announced "Short Papers by Members," and the first communication was a paper—which was read by Mr. H. Hymans in the absence, through illness, of the author—by Mr. J. WICLIFFE PECK, dealing with

GLAUCIUM LUTEUM,

which he described as one of a few plants that are found in somewhat isolated portions of Great Britain whose medicinal qualities have not been appreciated, or, if known to exist, have not been properly examined. Having referred to the superstition regarding certain plants in remote country districts, and to the "Doctrine of Signatures," whereby the medicinal properties of plants were alleged to be discovered by the resemblance of some external feature to some particular disease, Mr. Peck stated that during a walking tour, and also some years' residence in Devonshire, he was interested in ascertaining the uses to which certain plants were put, and especially *Glaucium luteum*, the "yellow-horned poppy," or "sea poppy," a plant that has a distinctly sedative action. He found that the tops of the plant were gathered from the sandy shore during August and September when the flowers and capsules were in all stages of size and development, and dried, forming a drug having the Anglo-Saxon name of "drigan," *i.e.*, to dry. When used for pains, a poultice was made by the aid of boiling water and a handful of the drug; when intended for internal use a "pinch" of the drug was placed in a teacup and boiling water poured over it. A teaspoonful of the cold "tea" was stated to make children have a night of quiet, peaceful slumber. On looking up the plant he found that only one book—'Gray's Supplement' (1847)—mentioned it as being medicinal.*

Since 1847, he believed, no experiments had been made for the purpose of identifying its active principle, a fact which seemed to him strange, since it belonged to so useful a natural order as Papaveraceæ. 'Gray' referred to the plant thus: "*Glaucium flavum*, yellow-horned poppy; *Chelidonium glaucum*, fl. yellow, July, August, biennial, sandy sea shores. Properties of seeds and juice analogous to those of *Argemone mexicana* (G) [called *figo del inferno* by the Spaniards on account of the powerful narcotic effects of the seeds, which are stronger than opium. An emulsion prepared from them acts first anodyne, afterwards purgative. Effects denied by some. Their oil is used for castor oil.]" It would be noticed, in the specimen illustrating the paper, that the long linear capsule, often six or eight inches long, opening in two valves leaves two free linear placentas forming a thin, dry, substance in which the seeds are more or less imbedded. The plant was stated to be found in the west coast of England and Ireland, and throughout the Mediterranean Sea littoral, but the author had found it at Slapton Sands (Devonshire) only, during the whole course of his peregrinations over England and Wales. In conclusion, he thought that the few simple drugs that have been used for generations by country folk might with some interest, and, perhaps, profit, occupy the attention of chemists.

* The plant is also mentioned in Fernie's 'Herbal Simples,' p. 441. The author states: "There is a Welsh Poppy, with yellow flowers; and a horned poppy, named after Glaucus, common on our sea-coasts, with sea-green leaves, and large blossoms of golden yellow. . . . Borlase says that 'In the Scilly Islands the root of the sea poppy is so much valued for removing all pains in the breast, stomach, and intestines, as well as so good for disordered lungs, whilst so much better there than in other places, that the apothecaries of Cornwall send thither for it; and some persons plant these roots in their gardens in Cornwall, and will not part with them under sixpence a root.'"—Ed. P. J.

The PRESIDENT said that was his first experience of *Glaucium luteum*. Their thanks were due to Mr. Peck for bringing it under notice.

Mr. T. MORLEY TAYLOR then communicated a note on some preliminary observations he had made in connection with

QUININE SALTS AND CHLORINE IN SOLUTION.

He said that his attention was directed to the fact that a mixture containing two grains of quinine sulphate in dilute liquor chlori. was found to have lost all smell of chlorine. With a view of satisfying his own curiosity, and bringing the matter before the Association he made a few preliminary observations. Two solutions of chlorine were made estimated to contain (a) 0.15 per cent., and (b) 0.08 per cent. Pure quinine and its sulphate B.P. and hydrochloride B.P. were dissolved, 2 grains per ℥i. in the solutions. After three hours the smell of chlorine had disappeared from the whole series; the solution grew very acid, and displayed a gradually deepening red coloration. Determining the amount of chlorine in one or two at this stage he found that solution (a) containing pure quinine gave 0.05 per cent.; solution (a) containing hydrochloride gave 0.07 per cent.; solution (b) containing sulphate gave 0.01 per cent., thus showing that the hydrochloride solution contained the most free chlorine. The salts were next dissolved in a solution prepared according to Dr. Burney Yeo's prescription, by adding HCl to potassium chlorate in the dispensing bottle. This was found to contain 0.09 per cent. of chlorine. Solutions made thus retained their colour and a strong odour of chlorine twenty-four hours after, but on determination it was found that approximately 50 per cent. of the chlorine had disappeared. Independent of the question as to what compound was formed it appeared to Mr. Taylor that the solution of the hydrochloride in Yeo's solution of chlorine as given above is the most desirable mixture. He had not gone into the chemistry part of the question, but had simply made his experiments from a dispenser's point of view. A dispenser might easily lose his reputation by dispensing a chlorine solution from which the smell of chlorine entirely disappeared after three hours, because the doctor would probably say that the solution was not made as it ought to be as he could not smell chlorine in it. He thought it was a matter for investigation as to the chemical change which takes place in the solution. He had not gone deeply into the matter partly because now that the library at the "Square" is closed in the evening an ordinary member has not the chance to look up references for himself.

The PRESIDENT said he had frequently to dispense a mixture such as that described by Mr. Taylor, but it had never occurred to him to determine the amount of chlorine in the solution after it had been dispensed some time. It would be interesting to know if the red coloration would change to green on the addition of ammonia. He had noticed that Yeo's solution was generally colourless or slightly yellow. It was rather curious that the amount of chlorine in the solution should vary according to the length of time it had been dispensed. One would suppose that the quinine would fix a certain amount of chlorine.

Mr. HYMANS said he could not throw any light on the matter, but he would like to know if Mr. Taylor's experiments were carried out in the dark or in the light.

Mr. TAYLOR: In ordinary diffused daylight.

IODOL WOOL.

Mr. LATREILLE asked if anyone had experience in making iodol wool. He had great difficulty in keeping the wool intact.

The PRESIDENT said he had not much experience of iodol wool, but he thought that the iodol exercises some action on the wool itself, as no better result was obtained by using a long-fibred wool than by using a short-fibred wool.

No further communications being forthcoming, the meeting adjourned.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.

At a meeting held on Wednesday, March 14, Mr. FRASER McDIARMID, President, in the chair, Mr. WILLIAM DUNCAN read a short paper on

SOLUTION OF ARSENIC.

He said: In the discussion on Mr. Hill's suggestion that liquor potassii arsenatis might replace the three official arsenical solutions, I mentioned that a stable 1 per cent. aqueous solution of arsenious oxide could be made by addition of a little glycerin and thus avoid many of the incompatible combinations so frequently occurring. The solubility of arsenious oxide depends on the variety used, but I find no difficulty in making a 1 per cent. solution in pure water, which appears to keep perfectly, is practically neutral, and preferable, I think, to Mr. Hill's suggestion. The colouring and perfuming of such a solution, as in the time of Dr. Fowler's "Tasteless Aque Drops," may be now thought unnecessary in these days of poison Acts. Other poisonous solutions are not coloured, and the addition of colouring is to be deprecated, as they are so liable to be prescribed in combinations. I, therefore, suggest that it would be better to have a simple aqueous solution of arsenic instead of the three now official.

Mr. DUNCAN next read a short paper on

LOTIO HYDRARGYRI NIGRA.

He said: On examining the clear fluid portion of this lotion some time ago I was surprised to find mercury in solution apparently in the mercuric condition. It is probable that the mercurous oxide formed from the calomel and Ca2OH, partially breaks down into mercurious oxide and metallic mercury, the water becoming slowly saturated with the former, which is slightly soluble. Most authorities state that mercurous oxide is very unstable, decomposing even by rubbing in a mortar, and it is probable that the calcium chloride in solution hastens such decomposition, forming a soluble mercuric double salt. The question arises to what is the therapeutic activity of black or yellow wash due—the insoluble precipitate or the dissolved salt. If the latter, would it not be better to use a diluted liquor hydrargyri perchloridi and let the black and yellow mercurial lotions be officially things of the past?

Mr. Duncan also contributed some

DISPENSING NOTES.

The first prescription dealt with was for the following ointment:—

℞ Cerat. Galeni,
Adipis Lanæ aa ℥i.
Resorcin 50 per cent.
Ft. unguent.

The difficulty here was to decide what quantity of ointment should be sent, several qualified dispensers said they would send three ounces. The prescriber had certainly ordered a four-ounce ointment—two ounces fat and two ounces of resorcin. A reference to the prescriber confirmed this reading. The prescription was a very good example of the difficulties that beset the path of the careful dispenser, and also of the prescriptions sometimes met with in the examination rooms.

℞ Zinci Carb,
Pulv. Amhli. aa ℥ii.
Glycerini ʒss
M Aquam. ad ℥ii.
Sig. M. D.

Should this be a cream or a paste?

Several dispensers had made it by heat, giving a paste. But he thought it should be made by merely mixing and sending out with a "shake the bottle" label.

℞ Ferri et Quin. Cit.,
Potass. Citrat. aa ʒ ii.
Aquam. ʒ iv.

How should this be dispensed? The citrate of quinine was precipitated by salting out. Some supposed it was due to precipi-

tation of quinine by the occasional alkalinity of the potassium citrate, but a perfectly neutral salt behaved in a similar way. Suspension of the alkaloid by mucilage with a "shake of the bottle" label was preferable to the addition of citric acid as a solvent, as when the latter was added the usual result was the precipitation of a crystalline acid citrate on standing.

The reading of the notes was followed by an interesting discussion and on the motion of the Chairman a cordial vote of thanks was awarded to Mr. Duncan.

LIVERPOOL CHEMISTS' ASSOCIATION.

A meeting was held in the Lecture Theatre of the Liverpool Royal Institution on Thursday, March 15, the President, Mr. ANTHONY S. BUCK, in the chair.

Messrs. G. H. Burroughs and H. C. Featherstone were unanimously elected members.

A lecture was then delivered by Mr. THEO. H. WARDLEWORTH, F.L.S., one of the Association's secretaries, in which he gave a rapid review of his recent visit to the Western Hemisphere. He had found that the gathering of aloes in Barbados, as generally known, has almost been abandoned, and it was with some difficulty that he had the opportunity of seeing one of the plants. The Curaçao aloes seem to have damaged the profitable gathering of the drug to a very large extent. The Botanical Gardens in Jamaica are very fine, all the known methods of cultivation in the West Indies being employed there. One point worthy of mention was the ingenious method of cultivation employed in Jamaica in connection with nutmegs. After nutmeg plants have been grown from seeds and watched over for four or five years, it is frequently found that only two or three out of several hundred would bear fruit. In order to secure bearing trees, a large number of the seedling plants are grown from seeds, and when they reach a certain age they are taken to a recognised female fruit-bearing plant. Taking one of the tender shoots of the female tree, the side of it is cut slightly, and it is grafted on to the growing young plant, the top of which is afterwards cut away. Cocoa-growing is a great industry, especially in Trinidad, and cowhage grew by the roadside. The peasants have a great dread of cowhage, and will not clear ground on which it is growing—they will burn the "bush," but not clear it. Reference was also made to the improved methods of growing ginger and to the cultivation and curing of vanilla in Jamaica. A fine and comprehensive series of specimens was shown, illustrative of the lecturer's remarks, the examination of which afforded considerable satisfaction to the members present. A hand-plaited grass cassava press made by the native Indians was much remarked upon, combining as it did great strength with perfect adaptation to the purpose for which it was intended. Various types of pipe used by Chinese and Hindoo coolies for smoking opium and hashish were commented upon, and the method of use explained, an elaborately made bronze and cane nargileh being much admired. As showing what can be done with cocoanut fat, two samples of a butter substitute were of interest, their flavour and general appearance leaving little to be desired. Two specimens of cacao fruit were also shown, one dried and the other fresh, the latter a very fine fruit.

A vote of thanks was passed to Mr. Wardleworth for his instructive and exceedingly interesting remarks, on the proposition of the PRESIDENT, seconded by Mr. COWLEY, and supported by Dr. NEVINS and MESSRS. MARSDEN and WYATT.

CALCIUM PEROXIDE AS AN INTESTINAL ANTISEPTIC FOR INFANTS.—P. Rochkovsky finds that calcium peroxide is a useful remedy for the digestive troubles of infants. It is a yellowish powder, insoluble in water, and which slowly gives off oxygen. It appears to afford the best results in cases of acid dyspepsia, for which it is given in milk, in daily doses of 18 to 60 centigrammes. It is stated to act both as an antacid and as an antiseptic.—*Bull. Gen. de Therap.*, 139, 267; after *Semaine Med.*

CHEMISTS' DEFENCE ASSOCIATION.

The first statutory meeting of shareholders of the Chemists' Defence Association, Limited, was held at the Holborn Viaduct Hotel, London, on March 15.

The CHAIRMAN (Mr. A. Cooper), in opening the meeting, said that up to that date 667 shares had been allotted to various chemists throughout the country. The Directors had appointed Mr. C. G. Moor, Public Analyst for Exeter, to be analyst of the Association, and Mr. R. J. Beck, solicitor, who was thoroughly conversant with the Acts specially applicable to chemists, as the legal adviser of the Association. The arrangement with the analyst was that he would, once in each year, answer the following question for every member of the Association: "Does this article meet the requirements of the Foods and Drugs Acts?" Members might ask additional questions of a like character for a nominal fee of 2s. 6d. each time. Of course, they would not expect the analyst to answer that question for the above-mentioned fee in relation to articles, the tests for which were very elaborate and expensive.

ELECTION OF DIRECTORS.

The principal business before the meeting was the election of Directors for the ensuing year.—The following gentlemen were then unanimously elected as Directors:—Messrs. F. Andrews, 34, Leinster Terrace, Lancaster Gate, W.; W. R. Barnes, 10, Terrace Road, Plaistow, E.; C. J. G. Bunker, 135, Great Dover Street, London, S.E.; Albert Cooper, F.C.S., 80, Gloucester Road, London, S.W.; T. P. Garrett, 33, Commercial Street, Newport (Mon.); W. Jones, 2 and 3, High Street, Birmingham; S. N. Pickard, 74, Manningham Lane, Bradford; P. F. Rowsell, 74, High Street, Exeter.

ALTERATION OF RULE.

The Directors advised, and it was agreed, that Rule 6 be altered to the following:—

That it shall not be compulsory on the Directors to identify the Association with the defence of any particular case, but that, should they think such a course desirable in the interests of the Association, in lieu of conducting such defence, hand to the member any sum which they may consider has been reasonably expended on such defence, not exceeding £10.

STANDARDS FOR DRUGS.

Mr. C. G. MOOR was asked to speak, and explained that he had been engaged in the study of foods and drugs for some ten years, and for some time had been engaged in preparing a set of standards of purity for all articles of foods and drugs. He did not think that adulteration of articles was practised by chemists in this country to any appreciable extent. The largest number of offences under the Foods and Drugs Acts arose through chemists paying too little attention to the fact that certain articles were liable to decomposition, and that the quality of others was not what it should be. He felt that chemists made a great mistake in buying drugs too cheaply, for they could hardly expect the quality of such articles to be quite up to the mark. In some cases it was practically impossible to get articles in constant use in strict conformity with the requirements of the British Pharmacopœia, and with regard to the standards of purity of some drugs as given in the British Pharmacopœia, some of the descriptions and tests were very loose. He suggested that it would be useful to the members of the Association if they could be informed what articles come under the above group, and he would be very pleased to incorporate the information required in any circular which the Secretary would be sending out. He concluded by wishing every prosperity to the Association.

REMUNERATION OF OFFICERS.

The CHAIRMAN having thanked Mr. Moor for his interesting address, the question as to what remuneration the Directors were to receive for their services, and also what the Secretary and Analyst were to be paid for their labour and time, came under consideration.

The Secretary, Mr. W. S. GLYN-JONES, stated that the whole subject was to be placed before the P.A.T.A., when doubtless a scheme would be drawn up, whereby the expenses of running the two Associations would be divided between them.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Cascara Sagrada.

CASCARA SAGRADA, or sacred bark, is the dried bark of *Rhamnus purshianus*, D.C. (N.O. Rhamnaceæ), a shrub which grows freely in North California and in the States of Oregon and Washington, U.S.A. The bark of *R. californicus*, Eschsch., is also known in California as "cascara sagrada," but the name is officially limited here to the bark of *R. purshianus*. It is collected in the spring and early summer, when it is easily peeled from the wood and curls into quills on drying. If collected later, the bark must be cut away and portions of wood are then apt to be removed with it. The drug possesses tonic and laxative properties; it is used in the preparation of *Extractum Cascaræ Sagradæ*, *Extractum Cascaræ Sagradæ Liquidum*, and *Syrupus Cascaræ Aromaticus*.



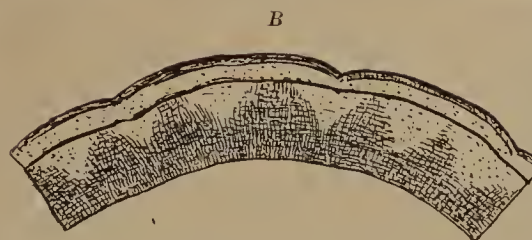
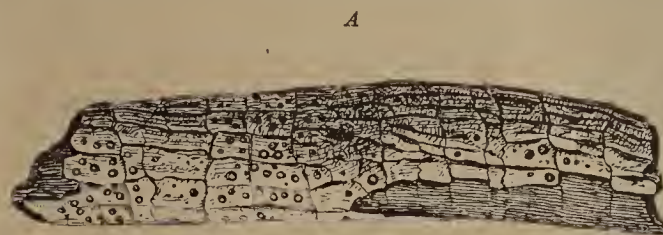
CASCARA SAGRADA.—Quill showing outer surface, exact size. After Greenish.

CHARACTERS.—Cascara sagrada usually occurs in straight, stiff, single quills, or in channelled or nearly flat pieces, about 10 Cm. long, 18 Mm. wide, and 1.5 Mm. thick. The quills vary from 6 to 25 Mm. in diameter, and pieces of the drug may be obtained as much as 10 Cm. wide, 15 Cm. long, and 4.5 Mm. thick, but the thinner bark is preferable. The corky outer layer of the bark is nearly smooth, of a dark, purplish-brown colour, and marked with scattered, transversely elongated, whitish lenticels. Beneath the cork is a yellowish-grey cortex, in which groups of sclerenchymatous cells form dark, translucent points, and wavy medullary rays may be perceived in the brownish-yellow bast when a smoothed transverse section is examined by the aid of a lens. The greyish-white appearance of the drug in places is due to patches of silvery-grey lichen, which conceal the cork and lenticels; when those patches are removed by scraping, the exposed cork appears at first of a brownish-red colour. The inner surface of the bark is dark reddish-brown, with faint transverse corrugations and longitudinal striations. The bark breaks with a short fracture, which is somewhat fibrous near the inner surface, where the bast occurs. The characteristic odour of the drug is not very powerful, but its taste is persistent, nauseous, and bitter.

NOTES.—The distinctive characters of cascara sagrada are the purplish-brown cork covered with silver-grey lichen, the groups of sclerenchymatous cells in the cortex, and the characteristic odour and taste. The taste appears to be due to one of several resins contained in the bark, which can be removed by treatment with alkalis. Emodin or frangulinic acid has been isolated from the bark in orange-yellow crystals, and frangulin and purshianin—glucosides which yield emodin and a sugar by hydrolysis—are probable constituents of the drug, which also contains tannin, volatile oil, etc. The action of the drug is milder and less emetic when it has been kept for a year or more before use, probably owing to the disappearance of a ferment similar to that supposed to exist in the fresh bark of *Rhamnus frangula*, Linn. The yellow colour imparted to paper in which cascara sagrada is kept is presumably due to the glucoside frangulin, which slowly volatilises at ordinary temperatures. The bark of *R. californicus*, which has been substituted for that of *R. purshianus*, is said to be distinguishable by the uniform coat of lichen, the somewhat reddish, dull grey cork, the small number of lenticels, and the paler inner surface.

Cascarilla.

CASCARILLA is the dried bark of *Croton eluteria*, J. J. Bennett (N.O. Euphorbiaceæ), a shrub which is indigenous to the Bahama Islands. The bark appears to be taken from twigs, branches, and small stems. It possesses aromatic and stomachic properties, and is used for preparing *Infusum Cascarillæ* and *Tinctura Cascarillæ*.



CASCARILLA.—A, Piece of bark, showing outer surface, exact size. B, Transverse section, slightly magnified.

CHARACTERS.—Cascarilla is imported in single quills, from 2.5 to 7.5 Cm. or more in length and from 4 to 12 Mm. in diameter; also in small curved or channelled pieces. The outer layer of the bark is dull brown or dark grey in colour, longitudinally wrinkled, and frequently marked with small transverse and longitudinal cracks, which give it a chequered appearance. A characteristic chalky appearance is presented by the bark, owing to the presence in the cells of numerous crystals of calcium oxalate. The patchy appearance in places is caused by the dark-coloured cortex showing through the white or greyish-white cork, and the minute black dots seen on larger pieces of the bark are the apothecia of a small lichen. The cork is easily separated, and reveals the brown or dark-grey cortex marked with longitudinal and transverse furrows. The bark breaks with a short and resinous fracture; a transverse section exhibits under a lens the pale cork layer, dark brown cortex, and dark reddish-brown bast traversed by numerous thin whitish medullary rays. No groups of sclerenchymatous cells can be detected, thus distinguishing cascarilla from other barks which are sometimes mixed with it. The agreeable aromatic odour of cascarilla is more marked when the bark is burned; the taste is also aromatic but disagreeably bitter.

NOTES.—The distinctive characters of cascarilla are the chalky appearance, longitudinal wrinkles, longitudinal and transverse cracks, short resinous fracture, appearance of a transverse section, aromatic odour, and bitter taste. The bitter principle—cascarillin—is a crystallisable alkaloid; the bark also contains betaine, a base akin to choline, and about 1 per cent. of volatile oil, together with resin, tannin, starch, etc. The barks of other species of *Croton* are distinguished from cascarilla by the absence of the aromatic odour, bitter taste, and sclerenchymatous cells.

Cassia Pulpa.

CASSIA PULP is obtained from the fruits of *Cassia fistula*, Linn. (N.O. Leguminosæ), a tree indigenous to India. The inflorescence of the tree is a pendulous raceme, and each flower has a one-celled, many-seeded ovary, which develops into a long pod, with a thin, hard, and woody pericarp, differing from an ordinary legume in being indehiscent as well as many-celled. The pulp, which alone is official, possesses laxative properties and is used in the preparation of *Confectio Sennæ*.

CHARACTERS.—Cassia pods are from 35 to 50 Cm. long, and from 18 to 25 Mm. in diameter, nearly straight and cylindrical in shape, with a short stalk, and of a dark chocolate-brown colour. They are very hard and indehiscent. The dorsal and ventral sutures are marked by two smooth bands running the whole length of the fruit, but they are not prominent. Internally, each pod is divided into numerous compartments by thin transverse partitions or spurious dissepiments, placed about 6 Mm. apart. Each division contains a single smooth flattish-oval reddish-brown seed, attached to the ventral suture by a long, dark, thread-like funiculus; adhering to each membranous partition is a thin layer of the nearly black viscid pulp, which has a faint, somewhat sickly odour and a sweetish taste.



CASSIA FISTULA.—Lower portion of fruit, with part of the pericarp (a to b) removed; S, seed; w, spurious dissepiments. After Wiesner.

NOTES.—The distinctive characters of cassia pods are the smooth surface and long cylindrical shape, the spurious dissepiments with adhering pulp, and the odour and taste of the latter. The pulp, of which the pods yield about 30 per cent., contains more than half its weight of sugar, together with calcium oxalate and albuminoid matter. Old pods, recognised by the rattling of the seeds when shaken, yield dried pulp, which should not be used. The pods of *Cassia grandis*, Linn., are official in France; they are usually longer, thicker, and heavier than those of *C. fistula*, with a rough surface, laterally compressed seeds, one prominent ridge on the dorsal suture and two on the ventral suture. The pods of *C. moschata*,

H.B. and K., are also official in France; they are smaller and narrower than the pods of *C. fistula*, while the pulp is paler in colour and exhales a musky odour when warmed.

Catechu.

CATECHU, also known as gambier, terra japonica, or pale catechu, is an extract prepared from the leaves and young shoots of *Uncaria gambier*, Roxb. (N.O. Rubiaceæ), a climbing shrub indigenous to the Malay Archipelago and largely cultivated in many of the islands. The leaves and young shoots are boiled with water, the decoction is evaporated to a syrup and cooled, and a soft clayey mass results in which crystallisation has been induced by working a stick up and down in an oblique direction. The crystalline mass is allowed to drain, then cut into small cubes, strips, plates, or discs, and dried. Catechu is a powerful astringent, and is used in the preparation of Pulvis Catechu Compositus, Tinctura Catechu, and Trochiscus Catechu. The dose of the drug is from 5 to 15 grains.

CHARACTERS AND TESTS.—Catechu usually occurs in more or less agglutinated cubes, measuring about 25 Mm. each way. They are fairly regular in shape, deep reddish-brown externally, pale cinnamon-brown internally, porous, friable and very light. When examined under a microscope, preferably after mixing a little with a drop of oil, catechu is seen to consist chiefly of minute acicular crystals. It is free from odour, but has a taste which is at first bitter and astringent, and afterwards sweetish. It should dissolve almost entirely in boiling water, yield 70 per cent. of soluble matter to 90 per cent. alcohol, contain no starch, and leave not more than 5 per cent. of ash when incinerated.

NOTES.—The distinctive characters of catechu are its shape, taste, solubility, and the presence of a fluorescent substance in

the drug. Catechu consists of 7 to 33 per cent. of catechin, and 22 to 50 per cent. of catechutannic acid, the proportions varying according to the care with which the drug has been prepared. It also contains quercetin, catechu-red—a decomposition product of catechutannic acid to which the reddish colour of the drug is due, and a fluorescent substance which is not found in black catechu or in many similar extracts. Starch, clay, or other inorganic matter, and other plant extracts, are possible adulterants of catechu. Starch can be detected by submitting the residue left after exhausting the drug with cold water to microscopical examination; clay and other inorganic matters increase the amount of ash left on incineration; other plant extracts differ in solubility and do not contain any fluorescent substance.

Obituary.

CLARK.—On March 19, Edward Clark, Chemist and Druggist, Lancaster. Aged 80.

DAVIE.—On March 15, John Scott Davie, Chemist and Druggist, Glasgow. Aged 22. Mr. Davie, who was a member of the Pharmaceutical Society, died unexpectedly in his apartments in Glasgow, of acute pneumonia. He was the second son of Matthew Davie, Alexandria; and served his apprenticeship with Dr. James Brown, Alexandria, afterwards going to Glasgow, where he was first assistant to Dr. Kennedy, and latterly with the New Apothecaries Co., 57, Glassford Street. Mr. Davie qualified in April, 1899, and during the past six months acted as Demonstrator in the Glasgow School of Pharmacy. He was a brilliant and enthusiastic student, and had almost completed his studies for the Major examination. His untimely end is deeply deplored by all his friends and fellow students.

PICKARD.—On March 19, Matthew Pickard, Chemist and Druggist, Salford, Manchester. Aged 85.

STREET.—On March 17, Sarah Jane Street, Chemist and Druggist, Crediton, Devon. Aged 74. Miss Street was a woman of remarkable intellect and talents, and had carried on the business of a chemist and druggist in High Street, Crediton, for many years. The business of a chemist appears to have been carried on there for upwards of a century by two spinsters successively. Miss Street had resided in the house for over sixty years, and for over thirty years had conducted the business. The former proprietress was a Miss Wreford, who carried on the business for many years until her death at an advanced age. Miss Wreford appeared to have studied under a medical man, whilst Miss Street learnt the compounding and dispensing of medicines and drugs under Miss Wreford. On the latter's death, Miss Street succeeded to the business which she carried on to the time of her demise. Being a woman of considerable attainment she exhibited great talent in her work. She was not qualified by examination, but being in business before the passing of the Pharmacy Act, 1868, she took advantage of the opportunity of being registered in order that she might sell poisons. That the people of Crediton had confidence in her preparations is apparent from the fact that she carried on a successful business.

YOUNG.—On March 19, George Young, Pharmaceutical Chemist, Millwall, E. Aged 74. Mr. Young had been a member of the Pharmaceutical Society since 1853, and was one of the oldest chemists in the Millwall district, where he was well known and highly respected by all classes of people. Reference to the Society's books brings out the interesting fact that Mr. Young changed his address once only during the period extending from 1853 to the time of his death—namely, from 12, Ebenezer Terrace, to 73, West Ferry Road, Millwall, and that was probably only a re-numbering of the same house.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

LIQUID AIR AND BACTERIA.

Dr. A. MacFadyen finds that bacteria may be kept at a temperature of -190° C. for twenty hours without their vital powers being affected. The organisms with which he experimented possessed varying degrees of resistance to external agents—the extremes being represented by the very sensitive spirillum of cholera asiatica, and the highly resistant spores of the anthrax bacillus. Pure cultures were taken of *Bacillus typhosus*, *B. coli communis*, *B. diphtheriae*, *S. cholera asiatica*, *B. proteus vulgaris*, *B. acidi lactici*, *B. anthracis* (sporing culture), *Staphylococcus pyogenes aureus*, *B. phosphorescens*, and *Photobacterium balticum*. They were simultaneously exposed to the temperature of liquid air (-182° C. to -190° C.) for twenty hours, then carefully thawed and examined. In no instance could any impairment of vitality be detected, the fresh growths obtained being normal in every respect, and the functional activities of the bacteria quite unaffected. Experiments with representative types of organisms usually met with in the air—moulds, bacilli, cocci, torulæ, and sarcinæ—had similar results, whilst a sample of yeast cell plasma (Buchner's zymase) retained its peculiar properties unchanged as regards the production of carbon dioxide and alcohol, after twenty hours' exposure to the intense cold mentioned.—*Lancet*, 3995, 849.

BEQUEREL RAYS.

Attention has several times been directed to the remarkable properties of Becquerel rays and, in particular, of those rays emanating from radium. The theory that the radiations consist of material particles is supported by M. Becquerel's recent observations on the action of screens in cutting off the radiations deviated by a magnetic field. A decisive experiment has now been performed with regard to this point. It has been established beyond doubt that the emanations from radium communicate a negative charge to bodies on which they fall, while the radium itself becomes charged negatively, and it is inferred that the emanations from radium, or, at any rate, a portion of them, consist of material particles carrying negative charges.—*Rev. Gén. des Sciences*, through *Nature*.

CHEMICAL COMPOSITION OF THE TUBERCLE BACILLUS.

Drs. de Schweinitz and Dorset find that cellulose in very minute amount is present in tubercle bacilli grown upon different culture media; it is probable therefore, that cellulose is a normal constituent. The amount of fat in the bacillus is very large, being equal to about thirty-seven per cent. of the weight of the dried germs. The fat is principally a glyceride of palmitic acid. Other fats are present in small quantities. One of those, which is volatile, gives to tuberculous cultures their characteristic odour. The large percentage of fat in the tubercle bacillus suggested the use as a staining reagent of Sudan III., which is a useful stain for fats in histological and pathological work. The result was very satisfactory, and apparently this stain is more selective than carbol-fuchsine. Smegma bacilli, which stain readily with fuchsine, do not stain with Sudan III. The mineral constituents of the tubercle bacillus include sodium, potassium, calcium, and magnesium. The high percentage of phosphorus pentoxide and the absence of other acid radicals were noticeable. Phosphates and cod-liver oil are two materials frequently recommended in tuberculosis. As the germs of the disease seem to demand a large quantity of food containing phosphorus and also rich in fat, it is said to be a fair supposition that in giving those drugs we are supplying to the animal

body those constituents which are very important for its proper nourishment, the supply of which is constantly being drawn upon by the bacilli.—*Brit. Med. Journ.*, 2047, 745.

GONAL OR GONOROL.

Under the trade name of "gonal" a purified sandalwood oil is being offered, which is claimed to consist exclusively of the alcoholic constituents of the crude oil, boiling at a temperature of not less than 300° C. The oil has previously been referred to under the name of "gonorol" (see *P.J.* [4], 9, 34), but the characters of the article now on the market appear to differ somewhat from those previously recorded. Gonal is obtained by saponification of the crude oil and subsequent fractional distillation *in vacuo* or by the aid of superheated steam. It is a colourless oil with a faint odour resembling that of the sandalwood oil, and its boiling point is between 303° and 305° C. Its specific gravity is 0.978 to 0.980, at a temperature of 15° C. It is readily soluble in three parts of 70 per cent. alcohol at a temperature of 20° C., and the solution is odourless and perfectly limpid. Those characteristics distinguish it from the ordinary commercial oil which, as is well known, is of a yellow colour, has a well marked aromatic odour and does not form a clear solution with 70 per cent. alcohol unless mixed with at least five times its bulk thereof. According to Dr. Aufrecht (*Phar. Zeit.*, 1899, Nos. 16 and 29) gonal or gonorol contains 99.5 per cent. of pure santalol and leaves nothing to be desired in respect of purity.

DETERMINATION OF AMMONIA AND NITROGEN.

A. Villiers and E. Dumesnil advocate the gravimetric determination of ammonia as chloride, in preference to the usual methods of alkalimetric titration, the ammonia evolved on distillation with alkali being passed into a weak solution of hydrochloric acid; this is evaporated to a small bulk and transferred to a conical flask, evaporation and desiccation being completed by exposure to a temperature of 105° C. in a drying oven for twenty hours, in which time all water and free hydrochloric acid are completely eliminated, but no ammonium chloride is lost. The following precautions are obviously necessary in the application of method. First, that the apparatus employed in distilling does not allow alkali spray to be carried over mechanically. Those devised by Schloesing, or by Aubin and Alla are recommended. Secondly, that the soda or potash employed is free from ammonia; this is frequently present in the so-called pure alkalis. Thirdly, the fact that the hydrochloric acid used is perfectly free from residue should be experimentally determined. The method is equally available for the Kjeldahl and the soda-lime methods of nitrogen determination.—*Comptes rend.*, 130, 579.

PAPAIN DIGESTION.

From comparative results obtained by digesting fibrin with pepsin, and with the fresh juice of *Carica hastifolia*, V. Harley concludes that the products formed are very similar, and quite distinct from the digestion products of fibrin with pancreatin. He finds that papain is slightly more active in acid than in alkaline solution. The products of digestion in both cases give with tyrosinase at first a reddish colour, then a deep green, which is more intense in the case of papain than with pepsin.—*Journ. de Pharm.* [6], 10, 172.

DANGERS OF CAFFEINE.

According to Zenetz, caffeine is a drug which has been imperfectly investigated and which should not be used in medicine until it has been more thoroughly worked out. He finds that it is very slowly eliminated from the system by the kidneys, and that its action on the heart is cumulative; it is, therefore, absolutely contra-indicated in all renal diseases, in arterio-sclerosis, and all cardiac affections secondary to them. Another danger of caffeine is that the experimentally fixed toxic dose varies enormously with the individual.—*B. M. J. Epit.* 1, 1900, 35.

THE OFFICIAL PROCESSES FOR THE ASSAY OF IPECACUANHA, BELLADONNA, AND NUX VOMICA.*

BY F. C. J. BIRD.

I.—Ipecacuanha (Continued).

Titration of the Alkaloidal Residue.—This is always useful as a check on the gravimetric result, although not referred to in the official analytical method for ipecacuanha. The fact has been previously emphasised (*P. J.* [4], 8, 434) that in delicate determinations and when working with weak volumetric solutions, such as the centinormal solution of soda, the volume of the liquid under titration should be kept as small as possible, and only just sufficient of the indicator added as may be necessary to show the change in colour distinctly. The official indicator, tincture of cochineal, is both reliable and sensitive whenever the alkaloidal residue is sufficiently pale in colour to admit of its use, but with the intense dark orange-brown residues often met with from commercial samples of liquid extract it appears to be anything but satisfactory, and the endpoint of the reaction becomes a mere matter of guess-work.

If the residue under titration is quite pale in colour it should be taken up in a little alcohol, a few drops of cochineal tincture added, and titrated directly with N/10 acid. When the neutral point is reached it should be noted, and 0.2 C.c. more acid added. The liquid may then be gently warmed to ensure solution of the whole of the alkaloid, and titrated back with N/100 or N/50 soda.

Titration in this manner was, however, quite inapplicable to the deep orange brown residues obtained from Sample A. Every possible device was tried to obtain a sharp reading of the endpoint of the reaction, the liquid being largely diluted with water and the tincture of cochineal used in both large and small proportions. Similar solutions were also made up with caramel and red dye to match the alkaloidal solution, but in each instance the intense brown colour of the latter quite masked the changes of the indicator and left the endpoint of the reaction doubtful and indistinct. The only way of overcoming the difficulty appeared to lie in the direction of finding some immiscible solvent which would not only freely take up the alkaloidal residue but would also retain the coloured portion so as to leave any aqueous liquid used in conjunction with it available for observation of the changes of the indicator.

The usual solvents were tried, but only one, viz., amylic alcohol, was found to completely satisfy the above conditions, neither ether nor chloroform being suitable for the purpose. Amylic alcohol retains practically the whole of the colouring matter of the residue; it also has a distinctive effect on certain indicators (methyl orange and hæmatoxylin) by which the changes are rendered sharper and more distinct. Amylic alcohol separates from an aqueous liquid rather sluggishly; for quick working prompt separation is most desirable, an equal volume (not more) of 0.717 ether is, therefore, added to the amylic alcohol, and saturated solution of sodium chloride, a liquid of high specific gravity, substituted for the aqueous layer. The separation of this mixture is quite sharp and almost instantaneous. It proved the best of many other combinations which were tried. If 20 C.c. of the ether amylic alcohol (equal vols. 0.717 ether and amylic alcohol) be mixed with 5 C.c. of saturated sodium chloride solution, both liquids being quite neutral, a few drops of methyl orange solution added and the whole shaken, the upper immiscible layer will be found to separate of a bright greenish yellow colour, whilst the lower layer remains quite colourless. On the addition of 1 drop of centinormal soda and agitation the aqueous layer takes on a pure pink, perfectly free from any tint of yellow, thus giving a very delicate indication.

Hæmatoxylin with ether amylic alcohol and brine is equally sensitive; in this case with 1 drop N/100 soda the immiscible layer is yellow and the lower layer a very decided purple. Both cochineal and litmus may be employed in the same manner, but neither is

quite so sensitive as hæmatoxylin or methyl orange. The following table shows the behaviour of the four indicators mentioned, with ether amylic alcohol and sodium chloride solution in faintly acid and faintly alkaline media:—

ETHER AMYL ALCOHOL AND SODIUM CHLORIDE SOLUTION.

Amylic Alcohol	10 C.c.
Ether 0.717	10 C.c.
Sat. Sol. Sodium Chloride.....	5.0 C.c.

	Acid.	Alkaline.
Hæmatoxylin solvent 4 drops 1 % alcoholic solution aqueous layer	yellow colourless	yellow purple
Methyl Orange..... solvent 3 drops B. P. solution or more according to colour of residue .....aqueous layer	greenish yellow deep pink	yellow colourless
Cochineal .....solvent Tincture, 5 drops .....aqueous layer	brick red colourless	colourless purple red
Litmus .....solvent B.P. solution 5 drops.....aqueous layer	colourless red ppt. at junc. colourless	colourless purple

Iodoeosine changes in the upper layer only, the aqueous portion remaining colourless with either acid or alkali. Although a sensitive indicator this property precludes its employment with ether amylic alcohol for coloured residues. Methyl orange has generally proved the most satisfactory of the indicators mentioned for use with ether amylic alcohol.

The titration is conveniently carried out in a 50 C.c. white blown glass phial furnished with well fitting rubber cork. Commercial amylic alcohol and chloride of sodium solution will rarely be found quite neutral. The precaution should therefore be taken of placing the ether, amylic alcohol and brine in the phial, adding one drop of the indicator and exactly neutralising first with decinormal and then with centinormal acid or alkali added a drop at a time. The upper layer may then be poured off and used to dissolve the alkaloidal residue.

As titration in this manner is not quite so rapidly performed as in the ordinary way, the following mode of operating will be found to save time and quickly complete the determination. Pour off the neutralised solvent into another vessel and use a portion for dissolving the alkaloidal residue. Transfer to the phial, rinsing out the dish with successive quantities of the remainder. Run in about two-thirds the quantity of N/10 acid theoretically indicated by the weight of the residue and continue adding acid, 0.2 C.c. at a time, with agitation between each addition, until a distinct acid reaction is seen in the aqueous layer. Then add 0.2 C.c. extra acid, and return the contents of the phial to the dish so as to take up any remaining traces of alkaloid.

Transfer again to the phial, and titrate back with N/20 soda, run in drop by drop. It must be borne in mind that the smaller the volume of the aqueous layer the sharper and more definite will be the change of colour in the indicator, whence the advantage of conducting the titration as described.

The end of the reaction in this method of titration is perfectly sharp and distinct. It is specially applicable to the titration of those high coloured alkaloidal residues which in the ordinary way presents such difficulty.

It may not be out of place to note here that the impure morphine obtained in the assay of opium and its preparations may be rapidly and accurately titrated by this method. A weighed quantity of the alkaloid, 0.3 or 0.5 Gm., is dissolved by boiling in a test-tube or small flask, with a slight excess (10.8 or 17.8 C.c.) of N/10 acid. The cooled solution is transferred to a stoppered phial, the test-tube

* Continued from page 308.

rinsed with the 20 C.c. neutral ether amyl alcohol and 5 C.c. brine required, and the liquid titrated back with methyl orange and N/20 soda. One drop of the latter is usually sufficient to determine the completion of the reaction with great precision. The impurities in the morphine separate as a dark coloured stratum between the layers of ether amyl alcohol and brine, and leave the remaining liquid so clear that the changes of the indicator can be observed with unusual facility.

Characters of the Liquid Extract.—The specific gravity of liquid extract of ipecacuanha, as represented by commercial samples, varies considerably, at least from 0.885 to 0.915, according to the alkaloidal content of the root employed in the manufacture of the preparation and the extractive, dried at 98-100° C., from about 6 to 12 per cent. Having regard to the unstable nature of the free alkaloids of ipecacuanha when evaporated in alcoholic solution, the process of exhaustion by percolation should, in the preparation of the liquid extract, be pushed as far as possible before adding the lime, and the weak percolate distilled in fractions, commencing with the weakest, so as to avoid undue exposure of the free alkaloid to heat and alkali (lime being distinctly soluble in rectified spirit, and communicating to it an alkaline reaction). The analysis of a liquid extract carefully made with attention to these precautions does not as a rule show a difference between the figures obtained by weight and titration greatly exceeding 10 per cent. of the weight of the residue.

(To be concluded.)

INCOMPATIBILITY AND SOME OF ITS LESSONS.*

BY WALTER G. SMITH, M.D.

Ex-President Royal College of Physicians, Ireland; Physician to his Excellency the Lord Lieutenant; King's Professor of Materia Medica and Pharmacy, School of Physic, T.C.D.

PART II.—SPECIAL. (Continued.)

(5) *Chalybeates.*

The following points should be noted:

The reaction between Syr. ferri iod. and Pot. chloras has been already explained. Potassium chlorate is not incompatible with ferric salts.

Ferrous carbonate is insoluble (Rule 3), and intentional incompatibility is exhibited in Mist. ferri co.; and in Pilula ferri, B.P.



A similar change happens when Blaud's pill comes into contact with water.

Both ferrous and ferric oxides are insoluble (Rule 1).

Therefore, all *inorganic* iron salts are incompatible with alkalies and their carbonates.

To suitably combine perchloride of iron with arsenic, use Liq. arsen. hydrochlor., and not Liq. arsenicalis (K₂CO₃); and, to prescribe iron in effervescence, add the iron salt to the *acid* bottle, or, use a "scale preparation."

The double salts, Ferri et ammon. citr. and Ferrum tartaratum behave differently, and are not precipitated by alkalies in the cold. Hence, this combination—a common one—is justifiable. Ferri et quin. citr. is less stable, and gives a reddish brown precipitate of ferric hydroxide with Liq. potassæ and a white precipitate of quinine with Liq. ammoniæ. Syrup, glycerin, or mucilage retard or inhibit the precipitation of iron salts by alkalies, but ferric chloride and mucilage, unless well diluted, form a tenacious brown jelly. Glycerin or sugar hinders the oxidation of ferrous salts; e.g., Syr. ferri iodidi.

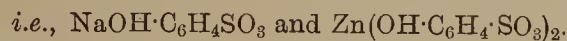
6. *Insoluble sulphates* (Rule 4).

Of these, lead sulphate is the only one of importance in pharmacy.

It is inexcusable to prescribe together soluble lead salts (nitrate acetates) with the "SO₄" radical; e.g., Ac. sulphuric dil., or, Ac. sulphuric. aromat.: alum,* or, zinc sulphate. The last combination is sometimes defended upon the singular ground that insoluble lead sulphate is the really important ingredient (!) Zinc acetate should be substituted for the sulphate. As already explained, either alum or zinc sulphate rubbed up, in the dry state, with sugar of lead, undergo double decomposition.

Liq. plumbi subacet. gives a *green* precipitate with Infus. rosæ acidum (H₂SO₄) owing to a secondary action of the basic lead salt upon the colouring matter of the red rose.

The apparently isomeric sulphocarbolates of zinc and sodium do not react as sulphates, and are compatible with lead salts, because they do not contain the diad ion "SO₄". They are really salts of monobasic sulphonic acid, SO₂^{OH}/_H, and are therefore phenol-sulphonates.



In B.P., 1885, the formula was inadequately presented as—



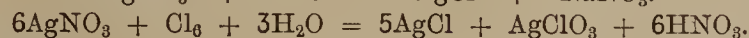
Sulphocarbolates should not be confounded with true phenol-sulphates (etheral sulphates):



which are decomposed by boiling with HCl, phenol and an ordinary sulphate being produced. Etheral sulphates occur in urine after the administration of phenol.

7. *Insoluble chlorides* (Rule 5).

The most important salt in relation to pharmacy is AgCl, produced whenever AgNO₃ comes into contact with the ion chlorine.



Hence—

(a) The necessity for using pure distilled water (free from chlorides, and from CO₂) in preparing solutions of AgNO₃.

(b) The utility of NaCl as a means of neutralising any excess of AgNO₃ when locally applied, to the eye, or elsewhere; and, as an antidote in poisoning.

(c) The impropriety of prescribing AgNO₃ along with soluble chlorides or hydrochlorides, e.g., hydrochlorides of cocain or morphine. The nitrates of the alkaloids would be admissible.

When chlorine is not in the ionic, *i.e.*, dissociated state, as e.g., in chloral and chloroform, AgNO₃ does not form a precipitate of AgCl, and is, therefore, used as a test for free chlorides in either of these compounds. Stains on the skin resulting from AgNO₃ are best removed by potassium cyanide.

(8) *Insoluble sulphides.*

The sulphides of all the heavy elements are insoluble (Rule 1), and some of them are of distinctive colour, facts of much importance in qualitative analysis.

Most insoluble sulphides are black, hence—

(a) The black stools passed after the use of preparations of iron (FeS) or of bismuth (Bi₂S₃).

(b) Burton's "blue line" on the gums or cheeks, as a result of chronic lead poisoning (PbS).

(c) The incompatibility of Bism. subnitrates with Sodii hyposulph (thiosulphate).

(d) The risk of causing black marks upon the skin if preparations of Hg or Pb are applied along with or followed by sulphur, or by preparations containing it in an unoxidised state.

I have seen a patient's face stippled with black dots (HgS) as the result of a mercurial application followed by a preparation of sulphur. A lad, after taking ichthyol internally for an

* The following stupid prescription was ordered:—

Zinci sulph.			
Alum exsicc.	ʒi.	ʒi.	M. A teaspoonful in a pint of tepid water as a lotion.
Ac. tannici	ʒi.	ʒi.	
Aquæ	ʒi.	ʒi.	

* Reprinted, by permission, from the *Practitioner*. Continued from last volume, page 588.

erythematous eruption of the face, used a "lactate of lead" lotion,* and speedily the pores of the skin were blackened owing to the elimination of some sulphur through the skin (R. Crocker).

Zinc sulphide is white; and accordingly preparations of zinc, if ordered in conjunction with sulphur or sulphides, will not cause discoloration on the skin.

Potassa sulphurata (liver of sulphur) and zinc sulphate are sometimes combined in a lotion, and white zinc sulphide will be precipitated.

(9) *Insoluble tannates.*

Tannic acid precipitates most of the heavy elements, and is incompatible, e.g., with tartar emetic (vinum antimon.). Tartar emetic is a salt very readily decomposed either by weak acids or alkalies.

Tannic acid also precipitates gelatin, starch, albumin, and most of the alkaloids.

(10) *Alkaloids.*

In view of the highly poisonous properties of some alkaloids their incompatibilities deserve careful study.

(a) Nearly all alkaloids in the *free state* are sparingly soluble in water (Rule 1), and they do not readily form carbonates.

Hence their salts should not be prescribed along with alkaline carbonates or hydroxides; e.g., acetate of morphine with bicarbonate of sodium or potassium; or Liq. strychn. with Sp. ammon. aromat. Even borax partially precipitates morphine and codein. If arsenic and strychnine are combined, use Liq. arsen. hydrochlor. Morphine is soluble in excess of Liq. potassæ, and quinine in excess of Liq. ammoniæ.

R Pot. bicarb. ʒv.
Liq. strychninæ ʒiij.
Inf. gent. co. ad ʒviij. M.

The bottle was finished up to the last two doses, and laid aside for a fortnight. A sediment was then noticed in the bottle, and after taking the last dose the patient suffered severely from symptoms of strychnine poisoning.

A lady in Johannesburg died in 1898 as the result of taking a mixture containing Liq. arsenicalis and Liq. strychninæ. The physician who ordered the mixture was indicted for culpable homicide. One of his prescriptions was:—

Liq. arsenicalis..... ʒi.
Liq. strychninæ..... ʒi.
Tr. strophanthi..... ʒiij.
Tr. capsici..... ʒi.
Aquæ..... ad ʒvi.

Chem. and Druggist, October 12, 1898.

In effervescing mixtures the alkaloidal salt should be added to the *acid* bottle.

(b) Most alkaloids are precipitated by—

(i.) Tannic acid (not easily by gallic acid).

Acetate and meconate of morphine are precipitated by tannic acid, but not the hydrochlorate or sulphate.

(ii.) Tincture of iodine, *i.e.*, I+KI.

Iodide of potassium alone precipitates some alkaloids from strong solutions.

R Pot. iodidi ʒiijss.
Ferri et quin. citr. ʒij.
Tinct. nucis vom. ʒij.
Sp. ammon. arom. ʒss.
Aquæ ad ʒviij.
M.

The quinine will be precipitated, in part, by the ammonia, and, slowly, as hydriodide.

(iii.) Double iodides, e.g., Donovan's solution (Liq. arsen. et hydr. iod.); Mayer's reagent (potassio-mercuric iodide).

Caffein and theobromin are not thus precipitated.

R Pot. iodidi ʒi.
Ac. hydrocy. dil. ʒss.
Liq. bismuthi ʒiij.
Quin. sulph. gr. xij.
Ac. hydrobrom ʒiijss.
Aquæ ad ʒvi.
M.

Double iodide of bismuth and potassium is formed (Dragendorff's reagent) which precipitates the quinine.

* The formula given by Crocker for lead lactate (*sic*) is: Solution of tubacetate of lead, ʒi., fresh milk, ʒij. Shake well together in a bottle.

(iv.) Picric acid. This furnishes a convenient test for quinine in the urine. The precipitate is distinguished from albumin by its complete solution when heated, and reprecipitation upon cooling.

(c) Caustic alkalies decompose the solanaceous alkaloids (atropin: hyoseyamin) and impair or destroy their therapeutic efficacy.

A common error, and one of long standing, is the combination of Liq. potassæ with Tinct. or Succus hyoseyami.

(d) Many other salts of alkaloids are sparingly soluble, e.g., quinine acetate, benzoate, borate, citrate, hydriodide and hydrobromide.

R Ferri et quin. citr. ʒij.
Pot. citratis ʒij.
Ac. citrici ʒi.
Aquæ ad ʒvi. M.

In a few hours nearly all the quinine was precipitated as acid citrate in large crystals, and it was impossible to administer the medicine.

R Quin. sulph. gr. x.
Pot. acet. gr. xx.
Ac. sulph. dil. iijv.
Aq. cinnam. ad ʒi. M.

Mixed in any order a voluminous precipitate of quinine acetate is thrown down.

A lady lost her life by taking a mixture containing strychnine and bromide of potassium. The last dose contained nearly all the strychnine.

Salicylate of sodium and quinine solutions form a voluminous precipitate of quinine salicylate, e.g.,

Quin. sulph. gr. xx.
Sod. salicyl. ʒiijss.
Ac. sulph. dil. ʒi.
Aq. pimentæ ad ʒviij. M.

(e) Most of the incompatibilities of alkaloids can be overcome or prevented by dilute HCl, or by alcohol in the proportion of 12 to 40 per cent. of the solution, because alkaloidal salts are usually soluble in alcohol.

In view of the above statements the practical rule emerges:—

All poisonous alkaloids should, so far as possible, be prescribed in simple solution, and not in too concentrated a state.

A woman, aged 57, took the last dose of a mixture containing Liq. strychn. and Liquor bismuthi with Sp. ammon. aromat. In ten minutes she was seized with tonic spasms, involving the face, neck, and body, and was dangerously ill for five hours (*Pharm. Journ.*, March 25, 1893).

In especial, morphine and strychnine should not be prescribed in solution along with large quantities of an iodide, bromide, or chloride.

Liq. hydrarg. perchlor. alone, *slowly* precipitates strychnine from Liq. strychninæ in delicate acicular crystals: also quinine.

Ac. hydrocyan. dil., or even Aqua laurocerasi, may from solutions of morphine slowly precipitate insoluble morphine cyanide.

A few additional examples of unsuitable or dangerous alkaloidal prescriptions are appended in illustration of the foregoing remarks:—

R Tinct. guaiaci ammon. .. ʒij.		
Mucil. acaciæ..... ʒij.		
Quin. sulph. gr. viij.		
Ac. sulph. dil. ʒiv.		An utterly hopeless jumble.
Pot. bicarb..... ʒi.		
Aquæ ad ʒiv.		
M.		
R Liq. strychn. hydr. m100.		
Liq. arsenicalis..... m70.		
Liq. potassæ ʒij.		Quite hopeless.
Aquæ ad ʒiij.		
M.		
R Pot. iodidi ʒiijss.		
Liq. strychn. ʒiijss.		After twelve hours crystals of hydriodide of strychnine are deposited.
Aq. menth. pip..... ad ʒij.		
M.		
R Quin. sulph. ʒi.		
Ac. citrici ʒiijss.		
Syr. ferri iod. ʒi.		
Potass. iod. ʒi.		Wrong from more than one point of view.
Tinct. iodi ʒiijss.		
Aquæ ad ʒviij.		
M.		

R	Pot. brom.	gr. 100.	This mixture cannot be dispensed clear.
	Pot. bicarb.	gr. 80.	
	Quin. sulph.	gr. 20.	
	Syr. zingib.	ʒvi.	
	Aq. menth. pip. ad M.	ʒviij.	
R	Spir. amm. arom.	ʒvi.	The quinine separates as a sticky precipitate.
	Pot. brom.	ʒij.	
	Ferri et quin. citr.	ʒi.	
	Aquæ ad M.	ʒvj.	
R	Morph. Sulph.	gr. i.	
	Pot. Bicarb.	gr. 90.	
	Aquæ ad ʒij.	M.	
	ʒi. with ʒss. lemon juice.		

The morphine is precipitated by the carbonate, and if the bottle had not been shaken before mixing with the lemon juice, the last dose would have contained nearly all the morphine.

(To be concluded.)

NOTES ON QUININE,

WITH A BRIEF HISTORY OF THE BARKS FROM WHICH IT IS DERIVED.*

BY H. A. MARTIN.

MANUFACTURE.

In Dr. Pareira's manual of 1842 I find the following method given of the manufacture of disulphate of quina, as it was then called:—"Coarsely pulverised yellow bark is boiled with water acidulated with sulphuric or hydrochloric acid. The residum boiled a second or third time and by some a fourth time with the acidulated water. Finely powdered slacked lime is added to the filtered decoction (when cold) until the liquid is sensibly alkaline and acquires a dark colour. The precipitate is collected, drained on a cloth, and then submitted to graduated pressure, usually in a hydraulic press. The cake thus obtained is, when dry, reduced to powder and digested in S.V.R. The filtered tincture is distilled until the residuum (impure quina) in the retort has a brown viscid appearance. This residuum is then to be carefully saturated with very diluted H₂SO₄, the solution filtered and set aside to crystallise. The disulphate thus obtained is yellowish-brown. It is drained in a cloth, compressed, dissolved in water, decolorised by animal charcoal, recrystallised, and dried. This last part of the process must be carefully conducted to avoid efflorescence."

The above process would no doubt yield a sulphate of the whole of the alkaloids, as there is nothing suggested to separate any of them. Here is a quotation from the 'London College' as to the purity of disulphate of quina at that time:—

"Totally dissolved in water, especially when mixed with an acid, quina is thrown down by ammonia, the liquor being evaporated; what remains ought not to taste of sugar. One hundred parts lose eight or ten parts of water with a gentle heat. It is totally consumed by fire. Chlorine first added to it, and afterwards ammonia, it becomes green."

Salicin is also mentioned as an impurity, and can be recognised by oil of vitrol, which it turns red. It does not say, however, where this glucoside is likely to come from.

A method followed out in India is as follows:—

Bark, in fine powder, is mixed in proportion of 100 to 500 parts water (containing eight parts caustic soda), with 600 parts of a mixture consisting of amylic alcohol one part and kerosine oil four parts. This mixture is briskly agitated in large vessels for several hours, allowed to rest, and oily layer removed. The oily liquid is then shaken with dilute sulphuric acid, the acid aqueous solution is neutralised with soda or ammonia and set aside to crystallise, crystals are drained on a cloth, redissolved in fifty times its weight of boiling water, filtered through charcoal, and recrystallised.

Upon inquiry at Messrs. Howards and Sons I was told that the present method of manufacture was as the British Pharmacopœia directs,

with the exception of one thing, and that is, petroleum is substituted in lieu of benzolated amylic alcohol. In fact, the B.P. process could scarcely be improved. The only difficulty which presented itself was the separation of the quinine and cinchonidine, which can only be done at the present time by repeated recrystallisation from boiling water.

SALTS OF QUININE.

So useful is this alkaloid that there are nearly thirty salts of it; some of them in greater use than others. *Acetate*: Rather more soluble in water than sulphate. *Arseniate* and *Arsenite*: Recommended by some doctors as more powerfully ante-periodic than the other salts; contains 29 per cent. acid arsenious and 69.4 per cent. quinine. *Citrate*: Sparingly soluble in water, and has, therefore, little taste. In a number of prescriptions by a West-end physician, I saw quin. sulph. and acid citric frequently prescribed. One day I questioned him as to why, when he kindly told me that it was the most useful salt of quinine to administer to patients having a tendency to acidity. *Chlorate*. *Ferrocyanide*: said to be most efficacious. *Ferrosulphate*. *Fluoride*: Successful in relieving enlarged spleen, and in rickets. *Hydriodide*: Alterative tonic and ante-periodic in scrofulous affections of debilitated subjects. *Hydriodide Acid*: Soluble 1 in 20. *Katine*. *Lactate*: Soluble 1 in 10; used for hypodermic injections. *Hydrobromide*: Excess of hydrobromic acid given to lessen cinchonism sometimes caused by large doses; contains 76.6 per cent. *Hydrobromid Acid*: Well adapted for hypodermic injection, unirritating. (Off.) *Hydrochloride*: Richer in alkaloid than sulphate, 81.8 per cent.; antiseptic; powerful germicide; 1 in 800 stopping growth. (Off.) *Hydrochlor Acid*: Most soluble salt of quinine, 1 in 1; 72 per cent. alkaloid. *Hydrochloro Sulphas*: 74.3 per cent. alkaloid. *Hydrochloro-Carbamidum*: Urea quinine not rich in alkaloid. *Hypophosphite*. *Nitrate*. *Phosphate*: Associated with rickets and stomach affections, 76.2 per cent. *Salicylate*: Contains 70.1 per cent. alkaloid; useful in rheumatic gout. (Off.) *Sulphate*: This salt is the most used of any, contains 73.5 per cent. alkaloid; whenever quinine is ordered by the physician it is invariably understood to mean this salt. *Sulphate Acid*: Soluble 1 in 11 water, and contains 59.1 per cent. alkaloid only. *Sulpho-carbolate*: Really forms carbolate when the alkaloid is used in its manufacture. *Tannate*: Useful for intermittent neuralgia, only 20 per cent. alkaloid in it, almost tasteless, and given to children covered with chocolate. *Tartrate*: Used in India for hypodermic injection. *Valerianate*: Is of no special value, Dr. Hare; anti-spasmodic properties some continue to say it possesses; 73 per cent. alkaloid. Besides the numerous salts above-mentioned there is the *Citrate of Quinine and Iron*, a most useful salt; the *Citrate of Strychnia*, *Quinine and Iron*, *Uranium and Quinine Chloride*, and lamels of quinine, each containing ½ grain.

Herapath, of Bristol, showed in 1852 that quinine forms with sulphuric acid and iodine a peculiar compound, viz., iodo-sulphate of quinine; it possesses optical properties analogous to those of tourmaline, and it was called by Hardinger, *Herapathite*; it is obtained by dissolving quin. sulph. in proof spirit, containing 5 per cent. H₂SO₄, and adding an alcoholic solution of iodine, until a black precipitate is no longer formed. The precipitate is collected on a filter, washed with S.V.R., dissolved in boiling S.V.R., and allowed to crystallise. The tabular crystals are extremely insoluble, require 1,000 parts of boiling water for solution, are remarkable for their dichroism and polarising power; it is also used to separate quinine from its other alkaloids.

100 parts of Herapathite = 56.5 pts. pure quinine.

OLEATUM QUINA.

Made by dissolving 1 of alkaloid in 3 of oleic acid; is applied externally, and very easily absorbed, as the oleic acid is more readily absorbed by the skin than oils.

* Read at a meeting of the Chemists' Assistants' Association, on February 8, 1900. Concluded from page 231.

PHYSIOLOGICAL ACTION.

The action of quinine is so very interesting that I am sure if I go rather deeply into the subject I shall not be trespassing on your time.

When quinine is taken in large doses it causes *quinism*, or *cinchonism*, the symptoms of which are as follows:—Buzzing in the ears, deafness, vertigo, disorders of taste and smell, disturbances of vision in some cases, fulness in the head, and, after prolonged use, the teeth become loose and drop out. I was told by a naval surgeon of three cases in which this last symptom had occurred. A remarkable case is mentioned by Trousseau and Pidoux: A soldier took 48 grains of the sulphate for the cure of an asthma (spasmodic), which returned daily at a certain time. Four hours after taking it he experienced buzzing in the ears, diminished sensibility, giddiness, and violent vomiting. In another three hours' time he was blind and deaf, incapable of walking on account of the giddiness, and vomited bile copiously—in fact, he was in a state of intoxication. The effects subsided in the course of the night. Another case, recorded by Roberts, was that in which a woman, aged thirty-six years, took 5 drachms, and survived, after suffering from deep coma, shallow breathing, slow pulse, absolute deafness and blindness. The loss of sight lasted two weeks, but the retinal changes persisted for several months.

Quinine is fatal to the lowest forms of animal and vegetable life. Its poisonous effect on bacteria, even in so weak a solution as 1 in 20,000, was proved by Dr. Laveran in the treatment of malaria, which is caused, as we know, by a germ, this said germ being carried by the small mosquito, recently proved by Dr. Ronald Ross—in fact, according to the authority of Dr. Hare, it is the best remedy known as a prophylactic or cure of malarial fever.

An instance of taking quinine as a prophylactic is worthy of notice. At the attempt to cut the Isthmus of Panama as much as 200,000oz. of quinine were used annually in combating malarial fever. Many of the employés were in the habit of taking as a prophylactic *large* doses of the drug in rum or vermouth every morning before breakfast—a teaspoonful, in fact, was looked upon as a small dose. The consequence was that when the attack of fever did come the only medicine that might have proved effective to save life was powerless, as the system had become so tolerant of its action.

The effect of quinine on the blood corpuscles is of great interest. Even in full medicinal doses it arrests the diapedesis of the white corpuscles from the capillaries by a direct action on these cells; whilst, on the other hand, if the quinine be given in so small a dose that the proportion to the blood is 1 in 20,000 the white cells cease to migrate, but the ones in the surrounding tissues do not. Medicinal amounts increase the number of red corpuscles very materially in man. It is said that quinine prevents the oxygen-bearing powers of the corpuscles, but this probably does not occur from medicinal doses.

Brinz says that quinine diminishes gaseous interchange in the body, probably by decreasing the affinity of the hæmoglobin for oxygen.

The body temperature is lowered very little, if at all, in health, and in febrile states its influence is governed by the cause of fever. Thus, in malarial fevers, quinine is a very powerful antipyretic, by reason of its peculiar power over the cause. Perhaps some of the antipyretic influence is due to the fact that it tends to arrest oxidation. The reduction of temperature is not permanent, and varies from one to forty-eight hours in length.

Quinine is absorbed from the stomach, not from the intestines, and it is precipitated by the alkaline juices of the bowel. For this reason it should be given in cachets, capsules, or powders, *rather than in compressed tablets*. If pills are used only those which have been freshly prepared should be used.

Quinine escapes through the kidneys chiefly when passing from the body, although some of it is destroyed by oxidation in the liver and tissues. The process is by no means rapid as far as the entire

quantity is concerned, but in rare cases it may be found in the urine fifteen minutes after taking, though it does not disappear for about twenty-four hours. In the urine it is found as quinine and dihydroxyl quinine.

It acts as a depressant upon the tissue waste, and decreases the elimination of nitrogenous material.

Upon the stomach it acts as a tonic and stimulant, but if too frequently taken or in too large a dose it may irritate.

Moderate doses slightly constipate, and large doses may induce colicky pain. Death from an overdose is exceedingly rare. It acts upon the heart by paralysing it, with sudden fall of blood pressure, convulsions, and death. Bouchardat has recorded a case of an adult male who died from taking 45 to 65 grains, but whether the quinine was the cause it is doubtful to say. Tarnier and Budin assert that sufficient quinine may be eliminated by the milk to produce death in a nursing. It is doubtful, however.

The taste of quinine is very difficult to disguise. Dr. Lemanski, of Tunis, says that when taken in coffee, slightly fortified by cognac, or other alcoholic beverage, labourers in malarial regions by this means overcame the repugnance of the taste.

The hydrochloride of quinine is more used than formerly, first, as it is stronger in alkaloid than the sulphate, which is so frequently given; and secondly, it is less likely to upset the digestive organs on account of the hydrochloric acid in the gastric juice.

PRICE.

The price of quinine has fluctuated a good deal. In 1658 Sturm saw twenty doses of the febrifuge sent to Paris which cost sixty florins. About the end of the year 1874 quinine sulphate cost 9s. per oz. In 1881, owing to a temporary scarcity of bark, it reached the large sum of 16s. 6d. per oz., however, the lowest price paid for it was 8½d. per oz., the product of a German firm. At the present time it is rather more than double this price.

CONCLUSION.

Glancing over this brief survey of quinine, one cannot help but see what a grand remedy we have in our hands. Our praise cannot be too great for the explorers who went out and suffered terrible hardships to obtain seeds and plants in order to plant and cultivate it, so as to have a continual supply of this most useful drug constantly to hand, to save the lives of thousands who otherwise might perish. We here at home do not realise the full amount of good done by the cultivation of the tree producing this remedy. It is only in such fever-stricken districts as India, Africa, etc., that we can fully see Nature's wise provision in growing the remedy to cure the disease surrounding. The failures of quinine in curing fevers (chiefly malarial) is only about seven in a thousand. To Science we owe the idea of cultivation, and it seems extraordinary that our efforts should have been awarded with such success.

Let us hope we may always be able to help Nature with Science, for if such is the case, wherever we find the evil our utmost researches must be pursued to find the remedy.

PEPSIN TESTING.*

BY F. H. HOSEASON.

The B.P. test for pepsin is inadequate and of little value. Any trustworthy test must be based on its peptonising, not its solvent, power, although possibly there may be a ratio existent. From experiments made there is reason to believe that a satisfactory process may be arrived at by using syntonin as the basis. The following process is suggested tentatively:—Treatment of known weights of syntonin and pepsin in acid solution for one hour at 100° F., removal of the unaltered syntonin and proteoses by zinc sulphate, precipitation of the peptone by an excess of standard bromine-water, filtration and titration of the residual bromine.

* Abstract of a paper read before the Manchester Pharmaceutical Association, March 14, 1900.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Council and its Critics.

I wonder if Mr. J. A. Heaton knows exactly what he means when he charges the Council of the Pharmaceutical Society with "apathy, indifference and, perhaps, incapacity," or if he is serious when he suggests that there exists in that body a "clique" which clings to "old, antiquated, worm-eaten policies that have brought us to our present deplorable and almost desperate condition." The relevance of the closing words of the quotation is far from evident, and I for one object to be included amongst those who are in the parlous state described by Mr. Heaton. He is, of course, quite at liberty to speak for himself, but it is sad to learn that any registered person, and particularly a Lancashire chemist, should feel compelled to own that he is reduced to such a condition as stated. At the same time, I think it is the height of absurdity for him to endeavour to cast the blame for his own shortcomings on others whose business cares and worries are probably as serious as his own. What in the world does this supporter of the inventor of pharmaceutical panaceas fancy the Council can do, or has failed to do? It would be hard for him or any other similar critic to say, and I am not at all surprised to find that persons who talk and write in such an absurd fashion invariably confine themselves to vague generalities and never come to the point. If the Council, in the past, has displayed "apathy, indifference and, perhaps, incapacity," it has been because it reflected, perhaps too faithfully, the attitude of those it represented. But, as a matter of fact, the Council has always been far better than the mass of which it might not unreasonably be supposed to be a fair sample. A large proportion of the members of the Society and the majority of the registered chemists of Great Britain have undoubtedly been apathetic, indifferent, and incapable of caring for their own best interests; the Council, however, has always consistently represented those to whom all real progress in pharmacy has been due. It is useless for any representative body to attempt to force the pace if the individuals it represents fail to second its efforts and assist it in maintaining things on a proper footing. And it is no part of the duty of the Council to attempt to bring about the millennium now dreamt about by so many who have utterly neglected their own interests in the past.

The Society or the Individual.

The primary duty of the Council of the Pharmaceutical Society, as I conceive it, is to administer the Pharmacy Acts, not to assist persons registered under those Acts to earn a shilling by an expenditure of sixpennyworth of labour. It was never the intention of the Legislature to make the Society a close corporation, with power to restrict the sale of all drugs, proprietary articles, etc., to its own members. Nor was the institution of a pharmaceutical qualification suggested with the idea of enabling dealers in such goods to make a living more easily than if no such qualification existed. But reading such nonsense as Mr. Heaton writes, about "old, antiquated, worm-eaten policies," one might imagine that he, at any rate, held the view that the Pharmacy Acts were passed for the sole benefit of chemists and druggists. If by a "clique" he refers to the majority of the Council which has ever felt itself bound to make the protection of the public safety its main care, I imagine he is not far wrong in assuming its existence, and I hope such a "clique" will long continue to exist. Apart from that, however, why blame anybody or anything, in connection with the administration of the Pharmacy Acts or of the Pharmaceutical Society's affairs, because a registered person is to be found here and there who is so lacking in business capacity that he is unable to conduct his affairs as successfully as he or his friends could wish? Passing the Minor examination and subscribing to the Society do not justify a man in the hope that he has secured a sure means of

livelihood, or, for the matter of that, any means of livelihood at all. Other things being equal, he has thus attained to a more advantageous position than any mere tradesman can aspire to. But, in itself, the chemist's professional qualification is not sufficient to compensate for lack of business capacity, and he who chooses to depend upon that qualification alone, or to any undue extent, need not be surprised that he goes to the wall. The puzzle to me is that such men—and there are a few in our ranks—manage to put off the evil day so long. Perhaps it is because ill experience gradually knocks a little common sense into their heads, and they learn, more or less imperfectly, that a man must work if he wishes to live, and to work hard if he desires to live in comfort.

The Coming Contest.

Apparently, we are actually to have a contest in connection with the filling of the seats soon to be vacated at the Council table, and it is far from improbable that there may even be two candidates for each seat. One of the main features of the election is likely to be the curious preponderance of would-be representatives from Lancashire. One Lancashire chemist remains on the Council, another is expected to stand for re-election, and three new candidates who hail from the County Palatine are understood to intend to go to the poll. But fancy a Council with five Lancashire representatives! What will the advocates of territorial representation say upon that point and how will the doctrine of proportional representation work out, as taught by those who seem to think it is a sinful thing for a London chemist to be a member of Council? But other quaint surprises are also promised us, and I can imagine that the fingers of many old Parliamentary hands in the world of pharmacy are itching to pass the fatal line through some names which have been suggested. The list of candidates will be practically closed by the time the present issue of the *P. J.* is in the hands of most of its readers, and a week hence we shall know what old and tried representatives, panacea-mongers, and ordinary pharmacists are disposed to try their luck in the pharmaceutical ballot-box. Fourteen or more may be called, but only seven can be chosen, and I would impress upon all my readers the necessity of weighing carefully the claims of those whose names appear in the voting paper. Length of service alone is, of course, no sufficient reason for securing re-election; on the other hand, ignorance of the work to be done may conceivably suffice to neutralise the charm of novelty and bring about the rejection of some who have never yet served upon the Council. Scotland and Lancashire stand to lose one seat each, but hope to win more; London has two seats at stake, and the Society would probably benefit if it won four. For whatever may be the respective merits or demerits of London and provincial pharmacists, it must fall to London members—whether few in number or many—to do the bulk of the work that requires to be done by the Council, and in proportion as London is under-represented the Society's affairs risk receiving insufficient attention.

The Companies Bill.

From private information to hand, I gather that Clause 2 of the Companies Bill, 1900, may be regarded as virtually defunct. Mr. Ritchie has confided to friends in the House of Commons that he has been so overwhelmed with suggestions of opposition to the Clause that he has decided to drop it, and the same course will almost certainly be adopted with Clause 3, which refers to medical men and dentists. So far as our own pet aversion is concerned, then, we shall need only to watch lest the Lord Chancellor should reintroduce it if the Bill reaches the House of Lords this Session. The way should, therefore, be clear for the drafting of a Pharmacy Bill, and we may look forward with confidence to the expression of an even greater difference of opinion in respect of such a measure than with regard to Clause 2 of the Companies Bill. That blessed word "unanimity" will be spoken and written more frequently than ever, and the need of the fact it represents will, in all proba-

bility, be more keenly realised than even during the past twelve months. Sooner or later, however, the Government may be expected to take up in earnest the question of the regulation of pharmacy in general, and of the sale and dispensing of poisons in particular. Public needs cannot be ignored permanently, and the fact that the registered chemists of Great Britain cannot agree among themselves with regard to the reforms necessary is more likely to spur the Government on than not. It is necessary to bear in mind, in this connection, that it is really the permanent officials in Government departments who have to be reckoned with in such a matter as this. However the fortunes of political parties may fluctuate, and whatever individuals may constitute the Government of the day, the permanent officials remain unforgetful of what the safety of the public seems to require, and their views are impressed upon successive Ministers as though by a resistless Fate. We are faced, therefore, with the necessity of convincing certain Government officials that our position as professional men requires reconsideration. But, to that end, we must set our house in order. The adoption of poison regulations was one unduly deferred step in the right direction: several others suggest themselves, and the sooner they are taken the more likely are we to be able to control our own destiny to any considerable extent.

PHARMACEUTICAL SOCIETY.

SCHOOL OF PHARMACY—PRIZE EXAMINATION.

SESSION 1899-1900.

PRACTICAL CHEMISTRY (ADVANCED COURSE).

Tuesday, March 20, 1900, from 10 till 1, and 2 till 5.

1. Determine the impurity in the syrup in bottle A.
2. Analyse the mixture of two substances contained in box B.
3. Ascertain what is mixed with the chalk in box C, and determine quantitatively the amount of the substance present.

MATERIA MEDICA (ADVANCED COURSE).

Wednesday, March 21, 1900, from 2 till 5.

1. Enumerate the commercial varieties of rhubarb with which you are acquainted. Point out their diagnostic characters. Compare the constituents of rhubarb with those of allied drugs.

2. State what you know of the constituents of Balsam of Tolu. Discuss the official tests for the balsam.

3. Point out the difference between the Brazilian and Carthagena ipecacuanha—

- (a) in appearance,
- (b) in constituents,
- (c) in physiological action.

Give a process for the assay of the drug, stating the object of each step.

4. It is generally admitted that the official descriptions of certain of the resins, gum resins, etc., are defective. Upon what principles would you base their revision? Illustrate your suggestions by the following drugs:—

Myrrh, Asafetida, Araroba, Kino, Benzoin.

PRACTICAL BOTANY (ADVANCED COURSE).

Thursday, March 22, 1900, from 10 till 1.

[Four questions only to be attempted.]

1. What do you understand by *symbiosis*? Give a short account of two instances of this relationship, selecting one from the higher and the other from the lower plants.

2. Describe the structure of the sporogonium of a moss. In what respects does it resemble, and in what does it differ from, that of a liverwort?

3. Describe two instances in which plants show a power of appreciation of contact with a foreign body. Point out in each case the response made and its purpose.

4. Compare the gametophyte of a Gymnosperm with that of an Angiosperm. What is the nature of the so-called *endosperm* in both?

5. By means of a schedule indicate the differences between the following Natural Orders and the marks by which each can be recognised:—Ranunculaceae, Cruciferae, Solanaceae, Gentianaceae, Malvaceae, Leguminosae, Compositae, Umbelliferae, Polygonaceae, Geraniaceae, Rosaceae, Salicaceae.

PRACTICAL BOTANY (ADVANCED COURSE).

Thursday, March 22, 1900, from 2 till 5.

1. Make such preparations as you think necessary to display the structure of the secondary wood of *Pinus*. Stain each section and mount it in either glycerin or Canada balsam.

Leave with your preparations a written description of each, illustrated by drawings of what you consider its important features.

2. Refer the flowers A, B, C, D to their Natural Orders, stating your reasons in each case.

3. Identify and briefly describe E, F, G.

CHEMISTRY AND PHYSICS (ADVANCED COURSE).

Friday, March 23, 1900, from 10 till 1.

[Only three chemical and two physical questions are to be attempted.]

1. Describe the action of hydrochloric acid, nitric acid, and sulphuric acid on alcohol.

2. Why is arsenic classed among the non-metallic elements?

3. From what sources, and how, is bismuth extracted? Describe two of its more important compounds.

4. What is the explanation given that accounts for four different isomeric modifications of tartaric acid?

5. How would you prepare from ferrocyanide of potassium:—(1) A dilute solution of hydrocyanic acid, (2) anhydrous hydrocyanic acid, (3) urea?

6. Give an account of the changes that take place in a bar of metal when one end of it is placed in contact with a source of heat, and explain clearly the influence of different constants of the metal on the phenomena observed.

7. Define potential. Show by the help of your definition how to calculate the heat generated by the passage of a current of known strength along a wire of known resistance.

8. Describe the polarimeter. How might the relative proportions of cane sugar and grape sugar in a solution be determined by means of it?

ROYAL INSTITUTION.

A lecture was given on Friday, March 9, by Professor FRANK CLOWES, D.Sc., on

Bacteria and Sewage.

He commenced by explaining that the bacteria associated with sewage are rod-like bacilli of various kinds, averaging about a twenty-thousandth of an inch in diameter. They rapidly multiply by fission, one organism increasing to sixteen and a half million in a day, and forty-seven thousand million in two days, while it would take fifty-one figures to express the number at the end of a week. When the conditions are unfavourable spores are produced; these are capable of resisting steam heat as well as extreme cold, as lately shown by Professor Dewar and others; but, curiously enough, it has been shown by Marshall Ward that they cannot resist sunlight.

The dejecta of man and animals swarm with bacteria, whose duty it is to split up the somewhat complicated material into more elementary substances—*e.g.*, hydrogen, nitrogen, ammonia, water and carbon dioxide; the ammonia is further converted into nitrites and nitrates. In this way valuable plant foods are formed, and this explains the value of putting dejecta into earth, following the Mosaic law and the custom in military camps. Certain bacteria have the power of converting solid matter into liquid, and these are termed liquefying bacteria. In order to show the extent to which bacteria are present in liquid sewage Dr. Houston has made a careful investigation, and found six million in one cubic centimetre in summer and three and a half million in the early part of the year.

Among the most important species are *Bacillus mesentericus*, *B. coli communis*, the sewage *Protococcus*, *B. subtilis*, and *B. cuneus*. Many act not directly, but by a secretion which they produce.

Some require oxygen, the so-called aërobic bacilli; others live best in the absence of oxygen, and are termed anaërobic; while a third class, the facultative bacilli, can live under either condition. Several different species may act together or counteract each other, exhibiting either symbiosis or antibiosis. A third group of organisms is termed metabiotic, because different species in the group carry on the work to a certain stage and leave it to be carried on or completed by another species.

As a rule, there is a deficiency of the liquefying bacteria in sewage. Some experiments were recently made to rectify this by putting in a quantity of the culture of the organism. The result was not successful, probably because, as there is every reason to believe, a large number of organisms living together attain an equilibrium. The addition of an excess of one species upsets this equilibrium.

A method of treating raw sewage was devised by the State Board of Health in Massachusetts, which has led to splendid results. It was found that solid matter, stone, wood, coal, coke, or anything offering a surface, exerts a purifying action on sewage. It is not quite known how the action is set up, but it is thought that a solid body may offer a surface of collection for the enzymes produced by the organisms in the sewage. It is certain that the solid bodies take some little time to mature, or, as it is technically termed, "become primed." In order to give this method a trial, Mr. Dibdin, late chemical adviser to the London County Council, had prepared, in 1893, a bed four feet deep and one acre in area. Into this were put lumps of coke in pieces of the size of a walnut, sifted from finer particles. The sewage was allowed to run into the tank until the level of the liquid reached the upper surface of the coke-bed; after it had remained in contact with the bacteria on the coke surface for about three hours, the liquid, now known as "sewage effluent," was slowly run off. After an interval of about seven hours, to allow of aëration, the processes of emptying and filling the coke-bed were repeated with a fresh portion of sewage. In this way the coke-bed was usually filled twice in every twenty-four hours.

In dealing with the sewage of the metropolis it seems best to roughly screen raw sewage through coarse gratings, and then allow it to undergo a somewhat rapid process of sedimentation before passing it into the coke-beds. As might be expected, raw sewage is mixed with much inorganic matter. The sand, and grit, and finer mud, arising mainly from the wear of road surfaces, would gradually become deposited upon the coke surfaces and reduce the capacity of the coke-bed. Besides hair, fibrous matter and woody fibres derived from the wear of wooden street pavements, and particles of chaff and straw, mainly derived from the dejecta of horses employed in the street traffic, are also deposited upon the coke-surfaces, and gradually choke the coke-bed. These various substances, which consist mainly of cellulose, are apparently only acted upon by bacteria with extreme slowness under the above conditions. They arrive, however, in a water-logged condition, and rapidly settle down from the sewage if its rate of flow is reduced.

As the purifying action of the coke-bed depends upon the introduction of bacteria from the sewage, so the maintenance of the purifying action is secured by the continuous presence of these organisms or their enzymes upon the coke surfaces, and by the frequently renewed contact of these surfaces with oxygen. The aëration of even the lowest portions of a deep coke-bed seems to be satisfactory in the above method of working, since the air which enters the interstices of the coke between two fillings with sewage usually consists to the extent of seventy-five per cent. of oxygen.

The raw sewage, screened and partially deprived of its larger particles by sedimentation, loses practically the whole of its suspended matter by remaining for two or three hours in a coke-bed charged with bacteria. The suspended particles of faecal matter undergo liquefaction by the bacteria, and do not collect on the surface of the coke. The bed cannot be termed a filter; the process is a chemical one, set up by the agency of liquefying bacteria, and is in no wise a mechanical filtration.

The sewage effluent from the coke-bed is entirely free from offensive odour, and remains odourless even after it has been kept for a month. It is clear except during heavy rain, when a turbidity is produced by fine mud particles. Many pond and river fish have been kept in this constantly renewed effluent for a month, and were found to be perfectly healthy at the end of that period. The chemical character of this effluent may be briefly indicated by stating that on an average 51.3 per cent. of the dissolved matter of the original sewage, which is oxidisable by permanganate, has been removed by the bacteria, and that the portion so removed is evidently the matter which would rapidly become offensive, and would rapidly lead to de-aëration of the river water if it were allowed to pass into the river in the raw state. This percentage was obtained in beds varying from four to six feet in depth. A similar bed, thirteen feet deep, has proved more efficient, and has for some time given a purification of 86 per cent. A repetition of the treatment of the effluent in a second similar coke-bed has produced an additional purification of 19.3 per cent. It should be noted that the above purification is reckoned on the dissolved impurity of the sewage; the previously removed suspended solid matter is not taken into account.

The bacteriological condition of the effluent corresponds in the main with that of the raw sewage. The total number of bacteria undergoes some reduction in the coke-beds, but the different kinds of bacteria present in the raw sewage are still represented in the effluent. The introduction of such a sewage effluent into the lower Thames appears to be unobjectionable. The river water at this part is uniformly muddy, it is always brackish, and frequently salt to taste, owing to the presence of tidal sea-water. It is not, therefore, capable of being used for drinking purposes. The effluent will certainly cause no deposit on the river-bed, and will ordinarily tend to render the muddy river water more clear by mixing with it. No offensive smell can be emitted by the effluent as it is discharged, and the bacteria which it contains will slowly and inoffensively remove the remaining dissolved organic matter from the effluent after it has been introduced into the river. The effluent will be suitable for the maintenance of healthy fish life in the river.

The second of a series of lectures was given by the Right Hon. Lord RAYLEIGH, M.A., D.C.L., LL.D., F.R.S., on Saturday, March 17, on the subject of

The Polarisation of Light.

He said: Young was one of the first to explain many of the simple phenomena of light—*e.g.*, he showed that transverse vibrations exist in light while passing through solid bodies. The behaviour of the ether in respect of the passage of light through space has been a difficult problem. The ether is analogous to a fluid with regard to the projecting of a body through space, but it behaves as a solid with regard to transverse vibrations of light. The theory of the transverse vibration of light once accepted explains the phenomenon of polarisation.

All bodies which have double refracting powers are capable of polarising light. A crystal capable of so polarising light—*e.g.*, A. Nicol's prism behaves as if it had two refractive indices, and the velocity of a given ray of light is different in different parts of the crystal, which is not homogeneous. Any homogeneous medium would not exhibit this property.

To explain how the velocity of a ray of light in a crystal may vary according to the direction of its vibrations, the following pendulum experiment is useful:—Tie two cords of equal length to a weight and attach the free ends to the extremities of a horizontal rod of such a length that it makes an equilateral triangle with the cords. If the weight be moved in a direction parallel to the rod and then released the motion produced is slow; if, however, the weight be moved vertically, at right angles to the rod, the resulting movement is rapid.

The Nicol's prism is much used in polarising light. It has the property of transmitting rays of light that pass in one direction and suppressing all other rays. A second Nicol arranged at right angles to the first cuts off the ray that passes through the first prism. It consists of a piece of Iceland spar cut in two and joined together by a layer of Canada balsam, which serves to reflect the light that would otherwise pass back again through the prism. An analogy has been drawn between the action of a Nicol's prism and the total reflection of a ray of light in water, but the circumstances are so different that the analogy is not a good one.

In the case of reflection we must look upon the change of direction as being quite sudden, because reflection would be appreciably diminished if the change were gradual. To illustrate the action of a Nicol's prism a beaker of liquid paraffin, containing a suspended glass vessel in an inverted position, is placed in the path of a ray of light. The ray behaves practically the same as it would on passing through a Nicol's prism. If now the suspended vessel be likewise filled with liquid paraffin, and placed within the other in its ordinary position, the ray passes straight through, and is not in any way altered. In the production of colour by a mica plate there is no absorption of light, but certain rays are diverted. A double-image prism may be employed to show this, by causing the two colours produced to overlap and form white light. When a colour is produced by a plate of mica the complementary colour always occurs at the same time.

Ordinary glass, when strained, takes on double refracting power. This fact may be beautifully illustrated by passing light through two Nicol's prisms arranged at right angles. If a piece of strained glass be placed in the path of the ray it will then restore the otherwise obscured light.

The third lecture of the series was given by Lord RAYLEIGH on Saturday, March 24, when the lecturer began with an elementary explanation of the fact that the interposition of a doubly-refracting body between two Nicol prisms arranged in the crossed position occasioned a revival of the light which normally could not pass. He then gave some further illustrations of the phenomenon, showing the effect with a number of natural crystals—*e.g.*, of oxalic, tartaric, and benzoic acids, and with organic substances such as horn. A jelly would exhibit the same property of double refraction when a plunger was forced into it so as to set up strains in its substance, and so also would a viscous material like Canada balsam when it was in motion. Leaving these phenomena, in which an approximately parallel beam of light had been employed, and which depended on the fact that the substances used had different thicknesses in different parts, Lord Rayleigh proceeded to discuss the contrasted class of convergent light phenomena. Here the light was concentrated on one point of the object, and the effects produced were due not to the varying thickness of the plates, but to the varying degrees of retardation suffered by the rays in traversing the object in different directions. Several instances were shown, both with uniaxial and biaxial crystals, the former giving one system of symmetrical rings of light, and the second two such systems. Lord Rayleigh finally discussed the phenomenon of polarisation by reflection. When light fell on a reflecting surface like glass or water at the polarising angle, such part of it as was reflected showed the characteristics of polarisation. With a source of light like a candle, it was not difficult to perform the experiment, but when the sun's reflection from water at the proper angle was observed through a Nicol prism, sharpness in the dark band which was seen to traverse the image of the sun could not be obtained. It occurred to him that this lack of sharpness might be due to contamination of the water, and that a perfectly clean surface would act more nearly as theory required. On putting this idea to a practical test he found it was correct, and that the slightest trace of grease on the water was sufficient to ruin the sharpness and beauty of the images.

A lecture was given on Friday, March 23, by Sir ANDREW NOBLE on

Some Modern Explosives.

For many centuries gunpowder was the only explosive in general use. In the present century, owing to the researches of Abel, Dewar, the lecturer and others, many new and more powerful explosives have been invented. Gunpowder itself is not a definite chemical compound like guncotton and lyddite, but a mixture in a state of unstable equilibrium. On explosion six-tenths of its weight remains in the solid form, giving rise to the well-known dense clouds of smoke.

Abel and Dewar have given to the world cordite, an explosive that has come into very wide use. It is made in many various forms, usually in fine threads woven into a cord. Though originally intended for small arms, cordite has been largely employed of late in charging heavy guns. The absence of smoke renders its use very advantageous in warfare. When fired in a gun the time taken to consume the charge is only a small fraction of a second. Many interesting experiments have been devised to show the properties of cordite. Thus it burns in air without explosion, but it will not burn in the absence of oxygen. This has been well shown by Abel, by trying to burn cordite in an exhausted space under a bell-jar. Though the platinum wires with which it is brought into contact became red-hot, yet the cordite refuses to burn in the absence of oxygen. When placed in a confined space the combustion is attended by explosive force. This is seen on wrapping round a charge of cordite with stiff paper, and igniting it. The result is a fizzle such as is heard with many fireworks. Cordite may be burned under water, because the heat developed during combustion is so excessive as to supply the atmosphere necessary for combustion to continue.

Ballistite, a mixture of nitro-cellulose and nitroglycerin, is now used as an explosive in many countries—*e.g.*, Italy and Norway. It is made in various forms, being most commonly found in square slabs, cubes or cylindrical tubes. Another modern explosive is nitro-cellulose; it has a serious defect in that when a certain pressure is attained this substance has the remarkable property of still further increasing that pressure. As is well known, picric acid is largely used nowadays in the production of lyddite shell. It is fusible and difficult to ignite, burns slowly, and is not free from smoke. The green smoke that has been seen and referred to by some war correspondents now at the front is probably due to imperfect methods of preparation.

During the early stages of the present war it was the fashion in certain uninformed quarters to attribute disasters to the inefficiency of the British artillery. It was argued that the troops should be supplied with guns of a high muzzle velocity. Those who understand the subject, however, know well that velocity is not the only point to be considered in choosing artillery. The energy imparted to the missile is of more importance than mere velocity. It is better to fire off heavy missiles at a lower velocity, because the momentum of a heavy body is greater than that of a lighter one moving at a higher speed. Besides, with projectiles of low velocity the resistance of the atmospheric air is less than is the case with light projectiles. The War Office officials know well that guns of greater power are at their command, if needed. The quality of British guns has not been the cause of certain reverses that met the British arms. Whether there were enough guns in South Africa, or whether the guns there were in the right place at the right moment, is quite another matter. Certainly it may be said with truth that the British field artillery is second to none anywhere.

Of the many explosives now in use cordite is inferior to none in ballistic power. In considering the relative explosive force of one explosive with another, it should be remembered that the method of igniting has much to do with the effect, as seen in the case of cordite. To take another example, a slab of guncotton might be burnt in air without any other unpleasant effect than that pro-

duced by the smoke. If, however, a few grains of fulminate of mercury were struck smartly in its neighbourhood a terrific explosion would be the result.

The principal evil to which guns are liable is erosion. Cordite, especially, gives trouble in this way, but it is not of such moment in the case of small arms as it is with big guns.

POLITICAL GOSSIP.

THE SELECT COMMITTEE on Boiler Inspection and Certification, to which allusion was made in these columns last week (*ante*, p. 323), was appointed by the House of Commons during Monday's sitting. Mr. Anstruther (St. Andrews), who is one of the Treasury Lords, officiating in place of Sir W. Walrond, who has been confined to his room for some little time past. The Committee will consist of fifteen persons—five to form a quorum, and will have the usual powers of a Select Committee to take evidence and examine witnesses. As a consequence of this appointment all the various Boiler Bills have been withdrawn, except that standing in the name of Mr. J. Samuel.

THE MUNICIPAL TRADING COMMITTEE has not yet been appointed, partly owing to the illness of the chief Ministerial Whip, but also on account of the unpropitious condition of parliamentary business. Questions as to when the appointment might be expected to take place have been asked in both Houses during the week, and have elicited tributes from the Premier and Mr. Balfour to the importance of the subject. There appears, however, to be some opposition to the inquiry, Mr. Burns with characteristic directness having epigrammatically stated that the whole fuss was created and fomented by "a few company promoters who meet at the Society of Arts." Mr. Galloway (S.W. Manchester), too, promised that the motion to appoint the Committee would give rise to considerable discussion, and that if the Government were so ill-advised as to set the inquiry going, definite notice should be given of intention to take up the motion. That definite notice has now been given, and Thursday of this week fixed for the debate, Ministers being persuaded that the long delay has already occasioned much inconvenience, and that it is highly desirable the Committee should be set to work before Easter.

FORECASTS of coming business have been pretty freely given of late by the Leader of the House, but in none of them has he given any encouragement for the immediate progress of the Companies Bill. It is an open secret that the Government does not propose to proceed with anything but what is absolutely necessary, and is more concerned about the general election than attacks on the rights and privileges of professional men by corporate entities. The Law and Parliamentary Committee of the Council need have no apprehension—and probably has none—that the second reading of the Companies Bill will be taken before Easter. It is tabled for Monday next, but it is stated that only a few small non-controversial measures will be dealt with before the recess. The Boer revolt seems a wholly irrelevant thing in connection with company legislation, but, nevertheless, it has a distinct bearing upon the fortune of the Bill; for if peace should be in sight by the time the financial business of the House is concluded—*i.e.*, by the end of April—the Government would, in all probability, throw business to the winds and solicit the verdict of the country by a general appeal to the constituencies. Whatever fate is reserved for the Bill, Mr. Ritchie has made it tolerably well known in the House that the Government will drop Clauses 2 and 3.

A SWEET PETITION comes from Bolton for alteration of the Companies Bill. It is modestly stated to be the humble petition of the inhabitants of Bolton, and is signed by no less than eleven persons—actually eight more than the signatories of that historic petition of the people of England associated with the clothing trade of Tooley Street. The petitioners view with grave concern the

proposal contained in Clause 3 of the Bill, inasmuch as it would take from them the right to continue the business they are already carrying on in a legitimate way. Moreover, these elect of Bolton state that the public health *and their means of subsistence* (the italics are ours) will be endangered if Clause 3 should become law; therefore, they confidently pray that, according to custom, they may be provided for by being debarred the use of titles only and not the right to practise. Mr. Shepherd Cross, the member for Bolton, presented this very interesting specimen of appeal to the House, and the Committee on Public Petitions has felt impelled to print it in full in its report. The wail of the unqualified would seem to indicate the presage of impending extinction. Perhaps the qualified chemists of Bolton might think it desirable to approach Mr. S. Cross with a second petition on the subject, if only to impress him with the fact that there are other inhabitants of that town who have a prior and much higher claim to consideration.

THE MIDWIVES BILL has been hastily pushed through Grand Committee, which has reported the Bill with a few amendments, not of a very material character. These amendments are down for consideration on Monday, and if the opposition is not of any graver nature than that displayed in Committee, the chances of further progress are particularly favourable. Simultaneously, the House has to consider the motion "that it is expedient to authorise the payment, out of money to be provided by Parliament, of such expenses as the Treasury may certify to have been necessarily incurred by the General Medical Council under any Act of the present Session to secure the better training of midwives and to regulate their practice."

LETTERS TO THE EDITOR.

The Society's Library.

With reference to the change of the time for closing the Library I should like, as a student of the School of Pharmacy, to say that I think the introduction of the 6 o'clock closing every evening places students at some disadvantage, as well as members. The short time available during the day for consulting works of reference and the fact that the best of those are quite properly not allowed to be taken out of the Library, lessens very much, I consider, the practical value of the Library to "Square" students. If the former time of closing could be retained for about two nights in the week I think the opportunity of referring to standard works would be appreciated by students.

London, March 23, 1900.

J. R. JEWSON.

The feeling is very general amongst London members of the Pharmaceutical Society that the facilities for using the Library are insufficient. No encouragement is at present offered to the enquiring mind engaged in business. It is not always easy to select a book that shall certainly contain the information sought; a personal attendance becomes a necessity. I think the difficulty of meeting the wants of both students and business members would be met by the Librarian's attendance each Tuesday evening till 10 p.m.

London, March 26, 1900.

F. W. GAMBLE.

I wish to express my regret that, to many members employed like myself in the public service and in the wholesale trade, who are not free until after 6 p.m., the Library is inaccessible. The great increase in the number of members since the alterations in the conditions of membership is, I think, a sufficient reason for at least trying the experiment of keeping the Library open later, and would, I am sure, be an inducement to many to become members if they could have the use of the Library from 6 till 10 p.m. The time for closing the Library with the new influx of members was not well-chosen, and I believe that an extension of the hours during which it is open will be much appreciated. At the meetings of the Public Dispensers' Association members have expressed their regret at not being able to use the Library after 6 p.m., and it

has been suggested that it would be an excellent place to meet to discuss pharmaceutical matters, without having to adjourn to the Museum Tavern? A visit to the library of the Patent Office in Chancery Lane, the Polytechnic in Regent Street, the Northampton Institute, and the several public libraries will convince any one who is sceptical about the matter how much they are appreciated, and now that the Library at the Square is lit up by electricity, reading there has become a pleasure. An assistant librarian could be employed during the evening to relieve our dear and worthy friend Mr. Knapman, who during the twenty-seven years I have been using the Library I have always found most willing to help in looking up a subject, and regret to think that any one would be guilty of belying him in an anonymous paragraph in a trade journal. I hope the subject will be brought before the Council at an early date.

St. Pancras, N.W., March 27, 1900.

W. E. MILLER.

Exchange of Botanical Specimens.

I should be glad to communicate with any amateur collector of botanical specimens in the North of England, Scotland, or Wales with a view to exchanging duplicate specimens. I find, after putting my herbarium in order, that I have a number of duplicates to spare, collected during the past ten years mainly in the counties of Essex, Sussex, Surrey, Kent, and Herts.

W. L. MARTIN.

381, Mare Street, Hackney, N.E., March 26, 1900.

The Volumetric Determination of Red Lead.

My paper on "Red Lead," published last week, contains a printer's error, which, if not corrected, might probably confuse an operator. In the description of the method of determining the total lead by alkalimetric means (see page 312), N/5 has been printed instead of 5N, or an acid five times the normal strength, 20 C.c. of which is, of course, equal to 100 C.c. normal acid. 20 C.c. of N/5 acid contains only 0.252 gramme nitric acid, a totally insufficient quantity, while the same volume of 5N contains 6.3 grammes.

Peterhead, March 26, 1900.

J. F. TOCHER.

. There was no printer's error, and the foregoing explanation would not have been required but for the fact that the typewritten copy of Mr. Tocher's paper had been carefully edited before being despatched from Edinburgh and "5N" in two places altered to "N/5."—[ED. P. J.]

Local Secretaries.

I note a grumble in the Journal about alleged irregular action by local secretaries. It is just another of the many signs that members of the Society are dissatisfied by the ways of the Council. Most members are desirous of greater activity by the men who are elected to the Council of the Society, and the activity is to be persistent, and not spasmodic, as in the past. The only remedy I can suggest is that the local secretaries should "swear." I don't mean use profane language, because the use of such may be rife enough without the consent of the Council of the Society.

March 26, 1900.

A LOCAL SECRETARY (25/38).

Glaucium Luteum.

The Sussex littoral would seem to have been omitted from Mr. Wickffe Peck's itinerary when he was "peregrinating over England and Wales." The yellow sea poppy is plentiful enough at several spots on the coast between Brighton and Littlehampton, especially in localities far removed from human habitation. Old residents can remember it on Brighton beach, but *Glaucium luteum* does not now show its handsome head nearer than Shoreham, four or five miles distant.

There, bright as gems of fairy lore,
Or Eastern poet's dream,
The hornéd poppies gild the shore
With sunny gleam.

Gerard speaks of finding them "neere unto Rye, in Kent, in the ilees of Shepey and Thanet, at Lee in Essex, at Harwich, at Whitstable, and many other places amongst the English coast." This old writer has some quaint references to the medicinal uses of the plant. "The root boiled in water unto the consumption of the one halfe, and drunke, provoketh urine, and openeth the stopping of the liver. The seed taken in the quantitie of a spoonfull looseth the belly gently. The juice mixed with honie and meale mundifieth o'd rotten and filthie ulcers. The leaves and flowres put into unguents or salves appropriate for greene woundes, digest them, that is, bring them to white matter with perfect guitture or sanies." Modern herbal authorities seem to have allowed the drug to lapse into desuetude. It is not even mentioned in handbooks to herbal medicine or quoted in herbalists' price-lists. Mrs. Pratt, in her 'Flowering Plants of Great Britain,' speaks of the plant as highly acid and dangerous, and says the root is reputed to cause madness if eaten.

Brighton, March 27, 1900.

C. S. ASHTON.

ANSWERS TO QUERIES.

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

AUSTRALASIAN CERTIFICATES (A. R.—40/18).—You should write to the Secretaries of the Pharmacy Boards of Victoria (Melbourne), New South Wales (Sydney), New Zealand (Auckland), Queensland (Brisbane), and South Australia (Adelaide), for the information you require. There are Colleges of Pharmacy at Melbourne and Brisbane.

RÖNTGEN RAY APPARATUS (J. H. B.—40/20).—A useful and practical book on the subject is Bottone's 'Radiography and the X-Rays in Theory and Practice.' (Whittaker and Co., 3s.)

SYRUP OF GLYCEROPHOSPHATES (W. J.—40/21).—The formula given in the 'Extra Pharmacopœia' is the original one, the "30 drops" of tincture being regarded as "2 grammes" for the sake of convenience. See *P. J.*, June 22, 1895, p. 1,191, and March 25, 1899, p. 294. There have been several modified formulæ published, and the one you refer to, as you will see, specifies twice as much iron glycerophosphate as the original.

STABLE BLOOD MIXTURE (J. C.—40/17).—Your recipe is not likely to be very stable; aqueous solutions of ammonio-citrate of iron do not keep well. We should recommend you to substitute a small dose of liquor ferri perchlor. for the ferri et ammon. cit., to add a little glycerin, and to use aqua chloroformi as the diluent.

DISPENSING DIFFICULTY (L. A. R.—40/23).—The use of acid is undesirable in such a case and should hardly be necessary, as the salt is so soluble in water. Dissolve it after effecting solution of the other ingredients, heating if necessary to make a clear solution, and send out with a "Shake the bottle" label.

COUGH MIXTURE (H. J. P.—40/22).—We have no such formula and no information regarding the preparation you mention except that it is stated to contain tolu, aniseed and cloves.

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LONDON: SATURDAY, MARCH 31, 1900.

THE BUSINESS OF A CHEMIST AND DRUGGIST AND PHARMACY.

MUCH of the diversity of opinion prevailing among registered chemists as to the line of action to be taken in reference to the proposals contained in Clause 2 of the Companies Bill may be attributed to differences as to the definition of "pharmacy" and of the business of a chemist and druggist. The existence of such differences has been very plainly manifested in recent utterances on the subject. Thus, for instance, the reference made to the business of a chemist and druggist by Mr. HILLS, in moving his amendment at the last Council meeting was probably intended to apply to the ordinary interpretation of the term. But in reply to a question put by the Vice-President, he said he referred to the definition given in the Pharmacy Act, and the only definition there given is in Section 3, where the business of a chemist and druggist is defined as "the keeping of open shop for the compounding of the prescriptions of duly qualified medical practitioners." Chemists and druggists within the meaning of the Act, are also there defined as "persons who at any time before the passing of this Act have carried on in Great Britain" that business, while the persons who were to be admitted to registration as chemists and druggists under the Act, on passing a modified examination, are described in Section 4 as those who "had been for a period of not less than three years actually engaged and employed" as assistants "in the dispensing and compounding of prescriptions." The nature of the business there indicated is distinctly the practice of pharmacy in its more professional aspect rather than the business of a chemist and druggist in the narrower sense of "keeping open shop for the retailing, dispensing, or compounding of poisons" which is especially declared by the Act to be unlawful for any persons unless registered under the Act.

In striking contradistinction to that view of the chemist and druggist's business is the definition of "pharmacy" given by Mr. JOHN TAYLOR in the paper lately read by him before the Manchester Pharmaceutical Association, as embracing the whole of the professional and trading operations usually carried on by a chemist and druggist. Without raising the question whether such

an application of the term "pharmacy" is strictly correct, the admission must be made that generally speaking the business of the chemist and druggist partakes much more of the nature of trade than the definition given in the Pharmacy Act would imply, and as Mr. TAYLOR remarks, "pharmacy," as commonly understood, probably never had such a distinctly professional status in this country, or, at any rate, not since the qualification of the Society of Apothecaries became obsolete as a pharmaceutical qualification, and was converted into a qualification to practise medicine. In fact, the position held by chemists and druggists registered under the Pharmacy Act, 1868, has much more relation to trade than to the practice of pharmacy in the strict sense of the term, and the provisions of the Act are so limited in their application as to leave the greater part of pharmacy outside their scope. Out of the 817 articles included in the British Pharmacopœia as drugs and preparations—chemical or pharmaceutical—quite nine-tenths of them can be sold or dispensed by persons without any legal qualification for the practice of pharmacy either compulsory or optional. That is also the case with regard to the business of a chemist and druggist, and there is consequently no ground whatever for the statements frequently made as to the chemists' monopoly and the alleged desire to interfere with the trade in drugs, etc., carried on by general stores belonging either to companies or individuals.

The question to be considered—whether companies should be prevented from carrying on that very small part of a chemist and druggist's business for which an individual qualification is required by the Pharmacy Act, 1868—is, therefore, a very narrow one and it is really a question affecting the public interest more than the interests of chemists and druggists. As Mr. TAYLOR has very justly remarked, "it is not our duty to regulate company pharmacy." If Parliament should consider that the public objects of the Pharmacy Act would be sufficiently secured by persons, qualified under the Act, carrying on the sale and dispensing of poisons on behalf of joint-stock companies, it would probably be futile to attempt any opposition to such an arrangement being adopted as a remedy for that recognised violation of common sense which is at the present time a result of the unhappy interpretation put upon the Act by the House of Lords, viz., that in the sale and dispensing of poisons the safety of the public is sufficiently secured by the qualification of the individual selling or dispensing the poison. That decision was contrary to the principle of the Pharmacy Act; but however the question may now be decided will not much affect the business of the chemist and druggist, and still less the practice of pharmacy. But when such a breaking down of the purport of the Pharmacy Act is proposed to be extended to the use of titles which indicate legal qualification for the performance of responsible duties, another absurd position is reached, and those who have acquired the right to use such titles have no alternative but to defend their position with the utmost determination. That chemists' opposition to the proposal of Clause 2 of the Companies Bill, in regard to titles, will therefore be generally supported by members of Parliament whenever the circumstances of the case are made known to them cannot well be doubted.

ANNOTATIONS.

THE DEATHS BY POISON IN ENGLAND AND WALES during the year 1898, according to the Registrar-General's sixty-first annual report on the subject, numbered 1,114, exclusive of cases of murder and manslaughter, being a decrease of 81 on the total for 1897. The accidental deaths decreased from 691 to 620—407 males and 213 females; and the suicides from 504 to 494—286 males and 208 females. There were two cases of murder by poison, and one of manslaughter, strychnine being the fatal agent in all three cases. In 1897 there were three cases of murder by poison, and one of manslaughter, morphine being used in two cases, and the kind of poison not recorded by the Registrar-General in the third. The total number of deaths by poison during 1898 was therefore 1,117, as against 1,199 during 1897, or a net decrease of 82. A less satisfactory feature of the report is that the number of deaths caused by carbolic acid shows only a slight decrease, both in regard to the accidental and suicidal cases, the total for 1898 being 206 as against 219 during 1897.

THE ACCIDENTAL POISONING CASES were, as usual, mainly caused by unscheduled articles, the deaths caused by scheduled poisons during 1898 numbering 141, whereas other poisons caused 479 deaths. Arsenic was the cause of 3 fatalities; mercuric chloride of 1; oxalic acid, 5; cocaine, 2; opium, laudanum, and morphine, 85; chlorodyne, 6; paregoric, 1; chloral, 10; belladonna, 12; prussic acid and oil of almonds, 5; aconite, 3; strychnine and nux vomica, 7; weedkiller, 1. The deaths caused by chloroform, ether, and other anæsthetics used during operations are now classed separately. Those substances account for 88 cases. Carbolic acid was the cause of 37 accidental deaths, strong mineral acids of 18, and the great bulk of the remaining cases were apparently due to the use of lead and other poisons for manufacturing purposes. Altogether, then, the record speaks well for the care exercised by registered chemists, the more especially as a certain proportion, probably the majority, of the deaths caused by scheduled poisons were cases in which chemists were not concerned as sellers. Apart from that, it is satisfactory to note that only one hundred and forty-one persons lost their lives by accidental poisoning during the year 1898 out of a population of more than thirty millions.

SO FAR AS SUICIDES ARE CONCERNED, chemists have even less control, but even in that case scheduled poisons caused only 194 deaths, including arsenic 4, mercuric chloride 6, mercuric cyanide 1, oxalic acid 34, chloroform 2, cocaine 2, narcotics 62, prussic acid and oil of almonds 27, potassium cyanide 24, strychnine and nux vomica 25, vermin killer 5, weed killer 1, sheep rot mixture 1. Carbolic acid was taken by 169 suicides, strong mineral acids by 47, and various unscheduled poisons used in the arts and manufactures by 84, thus making a total of 300 persons who resorted to unscheduled articles as a means of ending life. The following table shows at a glance the number of deaths caused by scheduled and unscheduled articles respectively:—

Group.	Scheduled.	Unscheduled.	Total.
Accidents	141	479	620
Suicides	194	300	494
Total.....	335	779	1114

It will be seen that scheduled poisons were responsible for less than one-fourth of the accidental deaths and for less than two-fifths of the cases of suicide by poisoning. It must also be borne in mind, as has been pointed out on former occasions, that there is always a certain proportion of the scheduled poisons named in both lists

which have not been procured through the medium of chemists and druggists; otherwise the proportions of fatalities from the misuse of scheduled and unscheduled poisons would undoubtedly differ still more widely.

THE CASE OF CARBOLIC ACID, as presented in the Registrar-General's report, still continues to be a glaring scandal, the number of deaths caused by it—a very large proportion of which could certainly be prevented if the poison were scheduled—being more than one-sixth of the total number of deaths caused by poison, as shown by the following table, which includes figures for seven years in succession:—

Cause of Death.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Carbolic Acid.....	106	148	202	258	197	219	206
Other Agents	709	819	889	920	894	980	911
Total Deaths..	815	967	1091	1178	1091	1199	1117

During those seven years the proportion of deaths by carbolic acid poisoning has increased from 13 to 18·4 per cent., and it is noteworthy that the great increase during those years has been in the case of suicides, the number of accidental cases remaining almost stationary, as witness the following statement:—

Group.	Poison.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Accidents	Carbolic Acid.....	33	31	35	34	34	43	37
	Other Agents.....	481	566	553	564	585	648	583
		514	597	588	598	619	691	620
Suicides	Carbolic Acid	73	117	167	224	163	176	169
	Other Agents.....	228	253	334	356	309	328	325
		301	370	501	580	472	504	494

THE PRESIDENT OF THE PHARMACEUTICAL SOCIETY has clearly explained the existing position with regard to the Companies Bill, in his Liverpool speech (see p. 350), and members of the Society are invited to read, mark, learn, and inwardly digest the same. It will not be pleasant reading to many, but the report of what Mr. Martindale said cannot fail to be instructive to all. He has plainly stated that the Minister in charge of the Bill will accept no amendment of Clause 2, and that, even if amendment were possible, members of the Council of the Pharmaceutical Society cannot agree what the terms of the modified clause should be. The only consolation in the matter is that opposition to the clause is so great that Mr. Ritchie proposes to drop it. The existing position will then continue for some time longer, the sale of poisons by companies of unqualified persons being neither illegal nor recognised by the law, but entirely outside the operation of the Statute. The possibility of amending the Pharmacy Act, 1868, by special legislation was alluded to by Mr. Martindale, but he spoke none too hopefully of that. As he remarked, chemists must first agree among themselves what to ask for, and then convince Parliament that what they seek is for the public good, and not simply prompted by self-interest. It is interesting to note, by the way, what value Mr. Martindale places upon the utterances of one of his most distinguished predecessors, who stated, nine years ago, that in 1833 a Bill was submitted, and the then President had interviews with various members of a Government Department with regard

to it. According to Mr. Carteighe, the result was not only that the Government officials would not listen to the proposal of touching company trading, but their idea was to regulate it, and let one individual be considered the manager of the business of the poison department, leaving everything else just where it was. In going to Parliament, the Council had to be guided very largely by the opinion of the Government Department, and the first practical question put to anyone who went and asked members to support a Bill was: "Does the Government approve of it?"

MEETINGS OF COMMITTEES are usually understood to be private, but the report of a meeting of the Committee of the North-East Lancashire Chemists' Association, which appears at page 354, having been sent by a local reporter in the ordinary course, it may be assumed that the proceedings were not meant to be regarded as confidential. Indeed, the solitary speaker at the meeting seems to have prepared his remarks with too great care—and yet too little—to justify the hypothesis that they were meant only for the consideration of his own familiar friends. Whether or not anyone else spoke does not appear, and the subsequent proceedings are wrapped in a mystery, so far as the outside world is concerned. But perhaps it would not be drawing a bow too rashly at a venture if it were suggested that the meeting was called for the especial purpose of enabling the one and only speaker to advertise to the world of pharmacy at large that he disapproves of the speech delivered by the President of the Pharmaceutical Society at Liverpool last week. The arrangements at pharmaceutical meetings held in Lancashire are not always as they should be. Apparently, however, the meeting now reported was properly constituted, and there was a chairman, though whether the reporter was actually present is a point concerning which nothing definite can be stated.

TO REVERT TO THE SPEECH DELIVERED at the Blackburn meeting, like others by the same individual, it bristled with inaccuracies. The Council of the Pharmaceutical Society has not been inactive nor has the official Journal advocated a retrograde policy. To take the case of the Council first, events have shown that whilst about two-thirds of the members have favoured, generally, the no-surrender policy, the others have been disposed, in a greater or less degree, to make concessions, while even the majority have been unable to agree upon anything but what may be termed destructive criticism of Clause 2 of the Companies Bill, those holding opposite views having made up their minds so decidedly as to render any other course impossible. Nor is that position of affairs to be regarded as a fault on the part of the duly constituted authorities. Registered chemists throughout Great Britain are all at sixes and sevens regarding the best course to be pursued, and members of the Pharmaceutical Society have formed no exception in that respect. The members of the North-East Lancashire Chemists' Association may be in thorough accord on the subject, but there is no evidence that they can command support for their views. Lancashire is not Great Britain, and the Blackburn district is only a portion of that county. If the members of other local associations and the majority of the registered chemists who are not connected with any local association were at one with Mr. Gifford and his friends, it would be reasonable to expect to find the Council of the Pharmaceutical Society similarly agreed. As it is, the position of the Council accurately reflects that of the Society and of the trade throughout Great Britain, and Mr. Gifford's strictures on the executive body are both unreasonable and untrue.

MR. GIFFORD'S FALSE ASSERTION regarding the Journal was, wisely enough, not backed up by anything subsequently said. It is not the duty of the Editor of the Journal to attempt to dictate a policy to the Society, and the attempt has simply been made to endeavour to represent the facts of the case as impartially as possible throughout the long controversy which is not yet closed. It is absurd to

be continually repeating parrot-like cries about privileges intended to be conferred by the Pharmacy Act, the confiscation of legally acquired rights, or the iniquity of recognising the existing position. Pharmacists have made up their minds upon all those points for many years past, and the difference of their views has led to the present position. What is required is agreement upon a common ground of action and of that, unfortunately, there appears no immediate prospect. If the election of Mr. Gifford on the Council were to result in the position being materially altered in that respect, no one would be more likely to rejoice than the individual he replaced, but it is distinctly unfair for him to assert what is not true about the present members of the Council, or to reproach them because they have not accomplished what is impossible. Persons who talk much about principle should take care not to be unprincipled in their utterances; those who aspire to take an active part in the administration of public affairs should avoid becoming classed as men of one idea only; and, generally, all who seek to remedy abuses which have persisted unchecked for a number of years, would do well to devote a little serious attention to the question of ways and means.

THE "FIRST" EXAMINATION OF THE PHARMACEUTICAL SOCIETY, which is to be held next month, is the last but one of a very long series, and, to judge from the great number of entries for the examination, it might be imagined that no other opportunity was to be afforded for enabling would-be pharmacists to enter the profession. No less than seven hundred and sixteen candidates have sent in their names, that is to say about two hundred more than the highest number previously recorded. The unusual rush appears to lend support to the contention that the examination is of lower standard and easier to pass than any of the alternative examinations, certificates of having passed which are accepted by the Boards of Examiners in lieu of the "First" examination. Whether that be so or not, it may be conjectured that there will be a still larger entry for the examination three months hence, since that will be absolutely the last time the Society will conduct its own preliminary examination. After that, candidates for the Minor examination must produce certificates of having passed one or other of certain specified examinations conducted by the Universities, or by a few recognised examining bodies.

QUALIFICATION AS A DISPENSER may mean much or little, but as a rule it means next to nothing unless the person who claims to be qualified is registered under the Pharmacy Act. Unfortunately, many public authorities are not conversant with that fact, and individuals with "qualifications" of the most varied kind continue to secure appointments which should properly be filled by registered chemists only. Attention has recently been directed to the appointment as dispenser at a union dispensary of a person who claimed to have "qualified" as a dispenser and gained the necessary certificates in nine months from the time of deciding to enter the profession. What those certificates are is not stated, but they do not include that of the Pharmaceutical Society's qualifying examination. With regard to the length of time required by the individual in question to "qualify" as a dispenser, though it usually suffices for an interesting development which is very familiar to mankind, it may be doubted whether any person can attain proficiency as a dispenser of medicines in so brief a period. Pharmacists who have spent the whole of their working lives in dispensing medicines occasionally find something new to learn about their art, and a term of three years may be regarded as the minimum required to gain even a general acquaintance with the subject. So long as public bodies are so economically-minded as to be content to have their work performed by insufficiently trained individuals, so long will the poorer classes have to suffer. The best remedy that can be suggested is for registered chemists to secure election upon boards of guardians and thus place themselves in a better position to educate public opinion on the subject.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

'INCOMPATIBILITY AND SOME OF ITS LESSONS,' by Walter G. Smith, M.D. Pp. 36. Reprinted from the *Practitioner*.—Since part of the contents of this pamphlet has already appeared in the *Pharmaceutical Journal*, and the rest is now appearing, it is unnecessary to describe the nature of the matter. The opportunity is taken, however, of directing the attention of pharmacists to Professor Smith's essay, and of congratulating the author upon his attempt to lift the art of prescribing above the dull level to which it has fallen of late.

'LESSONS IN ELEMENTARY PHYSIOLOGY,' by Thomas H. Huxley, LL.D., F.R.S. Enlarged and revised edition. Pp. 611. Price 4s. 6d. London: Macmillan and Co., Limited.—The difficult task of revising the late Professor Huxley's well-known class-book for the present edition has fallen to Sir Michael Foster and Dr. Lea. Whilst preserving as far as possible the original author's own words and form of exposition, they have found it necessary to make considerable changes and additions in order to maintain the usefulness of the book. As a result it continues to be the best general school class-book on physiology published, and with as little resemblance to a "cram" book for examination purposes as it is possible to conceive.

'BUBONIC PLAGUE; ITS COURSE AND SYMPTOMS AND MEANS OF PREVENTION AND TREATMENT,' by Dr. José Verdes Montenegro. Authorised translation by W. Munro, M.D. Pp. 84. Price, 3s. 6d. net. London: Baillière, Tindall, and Cox.—The Spanish edition of this work, which appeared a few months ago, was the first book which contained a *résumé* of the important work that has been done during recent years in the attempt to discover the causes of the propagation of the plague, and to combat its attacks. The English edition is even more complete, as it includes an appendix in which are given particulars regarding later investigations and results than those referred to in the original work. It is believed by the author that his book provides complete information for enabling a successful struggle to be waged with the plague if an epidemic should make its appearance.

'ANÆSTHETICS: THEIR USES AND ADMINISTRATION,' by Dudley Wilmot Buxton, M.D., B.S. Third Edition. Pp. 320. Price 6s. London: H. K. Lewis.—In this edition of Dr. Buxton's now classical work, the whole of the book has been recast, less important matter being omitted and more useful matter added. The introduction serves as a guide to those who are reading about anæsthesia for the first time, the first chapter gives a concise historical *résumé* of the subject, and chapter two deals with the preparation of a patient and choice of an anæsthetic. Subsequent chapters treat of the use of nitrous oxide gas, alone and in combination with oxygen, etc., of ether, chloroform, amylène, pental, ethidene dichloride, ethyl bromide, and of anæsthetic mixtures and solutions. Attention is also specially directed to the employment of anæsthetics in special surgery and in obstetric practice, as well as to the treatment of the accidents of anæsthesia. Finally there is a special chapter on local anæsthesia and another on the medico-legal aspects of the administration of anæsthetics, thus rendering the book as complete in every way as it is possible for a practical handbook to be.

'LANTERN SLIDES,' being No. 9 of *The Photo-Miniature*. Pp. 479. Price 6d. London: Dawbarn and Ward, Ltd.—The making of lantern slides is here described at length, special attention being devoted to photographic processes and working instructions given regarding the colouring of slides. Like all its predecessors, this number of the *Photo-Miniature* is well worthy of a place on the amateur photographer's book-shelf.

'ST. THOMAS'S HOSPITAL REPORTS.' Edited by Dr. Hector Mackenzie and Mr. G. H. Makins. Vol. xxvii. Pp. 120. London: J. and A. Churchill.—This volume contains the usual records of the work of the Hospital for the year 1898, and includes some interesting notes 'From My Jotting Book,' by W. W. Wagstaffe, B.A., F.R.C.S., who shows by the aid of statistics how individuals vary in weight at different times in the day, and that it is consequently important to choose the time for weighing recruits or persons submitting themselves for life insurance.

'BEGINNER'S GUIDE TO PHOTOGRAPHY.' Pp. 139. Price 6d. London: Perken, Son and Co., Ltd. The seventh edition of this little book has just been published, making a total issue of sixty thousand copies. The matter has been re-written and brought quite up to date. The binding is in stiff cloth boards. As the wholesale terms for the book are liberal, it should be found a profitable article for dealers to push, as it is sure to have a ready sale.

ENGLISH NEWS.

OWENS COLLEGE, MANCHESTER.—The students in the Pharmaceutical Department accompanied the chemistry students, under the leadership of Prof. Dixon, in a visit to Brin's Oxygen Works on Tuesday last. The whole process was carefully explained by the manager of the works, and proved most interesting. The pumping of the air into the built-in retorts containing the heated baryta and the automatic arrangement by which every five minutes the pressure is reduced by a reverse action, were fully explained. It was interesting to learn that the baryta is practically never renewed, and is only raked out about once a year and put back again. The preparation and purification of nitrous oxide (laughing gas) next engaged attention; then the pumping machinery by means of which the cylinders are charged with nitrous oxide, hydrogen, coal gas and oxygen; and, lastly, the method of testing the cylinders themselves. This is done by placing the cylinder in a deep well, rendered water-tight by means of a rubber collar fitting the shoulder, and charging the cylinder with water by means of a powerful hydraulic pump. Its expansion is measured by the water in the space outside rising in a long piece of glass tubing, and the cylinder is considered satisfactory if the water falls to its original level when the pressure is relaxed. The following day a visit was paid to the Botanic Gardens, in company with the botany students under Professor Weiss and Dr. Darbishire. A most enjoyable forenoon was spent in the houses, studying the principles of classification, Aloe, Cypripedium, Smilax Caffea, Selaginella, and many other plants of special interest to students of pharmacy, being noted.

NORTH OF ENGLAND SCHOOL OF CHEMISTRY AND PHARMACY.—The students of this school had an object lesson in manufacturing chemistry on Wednesday, March 14, when, accompanied by the Principal, Mr. F. R. Dudderidge, F.C.S., they visited the works of the Bede Metal and Chemical Company, Hebburn-on-Tyne, being conducted by Mr. Stark, of the Company's laboratory, who fully explained all the various processes seen. At these works large quantities of copper are extracted from pyrites cinders by the wet method, the amount being too small to be profitably removed by the ordinary dry processes, averaging three per cent. in the unburnt pyrites, which, after being roasted, yield about 5 per cent. The cinders are first ground with salt and heated in muffle furnaces, whereby the copper is converted into chloride. This is "leached" out in tanks by means of acidulated water derived from the gaseous products of the roasting. The liquor obtained contains a notable quantity of silver and a minute quantity of gold, which are precipitated by the addition of the requisite amount of sodium iodide, and the precipitate reduced by metallic zinc, the iodine being thus recovered as zinc iodide. The copper is now removed by the addition of scrap iron, and purified by refining in the usual dry way.

All the stages of this process were watched with great interest, the students helping to ladle the refined metal into ingot moulds. The "leached" pyrites residue is in great demand for the steel furnaces, as it contains 70 per cent. of metallic iron. For this purpose it is dried into masses of suitable shape. A visit to the laboratory, where the processes of assay of copper, silver, and gold were seen, concluded a most interesting visit, hearty thanks being tendered to Mr. Stark. On Friday, March 23, the students were conducted through the new Laboratory of Messrs. Wilkinson and Simpson, Limited, by Mr. G. F. Merson, F.C.S., thus having an opportunity of seeing pharmaceutical operations upon a manufacturing scale. The hydraulic press, vacuum still, and many other pieces of apparatus were in full working order, thus demonstrating many processes not usually seen in retail pharmacy.

ROYAL BOTANIC SOCIETY.—At a meeting of the Fellows of the Royal Botanic Society, held on Saturday, March 24, in the Society's Gardens, at Regent's Park, Mr. C. Brinsley Marlay presided, and the secretary directed attention to the fact that there had been some controversy lately as to what was the true shamrock. Sowerby, in his "English Botany," gave two plants, the *Trifolium repens* and the *Oxalis acetosella*, both of which were spoken of as the true shamrock, and were usually regarded as such, while Dr. Prior, in his "Popular Names of Plants," gave *Medicago lupulina* and *Trifolium repens*. In Ireland the peasants went out on to the hillsides and pastures and gathered any species which happened to grow there, and regarded this as the true shamrock. The chairman said there was no doubt that in Ireland it was *Trifolium repens* which was almost invariably held to be the shamrock, but it appeared to him that what St. Patrick, if he ever existed, held up was the *Oxalis acetosella*, the leaves of which were far more distinct. The ordinary clover, however, had been used instead. In reply to a Fellow, who asked whether the *Oxalis acetosella* would keep fresh after being gathered, the chairman said he had never seen it sent over from Ireland for use as the shamrock.

POISONING BY LAUDANUM.—An inquest was held at Patricroft, Manchester, on March 20, touching the death of Joseph Haslam (64), an iron-turner, of Patricroft. From the evidence, it appeared that deceased had suffered from chronic rheumatism, and was in the habit of taking laudanum to relieve the pain. On the previous Monday, at noon, his daughter found him breathing heavily, and suspecting laudanum poisoning, administered a cup of strong coffee; death, however, occurred at 3.15 the same afternoon. Dr. Haynes having given evidence, a verdict was returned that death was due to misadventure.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.—At the last meeting of this Association the following gentlemen, Messrs. C. J. Park, C. T. Weary, and G. Breeze, were appointed as delegates to interview Messrs. Kearley and Morton (Members of Parliament for Devonport) and ascertain their opinions upon the Companies Bill as affecting chemists and druggists. As these members were visiting their constituency during the past week, an interview was arranged with them. The delegates having pointed out to the members the injustice which would be inflicted upon chemists and druggists if Clause 2 in the Bill was passed in its entirety, Messrs. Kearley and Morton expressed the opinion that, as far as the protection of titles went, chemists had a strong point, and also considered that pharmacists might ask that the professional side of their craft, that is, the dispensing of prescriptions of medical men and the sale of scheduled poisons, should be restricted to registered chemists by being included in Clause 3 of the Bill, as in the case of surgeons, dentists, and midwives, and further recommended that a strong effort should be made to have Clause 2 struck out of the Bill, or at least the words "Or to use the term or definition of Pharmaceutical Chemist, or Chemist and Druggist."

FOREIGN NEWS.

PHARMACEUTICAL REFORM IN GERMANY.—After a long and somewhat stormy debate at the last annual meeting, held at Danzig, the German Apotheker-Verein again came to the conclusion that the system of saleable or transferable concessions is deemed by the majority of the craft the best and the most appropriate for being introduced as a general regulation of pharmaceutical affairs in the Empire, and it was resolved to appoint a committee to consider how to give effect to that resolution in practice. The committee has now had a two-days' sitting at Berlin, and has agreed upon the following principles:—In the future every privilege or concession hitherto transferable should remain saleable and inheritable. The now existing not-transferable concessions should become entitled to that right by payment of a certain tax. But no pharmacist should be authorised to purchase shops more than three times without obtaining from the Government of the State a special permission. The concessions to be licensed in the future should be made transferable and inheritable after a ten years' existence, and the holder should pay an annually progressive tax for a certain space of time, beginning from the expiration of a three years' term. The tax should be calculated in accord with the net profits of the business. New concessions should be granted only in places where there is a local need for them, the authorities having consulted in this respect with a committee of pharmacists elected by their confrères. The new concessions should be generally transferred to the eldest of the aspirants. Finally, it should be permitted to let by lease every saleable concession to a qualified pharmacist. It appears that the German pharmaceutical craft is not very content with the present state of things. Indeed, the so-called "mixed system" now prevailing in the Empire—viz., privileges, transferable and not-transferable concessions, is declared to be the principal cause of the high prices of saleable concessions, the number of alienable objects being for an incalculable time restricted. It is plain that the transformation of hundreds of not-saleable concessions into freely transferable ones would be for a certain time an expedient to prevent a further rise of prices, but it is also understood that the federated German Governments are not at all inclined to concede to the wishes of the craft. They continue to insist upon their project of personal not-transferable concessions, the general introduction of which is possible only by the liquidation of the valuable vested interests which have come into existence under the operation of the "mixed system." The majority of the craft being unfavourable to the plan chiefly contemplated by the Prussian Government, it is difficult to understand how the difficulties resulting from that conflict of opinions will be settled. Hence, it deserves notice that there are growing symptoms of inclination to adopt a system of free trade, restricted only by certified evidence of a higher standard of education, rigorous supervision, and the condition that there shall be a certain distance between the shops in the larger towns. Of course, it would be impossible to adopt this system of free establishment without a liquidation of the values of saleable concessions; but numerous proposals have been made to settle that matter. That is certainly a sort of "Zukunftsmusik," but it is not impossible that the adoption of the last-mentioned system will be the solution of the confused situation existing at the present time.

MEDICAL GRADUATES IN GERMANY.—The *British Medical Journal* states that the total number of degrees in medicine conferred by the German universities in the academic year 1898-99 was 1,050. Of these Berlin gave 87, Bonn 22, Göttingen 31, Greifswald 10, Halle 23, Heidelberg 32, Jena 34, Kiel 86, Königsberg 24, Leipzig 55, Marburg 28, München 134, Rostock 14, Strassburg 43, Tübingen 46, and Würzburg 147. The number of degrees awarded by these universities in the previous academic year was 1,208, while the corresponding figure for 1896-97 was 1,268, showing a progressive diminution.

ACCORDING TO A MINISTERIAL ORDINANCE of last year, it was hitherto prohibited in Prussia to keep in stock in pharmacies compounded tablets, the composition of which pharmacists cannot guarantee, and for which they cannot be responsible. These tablets were to be specially prepared each time they were prescribed by a physician. By a new ordinance published last week in the *Apotheker-Zeitung*, that prohibition has been restricted to compressed tablets containing the poisons or potent remedies that are enumerated in the schedules B and C of the German Pharmacopœia. Remedies of organotherapy are not included.

A SERUMTHERAPEUTIC INSTITUTE IN BELGIUM.—According to the *British Medical Journal* the council of the province of Brabant, in Belgium, has decided to establish a provincial institute of serum-therapy and bacteriology with a department for the treatment of rabies. The Institute is intended to be used for analyses and the preparations of serums and vaccines, the rabies department undertaking diagnoses and inoculations. The cost of the establishment is estimated at 150,000 francs, while from 42,000 to 45,000 francs will be required for maintenance.

MALARIA AND ANOPHELES.—According to the *Zanzibar Gazette*, Dr. Spurrier has found *Anopheles* in certain of the notoriously unhealthy districts in that region. In the last district in which they have been found, Dunga, the larvæ of *Anopheles* were present in puddles formed by the spilling of water at the small dip holes made in the dry swamps on the Zanzibar side of the Dunga mountains. A complete map of Zanzibar and the neighbourhood is now being made showing the mosquito-infected localities and the species of mosquito hitherto found in each. Dr. Spurrier has also found larvæ in a disused stone water tank in the town, and in the hollows formed between the ridges of earth on which the sweet potato is cultivated. He points out that in a pool or tank containing reeds or grass the larvæ may be overlooked as they cling to the reeds; when the reeds are touched, however, larvæ shoot into the middle and may be dipped up by a quick hand.

A PHARMACIEN AS A WOULD-BE ASSASSIN.—An extraordinary scene occurred last week at the Fifth Civil Chamber of the Court of Appeal. The President, Monsieur Bérard des Glajeux, had just finished reading the terms of a judgment rendered, when a chemist named Bardin, of St. Maur-les-Fossés, against whom judgment had been previously given, came forward, calmly drew a revolver from his pocket, and fired three times at the President before the attendants or others had time to interfere. Fortunately, his aim was bad. One bullet passed within a foot of the President of the Court and buried itself in the woodwork at the back of him; the other two went wide. The would-be assassin was arrested before he could fire again by the Advocate-General Lombard and the advocates Messieurs Renoult, Bertin, etc., and was at once handed over to the Guards, who quickly appeared on the scene. The hearing was not suspended. The President retained his *sang-froid*, and, ignoring the incident, which might have been expected to have disturbed it, called on Maître Bertin to go on with the next case. It seems that a fortnight ago Monsieur Bardin had taken steps to get Monsieur Lombard to interest himself in a case in which judgment had been given against him. He had then seemed excited. But, taking refuge behind the "profession secret," Monsieur Lombard had refused to have anything to do with the matter.

THE TENTH CORRECTIONAL CHAMBER recently disposed of a case of substitution brought against a chemist from the suburbs of Paris. In dispensing a prescription which was handed to him, the assistant, with the full knowledge and approval of the chemist, put into the cachets an inert powder in lieu of the drugs prescribed, hoping thus to gain additional profit and at the same time "cut" the other chemist of his quarter who had previously dispensed the prescription. The fraud was discovered, and the assistant sentenced to four months' imprisonment, whilst the chemist was mulcted in a fine of 500 francs (£20).

LIVERPOOL CHEMISTS' ASSOCIATION.

The annual dinner in connection with the Liverpool Chemists' Association was held at the Exchange Station Hotel on Thursday, March 22, under the presidency of Mr. ANTHONY S. BUCK. Among the members and friends present were Professors Wm. Carter and J. Harvey Gibson, Mr. W. Martindale, President of the Pharmaceutical Society; Dr. Paul, Dr. Symes, Dr. Brannigan, Dr. Davey, Dr. Barnes, Dr. Gemmell; Messrs. Edwd. Evans, jun., W. P. Evans, Edwd. Davies, J. H. Evans, E. N. Evans, P. MacEwan, H. O. Dutton, Prosper H. Marsden, R. C. Cowley, T. F. Abraham, J. Smith, W. Park, T. H. Wardeworth, etc., etc.

The usual loyal toasts were honoured with more than usual spirit. The CHAIRMAN'S reference to the coming visit of the Queen to Ireland being received with hearty applause.

Mr. PETER MACEWAN proposed the toast of the

LIVERPOOL CHEMISTS' ASSOCIATION,

coupling with the toast the name of the President. In his opinion, the Liverpool Association occupied the premier position among provincial associations, as it was one of the oldest and had an excellent record of work done for the advancement of pharmacy. It had had also connected with it a very large number of famous men, beginning with Jacob Bell, who was instrumental in its institution in 1849. It was worthy of note that the Liverpool Association had the distinction of being the first place at which company pharmacy had been dealt with, for in the year 1849 Jacob Bell made an emphatic pronouncement against the system in the opposition which arose in consequence of the application for a charter by the Liverpool Apothecaries Society. At the same time he observed that Jacob Bell would have nothing to do with short hours or a price list, subjects which had been favourably considered since.

The CHAIRMAN, in responding to the toast, said that it was exceedingly gratifying to the Association to know that during the years they had been in existence they had had a great many of the faculty of medicine, either as ordinary or honorary members. It was interesting to note that their esteemed friend and fellow-member, Dr. Nevins, was present at the inaugural meeting in 1849, to which Mr. MacEwan had referred, and he had been present at an ordinary meeting no later than last week—surely a record in itself. Professor Wm. Carter, whom they were glad to see at that gathering, had also been a valued member for many years. Reference was made to the work done by the Association as a teaching body—a line of activity which they were still following with manifest advantage to pharmacy. Mr. Buck proceeded to give an outline of the legislative work promoted by the Association, and concluded by urging all chemists of the district to co-operate together in order that they might protect their joint interests and resist any attempt which might be made to curtail their privileges.

Professor J. HARVEY GIBSON, in a humorous speech, submitted the toast of

THE PHARMACEUTICAL SOCIETY.

and in the course of his remarks contended that it was high time that chemists recognised that they were members of a profession, and were not merely traders. He was strongly of opinion that pharmacy was a profession, and those who took up its practice should be trained professionally, and their education should be based upon lines similar to those which were necessary for entrance into the profession of medicine.

Mr. MARTINDALE, President of the Pharmaceutical Society, in responding to the toast, said: I have pleasant recollections of Liverpool. My first visit was forty-five years ago, when I stayed with a relative, a shipbroker. I therefore then knew this immediate district well—the Customs House, the Exchange, and the Sailors' Home are still familiar to me. Thirty years ago I attended the first meeting the Pharmaceutical Conference held here, and four years ago it paid its second visit, when, as its President, I

remember meeting most of you. My study and the hobby of my life has been pharmacy, rather than pharmaceutical politics, in which I have lately had to take an active part as a member of the Council of the Pharmaceutical Society, and now its President. The Council is now a more representative body than formerly, as all of you may become full-fledged members of the Society, with an equal voice in the election of its Council, and a seat thereon. The difficult problem most exercising the minds of the Council and of our calling at present is what is spoken of as company pharmacy, and

CLAUSE 2 OF THE COMPANIES BILL,

now under consideration by Parliament, and in regard to which divergent views are held by our supporters, according to the kind of business or profession they are carrying on. During the past six months the Council and its Law and Parliamentary Committee have had under consideration the serious question, "Can we be parties to the Parliamentary or legal regulation of, or restrictions on, companies engaged in the retailing and dispensing of medicines?" Part of retail pharmacy has been declared to be outside our 1868 Act; consequently there is a void, which the law lords wish to fill by bringing limited companies, which were not contemplated by this Act, within its purview. That is distasteful to us, and the majority of our members are opposed to such recognition of companies, as being equivalent to making a rope to hang ourselves with. They therefore decline the task. Still, the clause is for the regulation of company pharmacies in a Companies Bill, and it will have to be faced. To stop company trading in drugs I hold is impossible. As twenty years and more of vested rights have accumulated, it is unattainable; but we may consistently oppose the present Parliamentary action, for if part of the practice of pharmacy is lost to us, we certainly have the statutory right to our personal titles. All would recognise the claim of individuals to that which can only be obtained by personal qualification, examination, and registration, except a few of our men, who have themselves embraced the impersonal advantages of limited liability trading. The protection of the business, if actually conducted by a personally qualified manager, I fear, is gone beyond recall. So divergent are trade and profession in our calling that the Law and Parliamentary Committee of the Council, which consists of nineteen out of twenty-one members of the Council, failed to agree in drafting a clause or the substance of any amendment for one. When you come to think of it, this is not a thing to be surprised at. Even the Federation of Local Pharmaceutical Associations could not do so, but recommended two courses. How, therefore, could unanimous action on the part of the Council be possible? The Law and Parliamentary Committee approached the Government directly and indirectly to get at its views. With Mr. Carteighe I saw Mr. Ritchie, who gave us a direct negative to three issues which we put before him. We all would have liked

TO RESTORE THE PERSONAL QUALIFICATION

of the keeper of open shop. We therefore asked for:—

1. The restoration of the position of chemists as it was before the Selborne judgment—*i.e.*, stopping companies of unqualified persons practising pharmacy or its equivalent.

2. Pharmacists to be in the same position as other professions in Clause 3 of the Companies Bill. The accidental omission in our Act of any reference to corporate bodies placed all these professions in the same position. "Absolutely impossible," was Mr. Ritchie's reply, adding that the Government was merely regulating the condition of things existing at the present time. "There are plenty of your men," he said, "carrying on a dozen or more shops, and have their names exhibited over each. Is the public any better served or protected by that condition of things than by limited companies' shops, when it is not necessary at present to have the name of the manager posted up, which the Government propose to make compulsory in the case of a company?"

3. The third claim was the protection of our titles, which are purely personal, and can only be obtained by qualification and

examination. If titles were given to companies, they would eventually have to be given to individuals—that is to say, to any capitalists who could engage a qualified man, the qualified servant "covering" the unqualified master.

Mr. Ritchie was still obdurate. Hence there is no help from Government. The clause being the Lord Chancellor's, Mr. Ritchie said that he himself could not alter it. The Law and Parliamentary Committee and the Council considered, therefore, that it would be best to oppose Clause 2 in the Committee stage of the Bill. Our present position is considered to be better than it would be with Clause 2, and the Council thinks it would be better to amend the Pharmacy Act by special legislation hereafter if possible. I say "if possible," because we must first agree among ourselves as to the amendment, and then convince Parliament that it is for the public good, and not alone for our self-interest. There are great difficulties in the way. We have

THE "WIDOWS' CLAUSE."

It has been found impossible for years to pass Medical Acts for the benefit of the medical profession, and we have failed to get on to the floor of the House of Commons before with amended Pharmacy Bills. We must be reasonable and logical. Mr. Carteighe pointed out in 1891 (see *P. J.*, February 7, 1891, page 704) that as far back as 1883 the various members of the Government Department concerned had declined to listen to any proposal for doing more than regulate company pharmacy. Later, at the annual meeting of the Pharmaceutical Society (see *P. J.*, May 30, 1891, page 1,089), he said, "You must not lose sight of the fact that we are custodians of the public interest, and, as such, your President must regard the public in the first place, and the members of the Society and the trade in the second."

Those two speeches of Mr. Carteighe's are worthy of your careful study. Time has but intensified the position. I have approached several members of Parliament, with the same result. We must therefore not expect too much. Protection is against the spirit of the times, which is in favour of free trade

BRANDED AND PACKETED GOODS,

much advertised, and factory-made, put up in attractive guise, are a public convenience, which no law will prohibit. A dose of chlorodyne, for example, will relieve a stomach-ache if it fits the complaint, but will not effect a cure where a dose of castor oil or an aperient is necessary—hence the need of medical advice and the pharmacist's art. Remember, drugs are not always freely saleable without advertisement. Many are not even necessaries like food and clothing, and they are not attractive like diamonds or wedding garments, which cannot be sold in packets or tablets. If we push trade in drugs, we must likewise remember that we have the public weal and public health to consider. But we cannot have free trade in poisons, or careless dispensing of medicines. We must support the Lord Chancellor in endeavouring to prohibit that. The formation of pharmacy companies in that sense by company machinery, as at present done, should be stopped, and those at present carrying on our business must be subjected to restrictions. This will be a task for the new Pharmaceutical Council. One thing is quite plain: we cannot accept Clause 2 as it stands. It does not put us in a better position. The Minister in charge of the Bill will admit of no amendment, and even we are not agreed what the amendment should be. The clause is one to regulate company pharmacy in a Companies Bill. Protection, as I have said, is against the spirit of the times which affects legislation and even legal judgments. Still, the Council has decided in any case to oppose the clause, and, as it is out of place in a financial Bill, it will probably be dropped.

Dr. SYMES also responded to the toast, and said that if pharmacy is simply to be carried on for the sole purpose of making money, as would be the case under company pharmacy, then the progress which had been so marked in their calling during the past fifty years would become very slow indeed. He referred to the unselfish labours of those who strove to improve the practice of pharmacy,

and said that there would be no inducement for careful work and investigation, which was so pronounced in the case of the individual worker. The medical profession tells the pharmacist that it depends upon him for the advancement of pharmacy in the bringing out of new remedies and the perfecting of processes already known, and therefore they should expect their medical friends to support them in their present contentions.

Mr. J. HOCKEN gave the toast of

THE CITY AND TRADE OF LIVERPOOL

in a brief speech, in which he referred to the growth and improvement of both during the past few years.

Mr. ED. EVANS, jun., in replying, said that he was proud of being a citizen of Liverpool. Travelling as he did from time to time over the world he had opportunities of seeing other places, and he felt that they had every reason to be proud of their city in every way. As a rule the citizens as a body recognised their responsibility and duties—hence, they had hospitals, infirmaries, an art gallery, and a university of which any community might be proud. Nor was the city lacking in generous impulses otherwise, for he had been told by Lord Derby, when his lordship was Mayor of Liverpool, that he was surprised beyond measure at the readiness with which all philanthropic appeals in the city were met. As to the subject mostly in the minds of those present, he held that where the law required them to pass a certain curriculum for certain specific purposes, then the law should step in and protect them; but as to the ordinary trade he did not think that in these days the law would protect any body of men in that way, and for success the chemist must look more to his own business capacity.

In proposing the toast of

MEDICINE AND PHARMACY,

Mr. JOHN SMITH said that he was pleased to find the two callings grouped together, as he was strongly of opinion that it would be well for the medical profession and pharmacy to combine more to protect their mutual interests, as he clearly saw that the proposed company legislation would be the thin end of the wedge against the privileges of the medical men as well. It was therefore necessary to combine forces, and, if possible, resist the common foe. Professor CARTER and Mr. T. F. ABRAHAM briefly responded. The toast of "Our Guests" was proposed in a short speech by Mr. T. H. WARDLEWORTH, and Dr. BARNES, Mr. H. KEMP, and Mr. R. LORD GIFFORD responded. Mr. R. F. W. ROBINSON gave the toast of "The Officers of the Association," and Mr. R. C. COWLEY and the PRESIDENT responded. In the course of the evening an acceptable programme of music was contributed by Messrs. Tom Barlow, A. J. McCormack, and W. A. Hollis.

PHARMACEUTICAL SOCIETY OF IRELAND.

On Thursday, March 22, a special meeting of the Council of the Pharmaceutical Society of Ireland was held for the purpose of adopting an address to her Majesty the Queen on the occasion of her visit to Dublin.

The PRESIDENT, Mr. George Beggs, took the chair, and there were also present the Vice-President, Mr. J. J. Bernard; Mr. Grindley, Hon. Treasurer; Dr. Walsh; and Messrs. Wells, Simpson, Porter, Kelly and Michie.

The REGISTRAR, Mr. Ferrall, read letters from Mr. White, J.P. (Sligo), Mr. Turkington (Cookstown), and Mr. O'Sullivan (Waterford), members of the Council, regretting their inability to be present, and warmly approving of the object of the meeting.

The PRESIDENT moved, pursuant to notice, that an address of welcome be presented to the Queen on the occasion of her visit to Ireland, and in doing so said he had considered it advisable to summon that meeting in order that each member of the Council might have an opportunity of expressing his feelings in the matter. Personally, he thought they should not be keeping up to the traditions of their Society if they neglected to present a loyal address

of welcome to her Majesty. They presented an address on the occasion of her Jubilee; and as all the other learned bodies in the city, as well as the surrounding urban and county councils, were now doing so, he would be grieved and disappointed if the Council should not be unanimous in the matter. He had had several letters from members of the Council who were unable to be with them, but who approved of his action in the matter.

Mr. WELLS begged to second the motion of the President, and did so with pleasure. As a Council, they had no politics, though, of course, as men they held divers political opinions. Notwithstanding this he was glad to know that they were unanimous on the subject of the proposal now before them. The letters that they had from colleagues who were absent, and who held different opinions from those entertained by some of them, expressed thorough sympathy with the President's notice of motion. It was only right, especially at the present time, that they as a Society should show honour to their Queen, as they had done on other occasions. A noble and good woman, notwithstanding that she was at an age when the comforts of home were preferable, she was coming there to do honour to their country, and to show in a very marked manner her appreciation of the valour of her Irish soldiers who had fought so nobly for her cause. No further words of his (Mr. Wells) were needed to commend the motion to them.

The motion was put from the chair and unanimously carried.

GLASGOW AND WEST OF SCOTLAND PHARMACEUTICAL ASSOCIATION.

A special meeting of the trade was held in the rooms of the above Association on Thursday, March 22, to consider Clause 2 of the Companies Bill. Mr. W. L. CURRIE, President of the Association, occupied the chair, and there was a good attendance.

The CHAIRMAN explained that the Council of the Association had unanimously agreed to support the Council of the Pharmaceutical Society in opposing

CLAUSE 2 OF THE COMPANIES BILL.

By that clause it was proposed to legalise companies of unqualified persons and to confer upon them titles and privileges which clearly should not belong to any but individuals. The Council of the Pharmaceutical Society had failed to agree upon an amendment to the obnoxious clause, but had ultimately decided to oppose the clause as it stood. A united front at the present critical period meant everything and, while recognising that the Council had not toed the line as it ought to have done, the present necessity of the moment compelled him to support that body. At the same time he was of opinion that in doing so chemists should strongly impress upon the Council of the Society the absolute necessity of securing the restriction of titles to individuals and endeavouring to secure some effectual control and regulation of company pharmacy as the only practical policy. In his opinion, the total abolition of company pharmacy was utterly hopeless, and it was consequently a waste of time and energy to discuss such ideas. On the other hand, to confer the proposed privileges on companies was unjust to the trade, and would undoubtedly minimise the protection of the public. As a company could not be examined and registered, it should be unlawful for any company to assume and use any title implying registration. While they would have liked to see an amendment to the clause which would have been satisfactory to all parties, they had to remember that the President of the Board of Trade, who had charge of the Bill, was not prepared to accept any amendment—the clause must either be accepted as it stands or be dropped entirely. In the circumstances, chemists generally could do nothing else but support the Council of the Society.

MR. J. ANDERSON RUSSELL moved that in view of the position taken up by the Government in respect of Clause 2 of the Companies Bill, the meeting, as representative of the chemists and druggists of the West of Scotland, should resolve to oppose the

clause. From the public standpoint he thought it well that chemists should emphasise as strongly as possible the position taken up by limited companies at the present time. The adoption of the title of "chemist and druggist" by them was really in opposition to the law; but, unfortunately, there was nothing in the law which could be brought to punish them. By the abolition of the clause, chemists were simply seeking to retain their present position. With regard to the second part of the clause chemists had a difference of opinion, and it was just possible that it would be necessary to agree upon an amendment after all. Personally, he thought they should stick to their distinctive titles, just as the medicals had done; but at the same time they should not interfere with the financial means afforded by the Companies Acts in the running of a chemist's business, provided they had always individual responsibility. In that case the law would stand towards companies as it did at present towards the chemist and druggist. They should endeavour, however, to keep trade matters out of the Bill. If they were to amend the Pharmacy Act in that respect it should be done by a Pharmacy Acts Amendment Act, and not included in what was, after all, merely a financial measure.

Mr. J. H. RIDDLE having seconded the motion,

Mr. SUTHERLAND pointed out that the proposed resolution was simply destructive, and suggested nothing in the nature of amendment; but, so far as he was concerned, he did not see why the matter should be tacked on to the Companies Bill at all. It seemed to him that the intention of the Government was the regulation of company pharmacy—a very desirable thing, just as the regulation of pharmacy altogether was a most desirable thing. As the Chairman had said, it was almost useless to try and put a stop to company pharmacy altogether; more than that, he did not know it would be a benefit. Unfortunately for the trade, they had acquiesced in the existing position so long that it became very difficult to carry anything in opposition. Their policy ought to be to regulate company pharmacy in the same way as individual pharmacy.

Mr. MOIR said Mr. Ritchie's statement that he would accept no amendment made it clear to him that chemists must oppose the clause for all they were worth. But that did not necessarily mean that they should not go forward to Parliament with an amendment of the Pharmacy Act; a course, he understood, which some members of the present Government favoured. Companies, he was afraid, had come to stay; but if they were to accept Clause 2 as it stood it would give companies titles as chemists and druggists, and chemists would thus lose their only tangible recognition before the public. Whatever they might do to regulate company pharmacy they must conserve their titles. The Pharmaceutical Society ought to introduce a new Pharmacy Bill, and then it would be quite time to consider in what way company pharmacy should be regulated.

Messrs. Boyd, Gilmour, Dunlop, Harvey, and Maben having also spoken, the motion was ultimately carried.

It was also agreed, on the motion of Mr. RUSSELL, that there was urgent need for an amendment of the Pharmacy Act with special reference to companies, and the meeting appealed to the Council of the Pharmaceutical Society to introduce a Bill for that purpose at the earliest possible opportunity.

It was remitted to the Secretary and President to communicate with members of Parliament, and impress upon them the necessity of voting against Clause 2 of the Companies Bill, leaving it to individual members to take a similar course.

At the close of the meeting Mr. SUTHERLAND intimated that Mr. Currie had consented to allow himself to be nominated for a seat on the Council of the Pharmaceutical Society, and he urged on them the absolute necessity of seeing that they made use of their voting powers.

Mr. CURRIE said he would take an opportunity of laying his views before the electorate at an early date.

PUBLIC AND POOR LAW DISPENSERS' ASSOCIATION.

At a well-attended meeting, held at the St. Bride's Institute, Ludgate Circus, on Wednesday, March 28, Mr. T. H. W. IDRIS, L.C.C., took the chair, and said as one whose occupation in days gone by was dispensing, it gave him much pleasure to be present, and he hoped by his presence to gain a knowledge of who public dispensers were and their objects in forming an Association.

Mr. S. B. DONNAN read a paper on

THE PHYSIOLOGY AND CHEMISTRY OF DIGESTION.

The author dealt exhaustively with the subject in a paper of considerable length. Commencing with salivary digestion, he described the process of secretion of saliva and its action upon solid constituents. The action of the saliva was stated to be both physical and chemical, its physical use being to moisten the mucous membrane of the mouth, dissolve soluble substances in the food, the mucin contained in saliva lubricating the bolus of food to facilitate swallowing. The chemical action was said to depend upon the active principle ptyalin, a substance belonging to the class of unorganised ferments or enzymes, or to that special class of unorganised ferments known as amyolytic (starch-splitting) or diastatic. Ferments were next considered, and were divided into two classes—organised and unorganised. The first-mentioned class was subdivided into five classes—*i.e.*, amyolytic, proteolytic, steatolytic (lipolytic), inversive, and coagulative. Ferments were stated to act best at a temperature of about 40° C.; cold stopping their activity, but not destroying them, while too great a heat kills them. The chemical nature of the ferments, the author said, could not be definitely stated, but it was considered that they are either proteids or substances closely allied to them. Peptic digestion was then referred to, and the progress of food through the stomach closely followed. The gastric juice was described as a solution of a proteolytic ferment called pepsin in a saline solution, which also contains some free hydrochloric acid. The pure gastric juice was said to be clear and colourless, having a specific gravity of 1.003 to 1.006; dextro-rotary, giving no biuret reaction, but giving the ordinary proteid reactions. The author then dealt with bile and pancreatic digestion, tracing the passage of the "chyme"—food after the action of the gastric juice—from the stomach into the duodenum and on into the intestines; describing the process of absorption of the carbohydrates, proteids, and fats. The chemistry of the pancreatic juice and bile was discussed and the bacterial action which takes place in the intestines described, the paper concluding with an analysis of the fæces.

The paper was listened to with great attention, and a discussion followed, in which Mr. Russell, of Kensington; Mr. Clarke, Paddington; Mr. Spencer, Marylebone; Mr. Welford, Colney Hatch; Mr. Jones, Poplar; Mr. Forster, and others took part. In moving a vote of thanks to Mr. Donnan for his very instructive paper.

Mr. IDRIS said it must have cost much time and great pains to prepare, and it had afforded him much pleasure to be present to hear it. As a commercial man, his first thought would be how to turn it into money, and hoped those present would endeavour to make use of what they had learnt that evening. He related what he called a fairy tale of how a friend of his, a pharmacist, had made a fortune by making immediate use of what he had learnt at a similar meeting by stopping up all night to put it into practical shape. He also gave a description of how the London County Council purified the London sewage, so that when it ran into the river it was clearer than the water of the Thames itself.

A vote of thanks to Mr. Idris for his kindness in being present, moved by Mr. CLARKE, Paddington, and seconded by Mr. WELFORD, Colney Hatch, brought a very instructive and profitable meeting to a close.

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION.

At a meeting of the Committee of this Association, held at Blackburn on March 27, Mr. J. HINDLE in the chair, Mr. R. LORD GIFFORD reported that he had attended the annual dinner of the Liverpool Association last week and, in view of the speech delivered there by the President of the Pharmaceutical Society, the inactivity of the Council and the retrograde policy advocated in the official Journal, he thought the time had arrived for a straight issue. He had asserted that chemists were united in claiming that the full effect of the Pharmacy Act of 1868 was the least that should be secured for the exclusive exercise of the persons who had satisfied the legal requirements of the Council's official examiners. The privileges intended to be conferred by that Act were (1) the exclusive use of titles, (2) the keeping open shop for the sale of scheduled poisons, and (3) the selling or distribution of those poisons. At present such an anomalous state of things existed—caused through the Council's failure to conserve the rights of chemists—that the eminently practical Lord Chancellor had insisted upon the absolute necessity of reform. Argument as to whether the Lord Chancellor was friend or foe was, in his opinion, puerile and beside the question. Naturally, his lordship took things as he found them. It was their business to object that the present position was contrary to the Statute, that to recognise it would amount to a repeal of the Act of 1868 and confiscation of the legally acquired rights of qualified chemists; that it would destroy the essential principle of the Act—viz., personal qualification and personal responsibility; and that such recognition would be at once monstrous and iniquitous. The President of the Pharmaceutical Society practically said that because Mr. Ritchie said this, and the Lord Chancellor said that, chemists would have to compromise. He denied entirely the right of the President to adopt a policy of compromise. No compromise was possible in dealing with a principle. They either held fast by it or they gave it away, and he maintained that qualified chemists were not prepared to give up their rights at the bidding of anyone. Qualified chemists were chafing for a fight. They cried aloud to the Council for a strong policy and an uncompromising attitude. Why, then, was the Council afraid to show its hand? Why could not it cause every member of Parliament to be educated by his constituents in the elementary justice of their case? The Council proposed to do nothing until the Bill came before Parliament! It was reasonable to suppose if the Council sent out to the local secretaries and combinations of chemists, instructions as to approaching members of Parliament throughout the country and, at the same time, the Council claimed inclusion in Clause 3, the attitude of Mr. Ritchie and the Lord Chancellor might be a little more considerate to the illustrious pharmacist whom all chemists were proud to have occupying the presidential chair. The Dewsbury Association had invited him (Mr. Gifford) to address them on Monday next, and he would then go more fully into what he thought the most desirable policy for the Pharmaceutical Society to pursue.

CAMBRIDGE PHARMACEUTICAL ASSOCIATION.

A meeting was held at Dale's Assembly Rooms on Friday, March 23, to discuss the suggestions of the Federation of Local Pharmaceutical Associations regarding Clause 2 of the Companies Bill. Mr. A. SIDNEY CAMPKIN, J.P., presided, and a lengthy discussion ensued, after which it was unanimously resolved to oppose Clause 2 in its entirety. A resolution that Sir Robert Penrose Fitzgerald, Bart., M.P., should be asked to receive a deputation was also unanimously carried, and, in accordance with that resolution, a deputation, consisting of the President, Mr. Alderman Deck, F.C.S., and the two Vice-Presidents, Messrs. A. Sidney Campkin, J.P., and E. Saville Peck, B.A., waited upon Sir Robert Fitzgerald on Wednesday, March 28. Mr. A. Sidney Campkin explained to Sir Robert Fitzgerald the provisions of the proposed

Clause 2 of the Companies Act, and the injustice that would be created thereby to the whole body of qualified chemists, and explained in detail the collective opinions of the President and members of the Council, as well as those of the pharmacists throughout the kingdom, as expressed by speeches and resolutions. He explained the provisions of the Act of 1868, and urged opposition to the proposed clause, which he believed would represent the opinion of the whole of the registered chemists. Mr. E. Saville Peck followed, and also urged opposition to Clause 2. Sir Robert Fitzgerald gave an attentive hearing, asked many questions, and after an interview of upwards of an hour expressed his opinion as favourable to the views of the deputation, and stated that the subject should have his serious attention.

EDINBURGH AND DISTRICT CHEMISTS' TRADE ASSOCIATION.

At a meeting held on Wednesday, March 28, Mr. DAVID McLAREN in the chair, reference was made to the death of the Treasurer, Mr. William Burley, and it was agreed to send a letter of sympathy to his widow. The Chairman then read a paper entitled "Forty Years in the Drug Trade," after which

Mr. W. S. GLASS read a paper on

THE COMPANIES BILL.

He said that Clause 2 united Great Britain and Ireland in a safe measure of control and protection—control of company pharmacy and protection to chemists, inasmuch as companies would be brought within the provisions of the Pharmacy Act of 1868. Instead of being a nonentity, as at present, the manager would be regarded as the supreme authority in the shop over which his name was posted. The safety of the public would be provided for and the spirit of the Pharmacy Act carried out. It would bring the companies directly under the control of the Pharmaceutical Society. That would be a great improvement, as at present companies were outside the Pharmacy Acts. By placing companies in a responsible position, there would be a guarantee for due observance of the provisions of the Act. There would be the manager responsible to the company and the company responsible to the Society. Chemists should not reject the clause, but neither could they approve of companies using their titles. The title conferred qualification, and therefore could not be obtained by means of a substitute; but that difficulty was more theoretical than practical, as the company's title could only be held in conjunction with and in virtue of the title held by a qualified assistant or manager. If the clause could be amended to restrict the titles, so much the better. It would be better to have the clause as it was than none at all. But unfortunately there was little likelihood of the Council of the Pharmaceutical Society supporting the clause, and if that body opposed the Government in its endeavour to solve a difficult problem, the door of reform would be closed for ten or twelve years to come. The modified clause which he proposed would run thus:—

No company may carry on the business of a pharmaceutical chemist and druggist unless such business is *bona fide* conducted by a manager or assistant being a duly qualified pharmaceutical chemist, or chemist and druggist, and unless the name of the person so qualified is conspicuously posted in letters easily legible in the shop or other place in which the business is carried on, and unless any name or title implying registration under the Pharmacy Acts be taken, used, or exhibited only in connection with the name of the duly qualified manager or assistant aforesaid, but subject to this provision anything which would be an offence under Sections 1 and 15 of the Pharmacy Act, 1868, if committed by an individual shall be an offence if committed by a company.

The members of the Council of the Pharmaceutical Society had not been able to grapple with the situation. Blind leaders of the blind, they had brought about in the country a lack of unanimity, and had shown themselves totally incapable of occupying the position of leaders. The Council must be strongly urged to make up its mind on this company question, and past events ought to convince men of understanding that in regard to legislation companies might be controlled, but never could be stopped.

It was agreed to discuss the paper at an adjourned meeting.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Cera Alba.

WHITE BEESWAX is the wax separated from the honeycomb of the hive bee, *Apis mellifica*, Linn. (Order Hymenoptera), bleached by exposing thin bands of the natural yellow wax for several weeks to the action of air and sunlight, besides being watered from time to time and re-melted, if necessary, so as to expose fresh surfaces. Bleaching may also be effected by the aid of chemicals, such as chromic or nitric acid, but white wax so prepared is excluded by the official description. White beeswax has emollient properties, and is used in the preparation of Pilula Phosphori, Suppositoria Acidi Carbolici, Unguentum Aquæ Rosæ, and Unguentum Cetacei.

CHARACTERS AND TESTS.—White beeswax occurs in hard, nearly white, translucent masses, and should respond to the same tests as yellow beeswax. It is entirely soluble in oil of turpentine, insoluble in cold 90 per cent. alcohol, but soluble in about 100 parts of boiling alcohol; it is also soluble to a slight but variable extent in cold ether and in 10 parts of boiling ether.

NOTES.—The distinctive characters of white beeswax are its hardness, yellowish-white colour, and translucency. It may be adulterated with lard, tallow, paraffin, starch, or mineral substances, such as kaolin. Lard or tallow renders the wax soft and lessens its specific gravity; paraffin is not affected by sulphuric acid; starch and inorganic impurities are insoluble in oil of turpentine; moreover, starch gives a characteristic blue coloration when the wax containing it is boiled with water, and solution of iodine added to the cooled liquid.

Cera Flava.

YELLOW BEESWAX is a secretion formed by the hive bee, *Apis mellifica* (Order Hymenoptera), and used by that insect to make the walls of the cells of which the honeycomb consists. After the honey has been separated, the wax is melted with water, separated, and strained. It possesses emollient properties, and is chiefly used in medicine as an ingredient of plasters and ointments, preparations made with it keeping a long time without becoming rancid. When bleached by exposure to moisture, air, and light, it constitutes the official Cera Alba; it is also used in the preparation of Emplastrum Calefaciens, Emplastrum Cantharidis, Emplastrum Menthol, Emplastrum Picis, Unguentum Hydrargyri Compositum, Unguentum Picis Liquidæ, Unguentum Resinæ, and Unguentum Staphisagriæ.

CHARACTERS.—Yellow beeswax, when pure, is firm, breaking with a granular fracture; it is yellowish in colour, possesses an agreeable honey-like odour, and is not unctuous to the touch. It should dissolve readily and entirely in hot oil of turpentine, but should not yield more than 50 per cent. to cold ether, nor more than 3 per cent. to cold 90 per cent. alcohol. It is quite insoluble in water or boiling sodium hydroxide solution. The specific gravity of beeswax varies from 0.960 to 0.970, and its melting point from 62.5 to 64° C., the solidifying point being two or three degrees lower.

TESTS.—If beeswax contain fatty acids, resin, or Japan wax, those impurities may be detected by their solubility in boiling sodium hydroxide solution, the filtered liquids becoming turbid by the separation of free fatty acids, or even yielding a precipitate thereof, on adding hydrochloric acid. On melting 5 Gm. of beeswax in boiling 90 per cent. alcohol and mixing it therewith, not less than 1.6 C.c. of normal alcoholic volumetric solution of potassium hydroxide will be required to effect neutralisation, whilst upon adding 20 C.c. more of the volumetric solution and well boiling for one hour under a reflux condenser, from 6.2 to 6.8 C.c. should combine with the beeswax. This saponification test shows

the freedom or otherwise from paraffin, fats, etc. (see *P. J.* [4], 5, 286). Paraffin separates unaltered when 5 Gm. of beeswax containing it is heated for fifteen minutes to 160° C. with 25 Gm. of sulphuric acid, though the beeswax is completely charred by the acid. The absence of starch is indicated by the iodine test.

NOTES.—The distinctive characters of yellow beeswax are its consistence, colour, odour, solubility, specific gravity, and melting point. It consists of about 15 per cent. of cerotic acid, $C_{26}H_{53}COOH$, a homologue of acetic acid, and more than 80 per cent. of myricin or myricyl palmitate, $C_{15}H_{31}COOC_{30}H_{61}$, the palmitic ester of myricyl alcohol, $C_{30}H_{61}OH$, a homologue of ethyl alcohol. An aromatic body, cerolein, is also found in beeswax. Most substances used to adulterate beeswax affect its specific gravity and melting point. The adulterants usually met with include barium sulphate, kaolin, ochre, or other mineral substances, all of which are insoluble in hot oil of turpentine, as are also starch, flour, etc. Resin and stearic acid are soluble in 90 per cent. alcohol; soap dissolves in hot water, and the solution becomes cloudy on adding hydrochloric acid, owing to the separation of fatty acids; paraffin reduces the density of the wax and the amount of potassium hydroxide required for complete saponification, whereas lard, tallow, and other fats require more alkali to effect complete saponification than is needed in the case of beeswax. Aqueous solution of sodium hydroxide saponifies tallow, suet, Japan wax, fats, etc., but an alcoholic solution is required to saponify beeswax.

Cetaceum.

SPERMACETI is a concrete, fatty substance, which crystallises from the oil obtained from the sperm whale, *Physeter macrocephalus*, Linn. (Order Cetacea). The oil is contained chiefly in a huge cavity in the head of the whale, but also occurs in smaller cavities in the body of the animal. The crystalline matter deposited from the oil on keeping is separated by filtration, pressed, melted, and purified from the last traces of oil by washing with dilute sodium hydroxide solution, being subsequently separated from the soap produced and freed from excess of alkali. It possesses emollient properties, and is used in the preparation of Unguentum Aquæ Rosæ, Unguentum Capsici, and Unguentum Cetacei.

CHARACTERS AND TESTS.—Spermaceti occurs in crystalline, pearly-white, glistening masses, which are translucent, slightly unctuous to the touch, and have but little taste or odour. It can be reduced to powder by the aid of a little 90 per cent. alcohol. It is insoluble in water, nearly insoluble in cold 90 per cent. alcohol, but soluble in ether, chloroform, boiling alcohol, and in fixed or volatile oils. It should melt at 46° to 50° C., and not more than one drop of volumetric solution of sodium hydroxide should be required to neutralise 0.2 Gm. when dissolved in 20 C.c. of 90 per cent. alcohol. The latter test indicates the absence of stearic or other fatty acid. Stearic acid, if present, is also precipitated on boiling spermaceti with 90 per cent. alcohol, cooling the mixture, filtering to remove the separated spermaceti, and adding water to the filtrate.

NOTES.—The distinctive characters of spermaceti are its pearly, crystalline appearance, the minute quantity of fatty acid it contains, and the fact that 1 Gm. requires between 125 and 135 Mgm. of potassium hydroxide to effect complete saponification. It consists almost entirely of cetyl palmitate, $C_{15}H_{31}COOC_{16}H_{33}$, the palmitic ester of cetyl alcohol, $C_{16}H_{33}OH$, together with small quantities of closely allied homologous esters.

Chirata.

CHIRETTA or CHIRAYTA, is the dried plant, *Swertia chirata*, Ham. (N.O. Gentianeæ), an erect herb, indigenous to the mountainous districts of Northern India. The entire plant is collected when flowering is well advanced and many fruits are formed, dried, and made into bundles about a metre in length, and weighing from

700 to 900 grammes each. The drug possesses bitter tonic and stomachic properties, without astringency; it is used in the preparation of Infusum Chiratae, Liquor Chiratae Concentratus, and Tinctura Chiratae.



CHIRETTA.—A, inflorescence of *Swertia chirata*; B, longitudinal section of stem; C, detached flower, showing calyx; D, corolla laid open, showing nectariferous glands; E, ovary; F, transverse section of ovary. A and B, natural size; C, D, E, and F, enlarged.

CHARACTERS.—Chiretta has a smooth yellowish-brown or purplish-brown stem, about a metre in length, slightly winged and much branched above, and rounded below. It contains a large, continuous, easily separable pith, enclosed by a narrow ring of wood and a very thin bark. The slender, elongated branches are arranged in a decussate manner, *i.e.*, successive opposite pairs are at right angles to each other; the branches in turn ramify further and bear numerous flowers and fruits. The few leaves usually found in the drug are opposite and without stalks, ovate to lanceolate in shape, and taper-pointed. The surface of the leaf is smooth, the margin entire, and there are usually three to seven lateral veins. The flowers are officially described as numerous, though not many are present in the drug; they are small, with yellow rotate corolla, and paniced, the inflorescence being a paniced cyme. The superior unilocular or one-celled fruits are formed from two carpels, and contain numerous minute reticulated seeds. The drug has no marked odour, but an extremely bitter taste.

NOTES.—The distinctive characters of chiretta are the brown colour of the stem, large continuous pith, intensely bitter taste, opposite leaves, and bicarpellary, unilocular fruits. Other species of *Swertia*, which are sometimes found mixed with chiretta, can be distinguished from it by the first three characters; the other two serve to distinguish chiretta from plants belonging to other natural orders, such as *Andrographis paniculata*, Nees (N.O. Acanthaceae). The root of *Rubia cordifolia*, Linn. (N.O. Rubiaceae) has also been found enclosed in bundles of chiretta. The tapering root of chiretta attains a length of about 10 Cm., and may measure about 12 Mm. in thickness at the crown. It is less frequently branched than the stem, but always bears some rootlets. In stronger specimens the root is somewhat oblique, the stem in such cases being probably the product of a second year's growth.

Chrysarobinum.

CHRYSAROBIN is a substance obtained from Araroba or Goa powder (see *ante*, p. 141) by extracting the crude drug with chloroform, evaporating the solution to dryness, and powdering the residue. It consists chiefly of chrysarobin, $C_{30}H_{26}O_7$, associated with a varying quantity of chrysophanic acid, $C_{14}H_5(CH_3)(OH)_2O_2$. The drug possesses parasiticide properties and is used in the preparation of Unguentum Chrysarobini.

CHARACTERS AND TESTS.—Chrysarobin is a crystalline yellow, tasteless, inodorous powder. It is entirely soluble in hot chloroform and almost so in hot 90 per cent. alcohol, partially soluble in petroleum spirit, but only slightly soluble in water. The drug dissolves partially in potassium hydroxide solution, and assumes a deep brownish-red colour. It melts when heated with free access of air, giving off yellow fumes, and leaves not more than 1 per cent. of ash on incineration.

NOTES.—The distinctive characters of official chrysarobin or purified Goa powder are its appearance, solubility, and small percentage of ash. The chrysophanic acid it contains dissolves readily in dilute caustic alkalis, yielding deep-red solutions; chrysarobin, properly so-called, is less easily soluble, and is rapidly oxidised to chrysophanic acid when dissolved by a strong alkali, the solution turning from yellowish-brown to deep red, a change which may be hastened by passing a current of air through the solution.

Publications Received.

BEGINNER'S GUIDE TO PHOTOGRAPHY: Showing How to Buy a Camera and How to Use It. By a Fellow of the Chemical Society. Seventh edition, revised and enlarged (60th thousand). Pp. 219. Price 6d. London: Perken, Son, and Co., Limited, 99, Hatton Garden, E.C. 1900. From the Publishers.

INCOMPATIBILITY AND SOME OF ITS LESSONS. By WALTER G. SMITH, M.D. Pp. 36. Reprinted from the *Practitioner* for October, November, and December, 1899. From the Author.

DIE ROHSTOFFE DES PFLANZENREICHES VERSUCH EINER TECHNISCHEN ROHSTOFFLEHRE DES PFLANZENREICHES. Von Dr. JULIUS WIESNER. 1. Lieferung (bogen 1-10) mit textfigur 1-46. Pp. 160. Price 5 marks. Leipzig: Wilhelm Engelmann, 1900. From the Publisher.

Obituary.

BROWN.—On March 21, at Sutton Without, Thomas Brown, Chemist and Druggist. Aged 43.

FERRIDAY.—On March 21, Edwin Joseph Pitchford Ferriday, Chemist and Druggist, Birmingham. Aged 46. Mr. Ferriday was a life member of the Pharmaceutical Society.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

COMPOUNDS OF THE EMETIC SERIES.

Commenting on the results of the researches of Baudran and others, on tartar emetic and analogous compounds, L. Prunier points out that considerable light has been thrown upon these derivatives of tartaric acid, which present so many distinctive characters that he suggests the generic name of "emetics" for these bodies. When recently precipitated antimonious oxide is dissolved in the cold in tartaric acid, two acids, either mono-antimonio-tartaric acid, $\text{COOH}-\text{CHOH}-\text{CHOSbO}-\text{COOH}$, or diantimonio-tartaric acid, $\text{COOH}-\text{CHOSbO}-\text{CHOSbO}-\text{COOH}$, may be obtained, according as one or two molecules of antimonious oxide are present. In both these only the two alcohol groups enter into the reaction, both the acid groups remain free. On saturating one of the acid groups of mono-antimonious acid with potassium hydrate a typical "emetic" is obtained. In a similar manner diantimonio-tartaric acid gives an analogous body on mixing, in solution, one molecule with a molecule of neutral potassium tartrate, thus, $\text{COOH}-\text{CHOSbO}-\text{CHOSbO}-\text{COOH} + \text{COOK}-\text{CHOH}-\text{CHOH}-\text{COOK} = 2(\text{COOH}-\text{CHOSbO}-\text{CHOH}-\text{COOK})$. Similarly constituted "emetics" may be obtained by substituting arsenic or bismuth for antimony. Not only so, but other metallic oxides and hydrated sesquioxides, such as those of iron and alumina, and also boric acid, combine in a similar manner.—*Bull. Soc. Chim.* [3], **23**, 101.

NEW STAINS FOR GONOCOCCUS.

Pick's stain for gonococcus consists of Ziehl's carbol-fuchsin, 15 drops; concentrated alcoholic solution of methyl blue, 8 drops; distilled water, 20 C.c. Stain cold for ten seconds, wash, dry, and mount. The gonococcus is stained deep blue, other bacteria light blue, cell nuclei lighter blue, protoplasm pink. Lanz's stain consists of saturated solution of fuchsin in 2 per cent. aqueous phenol, 10 C.c.; saturated solution of thionin in 2 per cent. aqueous phenol, 30 C.c. Mix, stain for fifteen to thirty seconds, and wash with water. Gonococci are stained by thionin, and nuclei take both colours. Both solutions should be freshly prepared.—*Inter. Med. Mag.*, **9**, 53.

CARBOHYDRATES OF LUCERNE AND FENUGREEK SEEDS.

The so-called galactine which Muentz isolated from the seeds of lucerne is, according to Bourquelot and H. Hérissey, really a mannogalactane, yielding on hydrolysis practically equal quantities of mannose and galactose. Fenugreek seeds yield an analogous substance, which, however, is less soluble in water and yields relatively more mannose and less galactose than the product from lucerne seeds. Both these carbohydrates are hydrolysed by semiase. They are extracted by macerating the ground seeds with excess of solution of lead acetate, removing the excess of lead with oxalic acid, and precipitating the carbohydrate from the aqueous filtrate by the addition of alcohol.—*Comptes. rend.*, **130**, 731.

CRYSTALLINE BISMUTH OXYALS.

By heating the amorphous precipitates of the oxychloride and oxybromide of bismuth with a large volume of water in the presence of excess of hydrochloric or hydrobromic acid, so as to dissolve the precipitate, and then allowing the solution to cool, A. de Schulten obtains the respective oxyalts in a definite crystalline form. BiOCl and BiOBr thus obtained, occur in clear, colourless, quadratic crystals. The oxyiodide, BiOI , on the contrary, crystallises as the temperature rises, in the form of clear copper-coloured crystals, when a solution

of bismuth oxide is dissolved in excess of hydriodic acid, then diluted with a large volume of water and warmed on the water bath. If a considerable excess of acid be not present, black crystals of bismuthous iodide will be formed.—*Bull. Soc. chim.*, **23**, 156.

ANIMAL FERMENTS.

Further experiments with the ferments of horse kidney have shown E. Abelous and E. Gérard that not only does that organ contain an oxydase and a reducing diastase (*P.J.* [4], **10**, 41), but that the latter also has, in an atmosphere of hydrogen, the power of converting nitrobenzol into phenylamine. That action explains the formation of bases in the organs of animals, and confirms the opinion of A. Gautier that they are formed in the tissues, particularly in the anaerobic cells, apart from any action of putrefactive germs. The fact of the co-existence of the oxidising and reducing ferments, and the predominance of the latter in the absence of oxygen, explains the increased formation of organic bases, when the energy of the reactions brought about by oxidation is diminished, as is found to be the case in certain diseases.—*Comp. rend.*, **130**, 420.

CELLULOSE TETRACETATE.

This ester is prepared by heating a mixture of molecular proportions of cellulose with magnesium or zinc acetate and 2 molecular weights of acetyl chloride, and eventually with acetic anhydride. Nitrobenzol (as a solvent) is gradually added to the acetylising mixture, the greater part being added at the last, when the temperature is highest. The reaction is represented by the following equation:—

$$\text{C}_6\text{H}_{10}\text{O}_5 + \text{Mg}(\text{C}_2\text{H}_3\text{O}_2)_2 + 2\text{CH}_3\text{COCl} = \text{C}_6\text{H}_8\text{O}_5(\text{C}_2\text{H}_3\text{O}_2)_4 + \text{MgCl}_2 + 2\text{H}_2\text{O}$$

Cellulose tetracetate is insoluble in alcohol, ether, and acetone, but soluble in chloroform, in glacial acetic acid, and in nitrobenzol. It separates from the latter as a transparent jelly; it is not acted on by alkalis nor by strong acids. It differs from nitrocellulose in not being explosive, and may be used as an insulator for electrical purposes.—*Pharm. Centralh.*, **41**, 68.

CONSTITUENTS OF EAST INDIAN SANTAL OIL.

M. Guerbet has isolated the following constituents from East Indian santal oil. Two sesquiterpenes α - and β -santalene, $\text{C}_{15}\text{H}_{24}$; two corresponding sesquiterpene alcohols α - and β -santalol $\text{C}_{15}\text{H}_{26}\text{O}$; an aldehyde, *santalal* $\text{C}_{15}\text{H}_{24}\text{O}$; *santalie acid*, $\text{C}_{15}\text{H}_{24}\text{O}_2$; *teresantalie acid*, $\text{C}_{10}\text{H}_{14}\text{O}_2$; also small quantities of more volatile bodies of powerful odour, present to the extent of only 0.2 to 0.3 per cent. of the oil, but to which the greater part of the aroma is due, since the other constituents, except santalal, are almost odourless. α -Santalene has the following characters:—Boiling point, $252^\circ-252^\circ.5\text{C}$.; sp. g. 0.9134 at 0°C . rotation $-13^\circ 98'$; β -santalene boils at $261^\circ-262^\circ\text{C}$., has a rotation of $-28^\circ 55'$ and sp. g. of 0.9139 at 0°C . The mixture of the two alcohols, α and β -santalol, which have not yet been separated, varies in rotation from $-9^\circ 4'$ to $-25^\circ 3'$. *Santalal* boils at 180°C . under 40 Mm. pressure; it is a colourless oily liquid with a powerful pungent odour. It gives a crystalline semicarbazone melting at 212°C . *Santalie acid* boils between $210^\circ-212^\circ\text{C}$. under 20 Mm. pressure. It is a weak acid resembling campholic acid in its characters and affords crystalline salts. It may also be obtained by the oxidation of *santalal*. *Teresantalie acid* is a solid body which crystallises from alcohol in large colourless prisms, melting at 157°C . It boils at 183°C . under 28 Mm. pressure. It is liberated from the alkaline salts, after the saponification of the esters, by treatment with sulphuric acid, when *teresantalie* and *santalie* acids separate as an insoluble layer, while acetic acid and a trace of formic acid are found dissolved in the aqueous layer. *Teresantalie acid* is volatilised by steam distillation whereas *santalie acid* remains behind. The oil of santal employed for the research had the sp. g. 0.9674 at 0°C . and its optical rotation was $-21^\circ 1'$.—*Comp. rend.*, **130**, 417.

NOTES ON THE B.P. STANDARDISATIONS.*

BY JOHN A. DEWHIRST, PH.C., F.C.S.

When one turns to the chemical and pharmaceutical literature concerning the determination of alkaloids in plants and their preparations, one is struck by the great amount of work that has been done on the subject, by the great similarity of the numberless processes suggested, and again by the conflicting accounts of the efficacy or otherwise of the latter. The differing constituents of a particular species of plant, according to the nature of its surroundings during growth, the time of collection, the strength of alcohol used in making the extract or tincture, and the varying methods as to heat, etc., employed by manufacturers, account for this discrepancy to a large extent. The "personal equation" of the analyst has a good deal to do with it. Details of manipulation employed by one, but considered too unimportant for publication, make his process quite unworkable by another, and hence arise the multitude of processes. After all, we are dealing with only one class of chemical substance, and consequently one process only might be expected to suffice for all cases. Speaking broadly, it does. Chloroform is undoubtedly the best all-round solvent of alkaloids, and when a liquid preparation containing one or more of them is made alkaline and shaken with it in two or three quantities, the alkaloids are extracted. Subsequent treatment of this chloroform solution with acidulated water extracts them again, and leaves colouring matters and other substances in the chloroform, whilst the alkaloids are now in a fairly pure condition in the aqueous solution, and can be dealt with according to the particular preference of the analyst. They can be precipitated by various reagents, such as tannic acid, picric acid, iodine, mercuric or bismuth iodides, in presence of potassium iodide, phosphomolybdates, or sulphovanadates, filtered off and weighed, or the precipitate decomposed and the alkaloid extracted in a pure condition. Or they may be titrated with standard solutions of the above. The results, however, are not reliable in most cases, and in the others there seems no advantage over the simpler method of titrating the alkaloid residue with standard acid. Prescott has devised some rather elaborate methods of determination by precipitation with standard iodine, filtering off an aliquot part, and titrating the excess of iodine with thiosulphate. The somewhat uncertain composition of the iodine compound, and in cases the extreme dilution of the alkaloidal solution, probably introduce more error than in the above simpler method.

A recent suggestion for the easy titration of coloured alkaloid residues consists in the use of an ammoniacal solution of copper oxide. Dissolve 10 Gm. of copper sulphate in 500 C.c. of water, add ammonia till the precipitate first formed is nearly dissolved, filter and dilute to a litre. Titrate a portion of this with standard acid to the formation of a persistent turbidity, and note quantity used. For a determination 0.1 Gm. of alkaloid is dissolved in 20 C.c. dilute H_2SO_4 , the flask placed on a black surface, and the ammoniacal copper solution added to persistent turbidity. This shows the amount of acid left uncombined with the alkaloid.

Unfortunately, when the preparation to be standardised is shaken with chloroform and ammonia, troublesome emulsions are usually formed which make the process either impracticable or a matter of days. This difficulty is largely overcome by a preliminary treatment with acid and chloroform which removes some objectionable emulsifying matter. Indeed, the principle of shaking with ammonia or other alkali and the solvent in the first place may be considered as superseded by the acid method. Other solvents, such as ether, benzene, petroleum ether, and amyl alcohol, separate from alkaline solutions better than chloroform, and they may be employed with the acid method, but as final extractors of alkaloid from alkaline solutions they are, with the exception of amyl alcohol, unsatisfactory. Amyl alcohol has the disadvantage of a high boiling point, and it requires heat and a reduced pressure or

strong current of air to evaporate in a reasonable time and leave the alkaloidal residue in a condition suitable for weighing or titration. It is a recognised custom now to use only small quantities of the galenic for standardisation, and the resulting small quantity of alkaloid cannot be satisfactorily weighed in a comparatively large dish, which is condensing moisture from the air and getting heavier every moment. Moreover, time is taken up in drying the alkaloid perfectly, and in some cases one must be careful not to allow the temperature of the oven to rise above a certain point. All this is tedious and unnecessary. A fair idea of the alkaloidal yield is usually possessed by the operator, and a better check is obtained by a parallel determination.

BELLADONNA.

Taking the Pharmacopœia standardisations in alphabetical order, we come to Belladonna first. The B.P. method—shaking the liquid extract with chloroform and ammonia—produces intractable emulsions. To avoid them Alcock has proposed a method which is a great improvement. He first shakes out with acid and ether, and then with a mixture of ether and chloroform in the proportion of one to two or more, with the addition of ammonia. The separations occur fairly readily, but, in my experience, ether or any mixture of it with chloroform is an incomplete solvent of alkaloid in this case and others. A subsequent shaking with chloroform alone will always extract a further small quantity. Bird's preliminary shaking with chloroform and acid is excellent, and on treating with ammonia and chloroform the separation takes place even better than in Alcock's process. Bird recommends that the full B.P. process be then gone through, but this is not necessary. If the final chloroform is washed with a little water, the residue of alkaloid obtained on spontaneous evaporation is as crystalline and colourless as when the full B.P. method is followed. It is necessary to wash the first acid chloroform with a little water and add it to the bulk of the aqueous liquid, and then the alcohol of the preparation need not be removed as Wilson requires.

Dowzard has suggested a process involving the use of sand, percolation and the taking of an aliquot part of the solvent. The extraction by percolation through sand is not easy, using a reasonably small quantity of solvent, and the taking of an aliquot part is always an uncertain method.

CINCHONA.

Taking now the cinchona determinations. With respect to the tincture and liquid extract, we have the treatment with potash and benzolated amyl alcohol. This, again, produces an emulsion. A more satisfactory method is the preliminary with acid and ether, subsequently with ammonia and ether-chloroform (1:2) twice, and finally with chloroform alone. The minimum of emulsion occurs, and the alkaloid is completely extracted. Stenhouse's method of extraction with mixture of ether and chloroform in proportion of 9 to 1 gives a low result.

I think the process for determining the alkaloids in the bark needs revising. It is easy to get 500 C.c. of amyl alcohol by digestion and percolation, and then this quantity is directed to be extracted with 14 C.c. of acid water until all alkaloid is removed. This is not readily done. A considerable quantity of acid is used. This has to be neutralised with ammonia, and the liquid concentrated to 16 C.c. Now, at this degree of concentration there is a good proportion of ammonium chloride present, and a sticky brownish deposit forms, containing much alkaloid. The crystals of the tartrates mix with it, and cannot be got out of the vessel on to a filter paper. A volume of 24 C.c. appears to be low enough. A rough experiment with known weights of the alkaloids gave a sufficient weight of precipitate, and at this volume the brown deposit does not form.

At best, however, the process is a large undertaking, and one dealing with smaller quantities would be a great improvement.

EXTRACTUM IPECACUANHÆ LIQUIDUM.

The B.P. determination of this is a more vexed question than any other. There have been many suggested modifications. First we

* Read at a meeting of the Chemists Assistants' Association, March 29, 1900.

have Wilson's, which relies on ether-chloroform—equal parts—to extract all the alkaloid. Moreover, he ignores the alkaloid in his acid chloroform. Then we have Farr and Wright's, which produces bad emulsions. They have a quick method of extracting direct with chloroform and ammonia, and titrating the residue. Again, bad emulsions are formed, the residue is needlessly impure, and how they get a lower titration value by a simpler process I don't understand. The inference is that by going through two more operations more alkaloid is picked up from somewhere. Their purification by means of iodine gives an alkaloid by no means free from colour. This, and the fact that no solvent removing the whole of the alkaloid does so without taking up colour, and that the titration value does not come up to the weight, seems to point to the presence of coloured alkaloid—like that in cinchona—with a high molecular weight.

Naylor and Bryant's No. 4 process is an advance, but they do not direct the washing of the acid chloroform, and emulsion also occurs. Alcock's appears the quickest and best, yielding the highest result.

Farr and Wright's statement that in titrating the residue the end point is sharp and precise, is not confirmed by Henderson, Bird, or general experience; but I cannot agree with Henderson that weighing is superior to titration, whether the alkaloids are in unchanging proportion or not.

Bird stoutly upholds the B.P. process with the modification of heating the lead precipitate to cause aggregation and facilitate washing, but I fear the process will not be generally used, official though it is. The question arises whether the use of another process is allowable, but the B.P. states that the extract must contain 2 to 2½ grains of the alkaloids in 110 minims, and then directs the use of a process which might result in the production of an extract containing more than 2½ grains.

NUX VOMICA.

I have never had any particular difficulty with the B.P. process for the extraction of the alkaloids from Ext. Nucis Vom. Liq., but Alcock proposes his ether method here also, and I have no doubt it works quickly. I would suggest, however, that he washes his ether solutions.

The ferrocyanide process for the separation of strychnine and brucine is unsatisfactory. It has been pointed out that the concentration of the alkaloid solution is greater than that employed by Dunstan and Short, but even when this is remedied the fact remains that both alkaloids are precipitated, and that no amount of washing will separate them. If washing be continued till bitterness ceases no alkaloid is left, and if it be stopped at any point the resulting alkaloid is found to contain brucine in an uncertain quantity. It is very unsatisfactory to weigh as strychnine what you afterwards prove to contain brucine. The nitric acid process is the most accurate. Use the B.P. process as far as the extraction with 30 C.c. of acid water. Concentrate this to one half; add 1 C.c. of nitric acid (1.42). In an hour make alkaline with ammonia, and extract with chloroform. Test experiments made with known quantities of strychnine and brucine yielded 100 per cent. of strychnine when carefully done. A source of loss exists in the violent decrepitation of the strychnine on crystallising if due precautions are not taken. The brucine used in these experiments proved to contain the merest trace of strychnine.

Another process is recommended, using KMnO_4 as the oxidising agent in place of nitric acid; but an acid solution of strychnine decolorises the permanganate to some extent, and therefore loss appears inevitable.

OPIMUM.

In the case of opium no less a quantity than 14 Gm. is directed to be used in standardisation. This is an absurdly large quantity, and in the case of the tincture one-seventh of the volume made is so employed. This must be a ruinous quantity for a retail man, and the B.P. is carefully compiled in these matters from the retail man's

point of view. The filtering off of an aliquot part of the aqueous solution has undoubtedly been proved erroneous, and the allowance of a certain fixed amount of alkaloid for waste is an admission of error. The fact is, that the quantity of morphine left in solution varies. I have found in it more than twice the amount allowed.

It appears to me that a process on the following lines would be an improvement. Take 10 C.c. of the tincture, add 0.5 Gm. of lime. Warm to cause aggregation. Filter and wash. The morphine is quickly all washed through. Shake the liquid twice with benzene, washing the latter with a few C.c. of water. This benzene on evaporation gives a considerable residue of alkaloid, from which lime-water extracts the merest trace of morphine. Then add ammonium chloride and a little ammonia to the aqueous solution, and shake out with hot amyl alcohol. If this is not done quickly the morphine crystallises out and is soluble with great difficulty in the amyl alcohol. The latter is easily evaporated with gentle heat and a stream of air through the containing flask. The residue is rather dark-coloured, but it can be titrated with ease in the B.P. manner, using litmus paper.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Society's Library and Museum.

The question of opening the Society's London Library in the evening appears to be becoming somewhat acute, judging from the number of protests that have been entered against the rule at present prevailing, and the matter is one of sufficient gravity to merit serious consideration. As the Editor has pointed out, it was for a time customary to keep open the Society's premises at Bloomsbury Square until 10 p.m. every day except Saturday, but the time of closing has gradually crept back, until the Library and Museum are virtually not open in the evening at all. I refer here to the Museum because we must not lose sight of the fact that the Museum is affected by the recent decision of the Committee, as well as the Library, so that it is now impossible for any London assistant or apprentice to refer to materia medica specimens or books after 6 p.m., which in most cases means not at all, as comparatively few can get away from business for a sufficient length of time during the day. The seriousness of the position is obvious, and it would be interesting to know whether the Library and Museum Committee had any evidence to justify its action in the matter, except the usual attendance statistics. I say advisedly "except" statistics, for I know well how easy it is to prove almost anything by means of figures. But no member of the Society who ever has occasion to use the Library or Museum seriously, and finds himself permanently excluded because he cannot attend before 6 p.m., is likely to be conciliated by the production of figures proving that he and other members have not maintained the average nightly attendance above a certain point.

The Necessities of the Case.

The truth is that members and students who only have their evenings free have a much greater claim to consideration than appears to have been recognised. An individual who is so limited as regards time, and entitled to make use of the Society's Library or Museum, may not have occasion to attend more than once or twice a year, but it may be a matter of the highest importance that he should be able to gain admittance on those occasions, and, to me, it appears hardly reasonable that he should be prevented by the existence of a somewhat arbitrary rule. If all libraries and museums were permanently closed during certain hours because of the small attendance during those hours, there would never be any occasion for some of them to be open at all. I am disposed to think that if the members had been asked to state their views on this subject, when the Society's premises were kept open till 9 p.m., a very different arrangement

from the actual one would prevail at the present time. Any question about unduly prolonging the hours during which the Librarian and Curator are in attendance need not arise. Indeed, it is well known that it has not been customary for the Curator to be in attendance after 6 p.m., though much useful work has been done in the Museum after that hour. With a satisfactory reference catalogue, such as does not now exist, there would be almost as little reason for detaining the Librarian until a late hour. But the main point appears to be that attention should be paid, in the first place, to the necessities of members and students of the Society. And that can hardly be said to be the case at present, having regard to the fact that so many are absolutely precluded from taking advantage of the facilities offered.

The Case of Carbolic Acid.

The figures quoted in last week's *P. J.* from the Registrar-General's latest report are decidedly satisfactory, as showing how comparatively few accidental deaths and suicides are caused by poisons over the distribution of which pharmacists are enabled to exercise some measure of control. Unfortunately, the same cannot be said of the position in respect of other poisons, and more particularly of carbolic acid. It is not many years since fatalities due to the misuse of that poison were as uncommon as those caused by other unscheduled substances, but the possibilities offered by carbolic acid have been so well advertised by the lay Press that it has become one of the most fashionable means of terminating existence, whilst its vastly increased use for so-called disinfecting purposes has helped to swell the total of accidental poisoning cases to an enormous extent. If carbolic acid were included in the list of scheduled poisons, the position in both respects would be very different, but vested interests have so far thwarted all efforts to protect the public efficiently against its misuse. The Council of the Pharmaceutical Society has repeatedly taken action in the matter, but the Privy Council has declined to follow suit and, as a result, carbolic acid maintains its high record as a destroyer of human life. To show to what an extent that is the case, I propose to quote statistics, in spite of what I have already written concerning the sometimes unsatisfactory nature of such evidence. In the present instance, however, no other evidence is available.

A Comparison of Figures.

I have therefore, taken the trouble to pick out from the Registrar-General's dry-as-dust reports for the five years 1894 to 1898 inclusive, figures showing the total number of deaths by poisoning in England and Wales. The result appears in the following table:—

Year.	Accidents.	Suicides.	Murders.	Man-slaughters.	Total.
1894.....	588	501	2	0	1091
1895.....	598	580	6	0	1184
1896.....	619	472	2	0	1093
1897.....	691	504	3	1	1199
1898.....	620	494	2	1	1117
1894-98	3116	2551	15	2	5684

We see that the total number of deaths caused by poison during the five years was 5684, of which 3116 were the result of accident; 2551 cases of suicide, and 17 of homicide. Comparing those figures with what are recorded in respect of carbolic acid, we get the startling result that between one-sixth and one-fifth of the deaths caused by poison were officially attributed to that one article. The figures for carbolic acid are given in the second table.

Year.	Accidents.	Suicides.	Murders.	Man-slaughters.	Total.
1894.....	34	167	1	0	202
1895.....	34	224	3	0	261
1896.....	34	163	0	0	197
1897.....	43	176	0	0	219
1898.....	37	169	0	0	206
1894-8	182	899	4	0	1085

Carbolic acid, that is to say, caused 1,085 deaths during the five years, including 182 accidental cases, 899 suicides, and 4 murders. The suicidal cases preponderate largely, it will be observed, and it seems impossible to resist the impression that, if carbolic acid were not so easily obtainable, the number of such cases must be largely diminished. It may be urged that if carbolic acid had not been available, those 899 unfortunates would have adopted other means of shuffling off the mortal coil, but that assertion is of doubtful value and incapable of proof. In any case, it would be merciful to close such an unpleasant avenue of escape from mundane troubles; death need not be preceded by intolerable torture.

The Photographic Business.

I understand that this week's issue of the *P. J.* will contain the usual annual Photographic Supplement, the object of which is to convey practical up-to-date information in photographic matters to pharmacists who eke out their modest income from the practice of pure pharmacy by the sale of cameras, lenses, and appliances and materials used in connection therewith. The amateur photographer is the individual usually catered for, but some business may occasionally be done with local professionals. In that connection, let me warn my fellow craftsmen to beware of giving too long credit. As regards prices, most professionals expect a little discount, and some are not above saying that they get a much bigger discount from one's business opponents. But, as a rule, it is wise to pay no attention to such remarks. In this connection, it may be stated that the Photographic Plate and Paper Makers' Association, which includes almost every leading firm, has laid down certain fixed rules, which, if they are broken by anyone and the fact be brought to notice, leads to the somewhat summary and unpleasant penalty of a stoppage of supplies. The rules relating to the sales of plates, papers, and films in the United Kingdom are that those articles shall only be sold (1) in original unopened packages; (2) retail, not under manufacturers' published list prices; (3) to professional photographers, with not more than the following discounts:—PLATES AND FILMS (rollable films excepted)—£2 per month, 5 per cent.; £5 per month, 7½ per cent.; £10 per month, 10 per cent., with 5 per cent. extra if the account be paid on or before the last day of the following month. The discount allowed on the quire of printing-out paper (or its equivalent in cut sheets or bromide paper) and upwards is not more than 10 per cent. When sales of less than £2 worth of plates or 1 quire of paper are made for cash to a professional, no discount may be allowed; but, when such a customer's total cash purchases during the month are £2 or over, he may be credited with the discounts as per scale on production of his invoices at the end of the month.

The Association Worthy of Support.

Some may grumble and say they don't see why they should not sell how they like, but I can say from experience that the Association has done an enormous amount of good by stopping the cutting of retail prices, and by the wholesale trade giving retailers a living profit where, in many cases, they formerly got none. It is true that, in some few cases, the rulings of the Association are hard,

but was there ever a set of rules that did not press hardly here and there on someone or other. All communications about the Association should be made to the "Secretary," Photographic Manufacturers' Association, London Chamber of Commerce, Eastcheap, London, E.C. I may state briefly what the other rules of the Association are. Carriage will be paid by the manufacturers on £5 (net) worth of plates and papers, or on £4 (net) worth of paper only, to dealers direct, or to professionals on dealers' orders; but not to dealers on dealers' orders, and on all amounts within Carter, Paterson, and Co.'s district. Dealers are not permitted to allow more than the manufacturers' trade discount, *i.e.*, no cash or counting house discount is to be allowed by one dealer to another dealer or shipper. Dealers' terms may be allowed to chemists and other traders, after careful inquiries, but no manufacturer or dealer may allow more than the foregoing terms to any photographer (whether he is also a dealer or not) without the consent of the manufacturers signing the agreement. Finally, photographic plates, papers and films must not be sold off at clearance sales at reduced prices, except with the consent of the Association, and under certain conditions, which may be ascertained from the Secretary.

The President and the Companies Bill.

It appears to me that, in his Liverpool speech (see *ante*, p. 351), the President of the Pharmaceutical Society has at last freely and fully explained the pharmaceutical position as it presents itself to him. Can that be because Mr. Martindale does not anticipate occupying the chair a second year, and he has, therefore, taken the opportunity afforded by the Liverpool meeting to sing his presidential swan song. Be that as it may, there is now no uncertainty about the position he takes up, and he is apparently as hopeless of solving the company pharmacy problem as the most enthusiastic promoter of companies of unqualified persons could desire. In effect, he tells us that it is impossible to stop company trading in drugs, or to restrict the business to duly qualified individuals, and that it may even be difficult to prevent companies using our statutory titles. Mr. Ritchie, as representing the Government, was asked to restore the position of chemists to what it was understood to be before the Selborne judgment, and to treat pharmacy in the same manner as the professions included in Clause 3 of the Companies Bill. But that, according to Mr. Ritchie, is impossible, and he also proved "obdurate" when he was pressed to regard the titles as sacred. Finally, he professed his inability to alter Clause 2 in any way, because it is the Lord Chancellor's clause. In the circumstances, therefore, there is nothing for it but out and out opposition to the Clause if it is brought up for discussion in the House of Commons, and the Council could not reasonably have decided upon any other course. I note, also, that Mr. Martindale appears sceptical about the possibility of amending the Pharmacy Acts in the desired direction; in fact, the best he could say upon that point consisted of quotations from speeches by Mr. Carteighe, in which we were virtually told that nothing could be done. Such may or may not be the case, but I would again urge that something ought to be attempted. If we make an honest attempt to remedy matters and fail, we shall then definitely know the worst. As things are, we remain in a state of cruel uncertainty, and the sooner that is past the better for all concerned. The experience of the promoters of the Midwives Bill should go far to prove that the House of Commons is not so strongly opposed to the protection of professional qualifications and titles as is generally supposed. Our chief difficulty, however, appears to consist in persuading the Government and legislators generally that we are entitled to claim recognition as members of a professional body, and it may possibly be the work of many years to establish our position as such.

POLITICAL GOSSIP.

AS A MODEL of what a regulating Bill should be, the Midwives Bill, now rapidly progressing through the House of Commons, presents points for the consideration of those who contemplate the preparation of a new Pharmacy Acts Amendment Bill. In the first place the clause protecting the title of midwife is much more thorough than the corresponding clause in the Pharmacy Act. From and after January 1, 1903, it is prescribed that no woman (the male practitioner is left to the care of the Medical and Apothecaries Acts) who is uncertified under the proposed provisions shall "take or use the name or title of midwife (either alone or in combination with any other word or words), or any name, title, addition, or description implying that she is certified under this Act, or is qualified to act as a midwife." No loophole there for the "cash midwife" or the other species of adjectival evaders familiar to the administrators of the Pharmacy Acts. But that is not all, practice is protected, though not so rigorously, and a very useful tag is added to the penal clause in the shape of a prohibition against the employment of unqualified assistants. No woman qualified to practise is to be permitted to "employ as her substitute or assistant an uncertified person"; that is an exceptionally effective conservation of public interests, which might advantageously be applied to the practice of pharmacy.

STRANGE TO STATE, the argument "what are the aspirants for qualification to do?" has not, as yet, been urged against the above cited clause. Further good points about the Bill are the provisions for annual registration, and for the exercise of disciplinary control over certified practitioners. A woman may pass the prescribed examinations and receive her certificate of competency, but unless she is licensed by the proper local authority (which formality will cost her one shilling a year) she may not practise. A £2 penalty emphasises this point. Then, as to disciplinary powers, the licence may be revoked by the supervising authority if the holder infringes any of the very elaborate set of regulations which the Bill empowers the Central Board to frame. A final admirable characteristic of the measure is that it proposes to make the public pay for its own protection, *i.e.*, the cost of administration is to come partly from Imperial and partly from local sources. Naturally there are weak spots in the Bill, but the drafters of a new Pharmacy Bill do not need reference to bad models. The further consideration of the Bill will probably not be taken until after Easter.

PATRIOTIC PICRIC, it is gratifying to know, is being used for the manufacture of high explosives destined for the destruction of the Queen's enemies. Replying to Sir Charles Dilke on Tuesday, Mr. Powell Williams stated that with the exception of a small quantity recently ordered to meet present urgent demands, all the supplies of picric acid obtained for both land and sea service have been manufactured in various parts of this country.

THE COPYRIGHT BILLS (H. L.), which differ very slightly from those before Parliament last Session, have gone—like their predecessors—to a Select Committee, and that body has just decided to take its evidence and print, but not publish, it. It has been ordered that no copies of the evidence are to be delivered except to members of the Committee. Those are the Lord Chancellor, Lords Selborne, Knutsford, Monkswell, Farrer, Davey, Balfour, Hatherton, Thring, Welby, and Avebury—a very powerful combination of legal, artistic, literary, and scientific wisdom, strengthened with a backing of sound common-sense. It was understood that Mr. Samuel Clemens—more widely known as Mark Twain—had evidence to give to the Committee, and perhaps that may account for the restriction in the circulation of the Proceedings. The noble investigators probably

desired to keep to themselves the good things "The Innocent" might deliver in speaking his piece! But, if so, the attempt has proved a failure, since a report of his evidence has appeared in the daily papers.

THE EASTER RECESS is expected to commence on Tuesday next and terminate on the 26th inst., on which day the House will resume business. Our expectations, therefore, that the Companies Bill would not be taken before the recess appear likely to be realised. Mr. Ritchie is not being permitted to forget that Clause 2 is distasteful to at least fifteen thousand persons in Great Britain, and he is represented to have manifested a perfectly natural disinclination to make a move with the Bill until necessity compels. It is down for Thursday, 5th inst., but its inclusion in the long list of orders of the day is a purely formal proceeding, since Thursday is set aside for the Railways (Prevention of Accidents) Bill, as well as for the completion of the debate on the Municipal Trading Committee.

THE BOILERS' COMMITTEE was set up on Monday, and comprises the following members:—Sir W. Arrol (S. Ayrshire), Mr. Crombie (Kincardine), Mr. Emmott (Oldham), Mr. Fenwick (Wansbeck), Sir J. Fortescue-Flannery (Shipley), Mr. Galloway (S.W. Manchester), Sir E. Gourley (Sunderland), Mr. Hazell (Leicester), Mr. Heath (N.W. Staffs), Sir A. Hickman (Wolverhampton, W.), Sir W. Houldsworth (N.W. Manchester), Mr. M'Ghee (Leuth, S.), Mr. Penn (Lewisham), Col. Pilkington (Newton, Lancs.), and Mr. Renshaw (Renfrew, W.).

ANOTHER SHOPS BILL is announced. This time it is from Mr. Steadman (Stepney), who on Friday, March 30, introduced a Bill to amend the Shop Hours Act, 1892. With reference to the other measures on the same subject, Mr. Kimber has joined the list of objectors to Sir C. Dilke's Shops Bill, and has added a fourth "block" to the notice paper, whilst Sir S. Montague has told the Whitechapel District Board of Works that he will also oppose the further passage of the Bill. Mr. Provand's Shop Hours Bill has also received obstructive notice, Mr. McLaren (Bosworth) having expressed his sentiments on the matter by placing against it the usual motion for a six months' adjournment.

THE ASSAY OF OFFICIAL ANTIMONY COMPOUNDS.

BY F. H. ALCOCK.

Reference has on more than one occasion been made in the journals to the difficulty experienced by operators when ascertaining the purity of the above by the official volumetric method by reason of the precipitation of the antimony in the form of $Sb(OH)_3$, unless the operation be conducted rapidly. Mr. J. R. Allen, representing the student, has communicated to his fellow students through the *P. J.* (see September 2, 1899, page 233) some remarks showing how the difficulty may be lessened.

Squire's 'Companion' calls attention to the same in the following words:—"The alkali must be added not long before the titration, or the antimony will be precipitated." Professor Attfield's 'Manual' gives the same warning: "The whole operation should be conducted quickly, or a precipitate of antimonious hydroxide will be formed, and it is only when in solution that the antimony is properly attacked."

In view of this real difficulty some experiments have been made in the endeavour to find some plan which will make the process more suitable, especially for the busy pharmacist and student. After many trials, which need not be mentioned here, it was found that the following process can be confidently recommended for trial:—

Antimonium Tartaratum.—Weigh one gramme, add 50 cubic centimetres of water and 10 grammes of Rochelle salt, and finally add, after solution, two, three, or more grammes of the sodium bicarbonate and make up to a suitable volume—say 100 cubic centi-

metres—and operate upon an aliquot part, 20 cubic centimetres being quite enough.

In order to ascertain how long this solution may be kept without precipitation of the antimony or anything else if the salt is pure, a solution was made as above, but the dilution was made to 250 cubic centimetres and the salt weighed 0.9 gramme. For 25 cubic centimetres, on January 25, 1900, there was required 5.4 cubic centimetres of a solution of iodine; and on February 19, 1900, the same result was again obtained and no precipitation had occurred; again on February 27 and March 19 and the original figure was the same; on the last date confirmation was obtained by several workers independently. It should be stated that the liquid was kept in a stoppered bottle lying on its side, and the same solution of iodine—which had been carefully preserved—was used for each experiment.

Antimonii Chloridi Liquor.—5 cubic centimetres were put into a quarter-litre stoppered flask, and to it were added some water and 10 grammes of Rochelle salt and vigorously agitated until the solution became clear, further diluted, and then excess of sodium bicarbonate added *gradually* (owing to the intense acidity of this liquid as ordinarily sold), and finally made up to the mark. A large excess of sodium bicarbonate does not appear to affect the result. On February 19, 1900, 5 C.c. of this solution required 1.7 C.c. of a solution of iodine; February 27, 25 C.c. required 8.5 C.c.; March 19, this occasion gave same result. It was observed that a few brown flocculi appeared on the last-named day which was shown to be ferric hydrate.

To the operator not familiar with this reaction it will be necessary to say that as the iodine solution gets towards the end of the process it acts less energetically than at the beginning, and it is best to stir well and wait half a minute or so, to ensure that the blue colour of the iodine-starch is permanent. After a time he will find by the use of open dishes that mucilage of starch may be discarded and reliance placed upon the yellow tint of the surplus iodine used, for which he can deduct an equivalent from his reading. It is found that this tinctorial power of iodine solution (B.P.) is very great—0.2 C.c.—imparting a distinct yellow colour to one litre of pure distilled water. In reading the burette when it contains such dark liquids as iodine, the student will find that the top line is the best to read from unless the instrument is between his eye and a good light, when the lowest line is the best.

Antimonii Oxidum.—In one experiment 1 Gm. of this was made into tartar emetic by warming with 2 Gms. cream of tartar and water added, then 10 Gms. Rochelle salt, excess of sodium bicarbonate, and solution made up to 200 C.c. Of this, 20 C.c. required 13.5 C.c. B.P. volumetric iodine solution, representing 96.6 per cent. of oxide (nearly). This solution was not clear; the turbidity, however, was found to be due to the calcium tartrate in the cream of tartar, which only contained 92.3 per cent. real potassium hydrogen tartrate.

In a second experiment the gramme of oxide was converted into chloride by the action of diluted hydrochloric acid, then to the clear liquid were added 10 Gms. Rochelle salts, excess of sodium bicarbonate, and diluted with water to measure as before 200 C.c.; of this 20 C.c. required 13.50 C.c. of the iodine solution also. This plan appears to be better than the official one, because the solution is easily made without the use of heat, and it is almost immediate, and the resulting solution is of course free from turbidity, there being no calcium tartrate present. These two solutions were exposed to the free action of air for twenty-four hours, and there was in the one only the calcium tartrate precipitate, and in the other (the chloride solution) the faintest turbidity derived from the sodium bicarbonate. The antimonium tartaratum solution first referred to was also filtered from the trace of iron precipitate, and the clear solution freely exposed to the air for forty-eight hours, when not the slightest turbidity made its appearance. The plan suggested may be, therefore, recommended.

INCOMPATIBILITY AND SOME OF ITS LESSONS.*

BY WALTER G. SMITH, M.D.

Ex-President Royal College of Physicians, Ireland; Physician to his Excellency the Lord Lieutenant; King's Professor of Materia Medica and Pharmacy, School of Physic, T.C.D.

PART II.—SPECIAL. (Concluded.)

EXPLOSIVE AND INFLAMMABLE COMPOUNDS.

Many dangerous and some fatal accidents have happened through carelessness or ignorance of first principles, and I propose now to adduce the more important examples which have occurred in practice.

An explosion may be defined as a sudden and stormy decomposition, attended with noise, and frequently with flame.† It is evidently a non-reversible action.

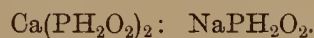
Danger may arise from dealing with either—

(a) Unstable single molecules.

(b) Processes of rapid and violent chemical reaction between two or more substances.

I. UNSTABLE MOLECULE, *i.e.*, one containing a store of energy in a condition of stress. This energy is liable to be suddenly liberated, with evolution of much heat:

(i.) Hypophosphites of calcium and sodium:—



These salts are likely to explode when simply heated or triturated. A druggist who was engaged in drying some calcium hypophosphite over a sand-bath was killed by the explosion.

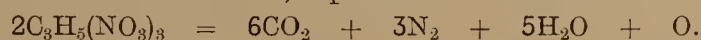
Calcis hypophosph.....	ʒss.	| M. Ft. pulv. vi.	One 3 times a
Potass-chlorat.....	ʒss.			day.

When separately powdered and carefully mixed, they were being removed from a glass mortar by a metal spatula, when they suddenly exploded and half stunned the dispenser, blowing off some of his eyebrows and eyelashes (*Ph. Journ.*, 3rd Ser., xi. 506).

(ii.) Picric acid and picrates. *Lyddite* is a mixture of picric acid and gun-cotton.

(iii.) Nitro-glycerin (trinitrine).

May explode when shaken or agitated. The *Liq. trinitrini B.P.*, when diluted with water, and let stand, deposits a liquid of oily consistence, one drop of which, absorbed by paper and struck with a hammer on a hard surface, explodes.



(iv.) Erythrol tetranitrate.

An accident by which a chemist lost his life happened at a tabloid factory in Deptford in 1897. He was engaged mixing tetranitrate of erythrol with finely powdered lactose in a mortar, when an explosion occurred.

A medical man was sent a sample specimen of the same drug. He carelessly threw the bottle containing it into the waste-paper basket. Next morning the basket was emptied into a dust-pan containing hot ashes. An explosion ensued; the cook was partially stunned, and received about two dozen small wounds on the hands, arms, and face.

Mannitol hexanitrate explodes violently on being struck with a hammer, or when suddenly heated.

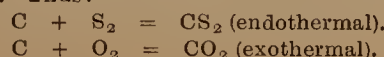
(v.) Iodide of nitrogen.

The chemical nature of this compound has been already explained.

It is extraordinary that combinations of *Liq. ammoniæ* and *Tinct. iodi*, or *Liq. ammoniæ* with *Tinct. iodi* and collodion, have been recommended as safe for external use, for serious accidents have occurred (Kobert).

* Reprinted, by permission, from the *Practitioner*. Concluded from page 337.

† It has been shown in the General Part that Berthelot's law of maximum work has limitations. Thus:—

II. RAPID CHEMICAL ACTION, *i.e.*, oxidation or reduction.

This mode of action is naturally observed, chiefly in connection with compounds rich in disposable oxygen; *e.g.*, chlorates, iodates, nitrates, chromates, permanganates, and peroxides.*

(a) *In the dry state*—

It is dangerous to triturate potassium chlorate or nitrate with—

(a) Free sulphur, or Pulv. glycyrrh. co. (contains 1 in 12 of sulphur);

(b) Antimonious sulphide; †

(c) Finely divided carbon, *e.g.*, in dentifrices.

(d) Tannin, *e.g.*, catechu.

A mixture of Pot. chlorate, ʒiss., with ʒiiss. of tannic acid, was rubbed in a new Wedgwood mortar with a rough surface. A violent explosion occurred.

(e) Sugar: Saccharin.

(f) Hypophosphites. This is very dangerous.

A young pupil rubbed up a mixture of 2¼ parts of hypophosphite of calcium, 3¾ parts of potassium chlorate, and ¼ part of lactate of iron. Suddenly the whole mixture took fire, and there was a violent detonation. The young man received such severe burns that his life was endangered.

(g) Mercuric oxide detonates if rubbed with iodol.

(b) *In the liquid or moist condition.*

(i.) Nitric acid acts violently upon phenol, creosote, and on some volatile oils, *e.g.*, *Oleum terebinthinæ*.

Sawdust has been set on fire by spilling strong nitric acid upon it.

A mixture of nitric acid, hydrochloric acid, and *Tinct. nucis vom.* exploded after some hours (Kobert).

(ii.) Chromic acid, CrO_3 , if concentrated, will set fire to glycerin or alcohol.

Such a prescription as this should not be dispensed:—

Ac. chromici	ʒss.	| For external use. †
Glycerin	ʒiv.	

or Ac. chromic., glycerin. alcohol, equal parts.

(iii.) Potassium permanganate can likewise ignite glycerin or alcohol, and detonates when rubbed up with *Confect. rosæ*.

Ext. nuc. vom.	gr. ½	| The pill mass, when triturated in a	
Ext. aloes aq.	gr. 1		| mortar, exploded.
Pot. permangan.	gr. 1		

An unlucky apothecary attempted to dispense the following formula:—

Pot. permangan. }	10 parts	Scarcely had the bottle been corked	
Alcohol }	15 "		when an explosion took place, and the
Distilled water.....	15 "		
		the surprised pharmacist. He nearly	
			lost the sight of one eye, and was dis-
		month.	

(iv.) Iodine reacts violently upon, and may inflame, some volatile oils, *e.g.*, *Ol. terebinth.* and *Ol. limonis*.

A medical man set about manufacturing terebene by acting upon oil of turpentine with pure sulphuric acid. An explosion followed and burnt his clothes. Worse would have happened but that he had taken care to envelop the bottle in a towel.

(v.) Oxide of silver, freshly precipitated, develops much heat when rubbed up with creosote, confection of roses, or extract of gentian. Occasionally pills containing the oxide have exploded

* True peroxides develop peroxide of hydrogen (H_2O_2) with acids, and should be distinguished from dioxides (*e.g.*, MnO_2) which form salts with acids.

† The following prescription was presented at a pharmacy in New York:—

Lactis sulphuris.....	gr. iij.
Antimon. sulph. aurant.....	gr. iii.
Zinci valerian.....	gr. i.
Potassæ chlor.....	gr. ij. Ft. pulvis.

This cannot be dispensed without an explosion.

‡ A dispenser dissolved the chromic acid in a little water, added the glycerin, and shook up the mixture. Explosion ensued and scattered the contents of the flask.

several hours after dispensing. Silver oxide also forms a very explosive compound with Liq. ammonia.

(vi.) Potassium chlorate + tinct. ferri perchlor. + glycerin, when warm is liable to explode.

This event happened in the pocket of a patient who carried a bottle containing this mixture.

Another time a similar mixture exploded under the influence of the solar rays and set fire to the house.



A curious accident happened in London. A man who was packing capsules of amyl nitrite broke some of them by chance, and the wrapping wool, soaked with the liquid, was thrown out of the window. It happened to fall through a grating beneath which was an open barrel containing chlorate of potassium, which, on contact with the amyl nitrite, blazed up, and nearly set fire to the building.

(vii.) Peroxide of sodium (Na_2O_2).

This substance, a light yellow powder, is now an article of commerce, and is prepared on the large scale by the action of air upon metallic sodium at 300° . It is used for bleaching.

When added to water it develops much heat and liberates oxygen:—



This reaction has been utilised in the study of the respiratory function in animals in a confined space. The products, viz., oxygen and caustic soda, are precisely those necessary to absorb CO_2 , and replace it by oxygen. Calcium peroxide (CaO_2) has been suggested by Nencki and Zalesky as an intestinal antiseptic.

If some of the peroxide be wrapped in muslin, or in cotton wool, and water be dropped upon it, the whole bursts into flame.

The peroxide at once sets glycerin on fire, and if added to commercial formalin a very violent explosion occurs.

This latter experiment should be performed only with small quantities.

A bandage which had been soaked in solution of peroxide of hydrogen ignited when dry.

NEW REMEDIES.

COPPER OINTMENTS FOR GLANDULAR ENLARGEMENTS.—Hoppe some time ago recommended the application of cupric oxide ointment for enlarged glands of the neck. The ointment was composed of copper black oxide, 1; lard, 8. Mosler employs the following:—Cupric oxide, 2; vaseline, 14. This is applied with friction until it causes papular eruption, which, if caution be not used, may go on to actual ulceration of the skin. Luton has used the following application for scrofulous glands. Neutral cupric acetate, 15 grains; vaseline, 1 to 3 ozs.—*Therap. Gaz.* [3], 16, 31.

IODOL-PERU BALSAM OINTMENT.—This ointment having the following composition, iodol, 1; Peru balsam, 1; vaseline, 10; is unsatisfactory on account of a black colour developing due to the combination of a trace of free iodine with the Peru balsam. This may be obviated by the addition of sodium thiosulphate, 0.1, dissolved in a few drops of water.—*Osterr. Zeits. für Pharm.*, 14, 2.

ARGONIN, AIROL AND PROTARGOL SOLUTIONS.—On account of the difficulty of dissolving argonin in cold water, and since, if heat be applied, the substance is liable to decomposition, it is proposed first to mix the argonin with an equal weight of glycerin, and to dissolve the thin paste thus obtained in hot water; this prevents decomposition. Solutions of aïrol and protargol may be prepared in the cold by mixing the drug 5, with glycerin 35, and water 10.—*Pharm. Post*, 33, 33.

PRACTICAL NOTES AND FORMULÆ.

Cooling Ointments.

In the *Monats. für prakt. Derm.* Unna gives formulæ for various ointments. *Zinc sulphur-kieselguhr paste*: Zinc oxide, 3; sulphur, 3; siliceous earth, 2; lanoline, 4; rape oil, 2; distilled water, 6. *Cooling ointments* may be prepared as follows, with a cold cream basis:—(1) Cold cream, 4; magnesia carbonate, 1; or (2) cold cream, 2; starch, 1. (3) Vaseline may be employed for the same purpose. Magnesium carbonate, 1; distilled water, 2; mix and incorporate vaseline, 2. The carbonate is first rubbed down with the vaseline, and the water afterwards added. Dilute solution of lead acetate or lime water may be substituted for the water, and a glycerin fat for the vaseline. The following formulæ for *soft zinc pastes* are also given:—

	(1)	(2)	(3)
Linseed oil.....	1	2.5	2
Lime water	2	2.5	2
Zinc oxide	3	2.5	4
Prepared chalk	3	2.5	2

A much employed ointment consists of a mixture of equal parts of the soft zinc ointment and sulphur zinc ointment, composed of zinc oxide, 3; precipitated sulphur, 2; siliceous earth, 1; benzoated lard, 14. Ichthyol preparations, not miscible with the soft zinc ointment, are perfectly miscible in this mixture.—*Pharm. Centralh.*, 41, 66.

Superfatted Cod Liver Oil Soap.

Dr. Rohden recommends this soap for external application in tuberculosis. It is prepared by mixing an odourless soft soap with 20 to 40 per cent. of cod liver oil, and if desired with 10 to 20 per cent. lanolin glycerin.—*Pharm. Centralh.*, 40, 707, after *Therap. Monatsh.*

Banana Juice as Ink.

This juice is recommended as a sympathetic ink. When used for writing on paper it is as invisible as water, but develops when heated. It may also be used for marking linen. The linen is marked first with legible ink and then traced with the juice; the former washes out while the latter develops. It may also be used for horticultural zinc labels. It seems strange that this property has not been noticed previously, as bananas are so much used.—*Pharm. Cent.*, 40, 416.

Spray for American Blight on Apple Trees.

Where a tree is so large that it cannot be freed from American blight by scrubbing with paraffin emulsion, the following alkaline spray applied by means of a knapsack spraying machine, before the buds begin to show signs of bursting, will remove the blight. Dissolve caustic soda, 1 lb., and pearlash, 12 oz., in about 1 gallon of water, pour it into 10 gallons of water, and add soft soap, 10 oz., previously dissolved in hot water.—*Garden*, 57, 18.

Honey Cream.

Spermaceti, 60 Gms.; almond or nut oil, 480 Gms.; are digested with gamboge, 3.75 Gms., for twenty minutes. Verbena oil, 10 drops; cassia oil, 20 drops; bergamot oil, 3 drops; rose oil, 3 drops are added, and the mixture thoroughly rubbed together.—*Pharm. Post*, 32, 721.

Gripping Lubricant for Driving Belts.

One part of caoutchouc minutely divided is heated to 60°C ., with 1 part of rectified turpentine oil; when dissolved, 1 part of ceresin is added and also melted. In another vessel 2 parts tallow and 5 parts train oil are melted together, and both portions are mixed together.—*Pharm. Central.*, 40, 449, after *Neueste Erfind und Erfahr.*

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, APRIL 4, 1900.

Present:—

MR. WM. MARTINDALE, President.

MR. G. T. W. NEWSHOLME, Vice-President.

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

The minutes of the last meeting were read and confirmed.

The Waterall Legacy.

Mr. ATKINS said, arising out of the minutes, he had to announce that he had complied with the instructions of the Council with regard to the Waterall Legacy, and had purchased £1,000 of Consols. He would remind the Council that the particulars of the scheme would be found in the transactions of the last Council Meeting, at p. 258 of the Journal.

The late Mr. James Watt.

The PRESIDENT said he had to report the death since the last meeting, of Mr. Jas. Watt, pharmaceutical chemist, at Haddington. In 1853 he became a member of the Society, and acted as local Secretary from 1870 down to the present time. For six years he was a member of the North British Executive, and for four years was a member of the Council, from both of which offices he retired in 1889, owing to age and infirmity. On the death of his younger son, who conducted his business some two years ago, he took as partner a former apprentice, Mr. W. P. Wilson, who now became sole proprietor. They would all remember Mr. Watt's genial face, the wise and sage advice which he always gave, and the lively interest he took in all that pertained to the business of the Council. He had been married about fifty-one years, and he and Mrs. Watt, who survived him, celebrated their golden wedding about eight months ago. He had nine children, including two sons, the elder of whom, Mr. Frank Watt, was a barrister, practising in London, who had made a name in literature, amongst his books being a 'Life of John Bright' and 'Picturesque Scotland.' Mr. Watt was greatly respected by all who knew him, as a man of high principle. A few weeks ago he appeared to be in better health than he had been for many years, but he was suddenly struck down by a paralytic stroke about a fortnight ago, and passed peacefully away on Sunday, March 11, at the ripe age of 78. He would move—"That this Council records its appreciation of the services rendered to the Society and to pharmacy by the late Mr. James Watt, of Haddington, a member of the Society for nearly fifty years, and local secretary for thirty years, who served for six years on the Executive of the North British Branch, and for four years on the Council of the Society. The Council, comprising many of his former colleagues, desires to tender its expression of regret and sympathy to his family."

The VICE-PRESIDENT briefly seconded the resolution. He said the late Mr. Watt's colleagues on the Council would remember him as a very thoughtful and careful man.

Mr. ATKINS wished to express his very great respect for the deceased gentleman, having known him for many years.

The late Mr. William Burley.

The PRESIDENT said information had been received of the death of Mr. William Burley, of Edinburgh, a member of the Executive of the North British Branch. The deceased gentleman was a comparatively young man, from whom good work in the future might reasonably have been expected.

Election of Members.

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

Bennett, Frederick, W. M.; Arbroath	Holroyd, Asa; Wibsey
Bickford, Harding; Kennington	Innes, William Rome; Port Gordon
Bolus, George; Spittal	Jesson, Albert Robert; Birmingham
Broad, Henry Reynolds; Gloucester	Leggott, Harry; Hull
Carnegie, James; Swindon	McGhie, John Knowles; London
Carr, Hugh Livingstone; Wrexham	Mackie, George; Edinburgh
Chambers, John; Cheltenham	Marshall, Robert; Tayport
Charnley, Arthur Walker; Blackburn	Milne, Alexander; Maud
Cochrane, Alexander; Grangemouth	Mitchell, Thomas Robert; Colombo
Collins, Alfred; Llandudno	Oliver, John; Southsea
Crook, Thomas; Blackburn	Pae, Archibald Thos.; Stenhousemuir
Dallow, Charles Ernest; Birmingham	Pickup, Ralph; Blackburn
Earl, Frederick Greenwood; Pendleton	Priestley, Dawson Smith; Bradford
Eaton, Tom Wilcox; Reading	Rhodes, Joseph; Mirfield
Edwards, Henry Charles; Hastings	Robinson, John George; London
Ewell, Ernest William; Dover	Robinson, Percy; Norwich
Fletcher, Richard Bewley; Eastbourne	Simpson, Bertram; Sheffield
Fowles, Frederick William; Brighton	Smith, Walter Woodhouse; Doncaster
Francis, John; Wood Green	Stead, Thomas; Bradford
Gair, Duncan; Cononbridge	Sturdy, Thos. Tyerman; Sheffield
Gibbs, Harold Rodier; Southsea	Vaughan, Edward Edwards; Rhyl
Girdler, Arthur Thomas; London	Vint, Thos. Dickinson; Hastings
Greaves, William Thos.; Nottingham	Wallis, Sydney Wilson; Brixton
Greenhalgh, Edmund P.; Bolton	Webb, George; Hitchin
Hemming, Francis Harry; Beeston	Wilford, John Henry; Nottingham
Hesketh, Thomas Arthur; Croydon	Wright, George; Chesterfield

Election of Student-Associates.

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

Buckner, Harry; Whitstable	Illsley, Thos. Henry; Barnard Castle
Chambers, Maxse W.; New Watnall	Irvin, John Wallis; Hartlepool
Christopher, John Martin; Stamford	Paton, Andrew Hunter; Ayr
Christopher, Richard T.; Sleaford	Peake, Walter Henry; Twickenham
Donaldson, George; Cullen	Robertson, Donald Wm.; Pickering
Eason, Samuel Bainbridge; Liverpool	Taylor, Arthur Camden; London
Glaholm, William; Jarrow	Wade, Alfred; Leeds
Hudson, Chas. F.; Ash next-Sandwich	White, Thos. Redford; Long Eaton
Hutchens, Hugh Pashley; Holt	Wigginton, Harold A.; Warrington

Restorations.

The names of the following persons, who have severally made the required declarations and paid a fine of one guinea, were restored to the Register of Chemists and Druggists:—

Joe Seels Boulton, 275, Liscoard Road, Liscoard.
John Francis, 15, Crescent Road, Alexandra Park, Wood Green, N.
Francis Rice Jennings, 24, Broadway, Maidstone.
William Alfred Townsend, York House, Salisbury Road, Chatham.

Several persons were restored to membership upon payment of the current year's subscription.

Nominations for Council.

The SECRETARY reported that he had received *twenty-six* nominations in respect of the seven vacant seats on the Council, and that the following *seventeen* nominees had expressed their readiness to accept office if elected:—

Bateson, Thomas; Kendal	Grose, Nicholas, M.; Swansea
Campkin, Algernon S.; Cambridge	Hills, Walter; London
Cooper, Albert; London	Morrison, John W. T.; Tring
Cross, William Gowen; Shrewsbury	Pickering, Charles E.; London
Currie, William Little; Glasgow	Storror, David; Kirkealdy
Gibbons, Walter; Manchester	Symes, Charles; Liverpool
Gifford, Richard L.; Blackburn	Taylor, John; Bolton
Gostling, George Jas.; Stowmarket	Warren, William; London
	Wootton, Alfred C.; London

The following *nine* nominees had not expressed their readiness to accept office:—

Bowen, John William; London	MacKenzie, James; Edinburgh
Howie, W. Lamond; London	Reid, James; Dumfries
Ince, Joseph; London	Taylor, George S.; London
Kerr, Charles; Dundee	Umney, Charles; London
	Wright, Robert E.; London

Nominations for Auditors.

The following nominations had been received for Auditors:—

Butt, Edward Northway; London	Stacey, Samuel Lloyd; London
Lescher, Frank Harwood; London	Umney, Charles; London
	Yates, Francis; London

The following *four* nominees had expressed their readiness to accept office:—

Butt, Edward Northway; London	Umney, Charles; London
Lescher, Frank Harwood; London	Yates, Francis; London

Mr. S. L. Stacey had not expressed his readiness to accept office. The Council, pursuant to the provisions of Bye-law 4 of Section V., nominated for election as an Auditor in May next,

Hodgkinson, Charles; London,

he being eligible for election, and having expressed his willingness to accept office.

Mr. CARTEIGHE approved the nomination of Mr. Hodgkinson, who, he said, had been associated with the Society for many years. Those who knew Mr. Hodgkinson knew he was a man of common sense and tact.

The proposition was carried.

Dr. Stevenson's Report on the Examinations.

The SECRETARY read the following report from Dr. Stevenson:—

Report on the Examinations held by the London Board of Examiners of the Pharmaceutical Society of Great Britain during the year ending March 31, 1900.

To the Lords of the Council,

My Lords,—I have the honour to report for your information that during the year ending March 31, 1900, I attended twelve examinations of the London Board of Examiners of the Pharmaceutical Society of Great Britain, held during the months of April, July, October, and January.

FIRST OR PRELIMINARY EXAMINATION.

	Number.	Percentages.
Candidates examined	1589	—
„ who passed	746	47.0
„ „ failed	843	53.0
Failed in Latin	593	37.3
„ English	483	30.4
„ Arithmetic	739	46.5
„ all subjects	325	20.5

These figures reveal the striking fact that about seven out of eight candidates who failed were rejected in arithmetic, a subject of supreme importance to the chemist and druggist. The examination is by no means a severe one. It will be superseded in the ensuing year by a higher examination, the effect of which will doubtless be to reduce the number of candidates who will be able to present themselves for the qualifying (Minor) examination. This alteration is, in my opinion, a highly commendable one.

MINOR OR QUALIFYING EXAMINATION.

	Number.	Percentages.
Candidates examined	1371	—
„ who passed	378	27.6
„ „ failed	993	72.4
Failed in Chemistry	599	43.7
„ „ Materia Medica	24	1.8
„ „ Botany	31	2.3
„ „ Prescriptions	44	3.2
„ „ Pharmacy and Dispensing	299	21.8
„ „ obtaining aggregate number of marks for a pass	129	9.4

The number of candidates was quite exceptionally large, and the proportion of rejections more than the average.

It will be seen what a very large percentage of the candidates failed in the two most essential and practical subjects of Chemistry, and Pharmacy and Dispensing. Indeed, a large number of candidates, having hopelessly failed in one or both of these practical subjects, were rejected without having been examined in other branches. Practical Chemistry, and Pharmacy and Dispensing are subjects not lending themselves to cram, and the need of laboratory training is painfully revealed by the results of the examinations. Having paid close attention to these I cannot say that the Examiners have been unduly severe, having regard to the paramount interests of the public. It is not too much to ask that the chemist and druggist should be not only able to dispense accurately, but also to be able to test the ordinary chemical substances he uses in his business; and these attainments are rigorously demanded of the candidates. The improvement in the quality of the candidates noted in my report last year has not been altogether maintained.

MAJOR EXAMINATION.

	Number.	Percentages.
Candidates examined	103	—
„ who passed	50	48.5
„ „ failed	53	51.5
Failed in Chemistry	29	28.2
„ Physics	18	17.5
„ Materia Medica	8	7.8
„ Botany	13	12.6
„ obtaining the aggregate number of marks for a pass	13	12.6

The number of candidates who presented themselves was below the average of the last few years, whilst the percentage of passes was about the same. There were, however, more failures in specific subjects and fewer failures in aggregate marks.

The standard of the examinations was fully maintained, and the conduct of the examinations met with my entire approval.

(Signed) THOS. STEVENSON.

March 31, 1900.

Finance Committee.

The report of this Committee was read by the SECRETARY. It

recommended the payment of sundry accounts, and the purchase of certain freehold property.

The PRESIDENT, in moving the adoption of the report and recommendations, said, considerable sums had come in during the month from subscriptions and examination fees, so that the income had been rather above the average, while the payments were about as usual. There was nothing requiring special comment.

The resolution was at once agreed to.

Benevolent Fund Committee.

The report of this Committee included a recommendation of grants to the amount of £83 in the following cases:—

The widow (49) of a registered chemist and druggist, who died in February last. (Walthamstow.)

A registered chemist and druggist (75), who has had two previous grants; has only partial employment. (Surbiton.)

The widow (49) of a registered chemist and druggist who is blind and paralytic. (London.)

The widow (65) of registered chemist and druggist who has had several previous grants. (Birmingham.)

A member (80) from 1855-98 and subscriber to the Fund for over twenty years. He has had two previous grants. (London.)

The widow (50) of a former associate who has received previous assistance (Wrexham.)

The VICE-PRESIDENT moved the adoption of the report and recommendations, which was at once agreed to, Dr. SYMES remarking that only one of the six applicants on this occasion appeared to have subscribed to the Fund.

The PRESIDENT said he had omitted to mention that a donation of 25s. had been received from the Liverpool Pharmaceutical Students' Society, collected at a smoking concert.

Library, Museum, School and House Committee.

The report of this Committee was read. It appeared that, besides the ordinary routine work, the Committee had sat as a Research Committee and received reports from Professors Collie and Greenish respecting the progress of certain pharmaceutical work, which, at the request of the General Medical Council, had been undertaken in the Society's laboratories.

The PRESIDENT moved the adoption of the report of the Committee, which was unanimously agreed to.

Appointment of Local Secretaries.

The SECRETARY announced that a letter had been received from Mr. Thompson, local secretary for Birmingham, who had written saying that the number of members in Birmingham had increased so greatly that it was advisable to have an assistant local secretary for the western division of that city, and nominating Mr. Geo. E. Perry.

The PRESIDENT moved that Mr. Geo. E. Perry be appointed assistant local secretary for the western division of Birmingham.

The resolution passed unanimously.

The PRESIDENT then moved that Mr. W. T. Wilson, of 36, High Street, Haddington, be appointed local secretary for the Haddington division, in the place of the late Mr. James Watt.

Appointment of an Assistant to the Board of Examiners.

The PRESIDENT said the examination which was being held at the present time was rather a heavy one, and unfortunately one of the Examiners had broken down in health, it was therefore necessary, in order to get through the work in reasonable time, to appoint an Assistant to the Board. Mr. Edmund White, a former Examiner, had expressed his willingness to undertake the duty, and he would therefore move:—That Mr. Edmund White be appointed to assist the Board of Examiners for England and Wales in accordance with the provisions of Bye-law 7, Section 10, and that the nature, extent and duration of such assistance be determined by the Chairman of the Board.

The motion was unanimously adopted.

Correspondence.

The SECRETARY reported that the following communications had been received from:—

1. The Manchester Pharmaceutical Association, conveying two resolutions passed at a meeting held on March 14—(a) Approving the action of the Council in regard to Clause 2 of the Companies Bill and promising support; (b) suggesting the propriety of agitating for the inclusion of pharmaceutical chemists and chemists and druggists in Clause 3 of the Bill.

2. Sheffield Pharmaceutical and Chemical Society, conveying a resolution passed at a general meeting of the Society on March 14, expressing the opinion that the conclusion of the Council in reference to Clause 2 of the Companies Bill should have the universal support of the chemists of Great Britain.

3. Oxford and District Chemists' Association, conveying a resolution passed at the annual meeting on March 14. The resolution urges the amendment of Clause 2 of the Bill as follows:—"No company of unqualified persons may use the description of a pharmaceutical chemist, or chemist and druggist, or any other title implying registration under the Pharmacy Act, 1868."

4. Lancaster and Morecambe Chemists' Association, conveying a resolution passed on March 15, supporting Clause 2 A in the Federation programme (*P. J.*, p. 237).

5. Bolton Pharmaceutical Association, conveying resolutions passed at a meeting held on March 19. The resolutions were—(a) In support of the Council's opposition to Clause 2, and (b) in support of the candidature of two nominees for election on the Council in May.

6. Mr. Birkbeck, local secretary for Lincoln, conveying decision of the chemists of the district to support the Council in its opposition to Clause 2.

7. Leicester Chemists' Social Union, conveying a resolution passed on March 22 in support of the Council's action in regard to Clause 2, and also suggesting that the Council should, at an early date, proceed to the framing of a new Pharmacy Bill to deal with the whole question of companies.

8. Forfarshire and District Chemists' Association, conveying resolutions passed on March 29, approving decision of Council in regard to Clause 2, and urging preparation of a new Pharmacy Bill.

9. Midland Pharmaceutical Association, conveying resolution passed on March 15, supporting the policy of the Council in reference to Clause 2 of the Companies Bill, and suggesting the issue of a circular for signature by all the chemists in Great Britain.

10. Glasgow and West of Scotland Pharmaceutical Association, conveying resolutions passed on March 22—(a) Resolving to oppose Clause 2; (b) urging promotion by the Council of a new Bill to amend the Pharmacy Acts.

Mr. HILLS said these letters were very interesting, but he hoped that at some of the meetings throughout the country their friends would not only advise the Council to take steps to frame a new Pharmacy Bill, but also say what their views were with reference to the company question, and on what lines legislation was desirable and practicable.

The PRESIDENT suggested that they wanted not only destructive but constructive criticism.

Mr. CARTEIGHE moved that all these communications be referred to the Law and Parliamentary Committee, which was at once agreed to.

Dr. SYMES said it was very satisfactory to note that all the letters supported the Council in its decision.

Mr. GLYN-JONES said most of them also expressed a wish that the Council should do something in the way of promoting a Bill!

The Auditors' Report.

The report of the Auditors was laid upon the table.

Freehold Investments.

The PRESIDENT proposed that the corporate seal of the Society be affixed to the transfer deeds relating to the Strawberry Hill property purchased by the Society.

Mr. CARTEIGHE, in seconding the proposition, said the house that was being purchased stood upon the Society's own ground. The ground surrounding was very extensive, and was in such a position that it would be more or less damaged if buildings were erected in the immediate neighbourhood. A question had arisen with regard to their ancient lights, and instead of wasting time and money in going to law, they had thought it better to buy the house, as they were entitled to under the bye-laws. It would be a satisfaction to know that the purchase for the purpose of letting would yield 6 to 6½ per cent.

The resolution was carried.

General Purposes Committee.

A portion of this report was read, including the reports of the Professors on the School Prizes Competitions, in accordance with which the Committee made the following awards:—

Botany.

Silver Medal	E. W. Pollard.
Certificates of Honour	{ H. Finnemore. J. F. Young.

Chemistry.

Silver Medal	J. F. Young.
Certificates of Honour	{ E. Nash. H. Finnemore.

Practical Chemistry.

Silver Medal	H. Finnemore.
Certificates of Honour	{ J. F. Young. E. Nash.

Materia Medica.

Silver Medal	H. Finnemore.
Certificates of Honour	{ E. W. Pollard. P. B. Gray.

The Council then went into committee to consider the legal portion of the report, and on resuming, the report and recommendations were adopted, and special resolutions passed, authorising the Registrar to take proceedings.

MAJOR EXAMINATION QUESTIONS (EDINBURGH).**BOTANY.**

March 29, 1900, from 10 a.m. to 12 noon.

1. By what characters are Xerophytes and Hydrophytes distinguished? Give an example of each, and show how the organs in the plants you mention are adapted to their environment.
2. Give an account of the structure of any seed, and describe the successive stages of its germination up to the period when the embryo-plant is established in the soil.
3. Describe the methods of sexual reproduction observed in the Algae.

MATERIA MEDICA.

March 29, 1900, from 12 noon to 1 p.m.

1. What are the Botanical and Geographical Sources of Myrrh? What proportions of Volatile Oil, Resin, and Ash would you take to be characteristic of a good specimen?
2. Describe the chief diagnostic features of the official Buchu leaves, and indicate the principal points of difference between them and other species of *Barosma* as regards (1) physical characters and (2) active constituents. How would you form an opinion as to the quality of a sample of the official leaves?

PRACTICAL MATERIA MEDICA.

March 29, 1900, from 2 p.m. to 3.30 p.m.

1. Prepare sections of the root supplied to indicate its characteristics. Draw and describe your sections.
2. Report on the sample of powdered gentian root as to whether it is genuine or adulterated. Give your reasons for your opinion.

PRACTICAL BOTANY.

March 29, 1900, from 3.30 to 5 p.m.

1. Describe the external morphological characters of the specimens A and B, the plants C and D to their natural orders, giving reasons for your es.

3. Make one transverse section of E. From what group of plants and from what part of the plant is it derived? Sketch your preparation, and give explanatory references to your drawing.

CHEMISTRY.

March 30, 1900, from 10 a.m. to 1 p.m.

[Six questions only are to be attempted, and at least two must be taken from Part II.]

PART I.

1. Assuming that free oxygen is correctly represented by the formula O_2 , what evidence is there that the formula of ozone is O_3 ?

2. Mention the chief impurities commonly met with in commercial potassium hydroxide, and state how you would recognise each when present in a sample.

3. Mention all the substances formed when each of the following compounds is decomposed by heating:—(a) Ammonium magnesium phosphate; (b) Calcium oxalate; (c) Lead nitrate; (d) Potassium bichromate; (e) Potassium chloroplatinate; (f) Silver cyanide.

4. You are supplied with magnesium sulphate. Describe fully the steps you would take in order to obtain the following substances from it, without employing any other compound containing either magnesium or sulphur:—(a) Magnesium; (b) Magnesium oxide; (c) Sulphuric acid.

5. Twenty cubic centimetres of dilute sulphuric acid, when mixed with a solution of barium chloride in slight excess, yield 0.4626 gram of barium sulphate. How many grams of sulphuric acid are contained in one litre of the solution?

(H = 1; O = 15.88; S = 31.82; Ba = 136.4.)

PART II.

6. How many isomeric hydrocarbons possessing the formula C_4H_8 are known? Give the name and the constitutional formula of each.

7. How is acetic acid obtained from the products of the distillation of wood? Starting from acetic acid, how would you obtain: (a) Lead acetate; (b) Basic lead acetate; (c) Ethyl acetate; (d) Acetone?

8. Specimens of propyl and isopropyl alcohol are given you. Describe fully the chemical tests you would apply in order to ascertain which is the former and which the latter.

9. Describe fully how you would proceed in order to prepare a specimen of benzene synthetically, starting from the elements.

PHYSICS.

March 30, 1900, from 2 p.m. to 5 p.m.

[Six questions only are to be attempted.]

1. Describe the method devised by Dumas for determining vapour densities at high temperatures; and explain the bearing which his determinations of the vapour densities of mercury, sulphur, and phosphorus had upon his views concerning the atomic theory.

2. What do you understand by latent heat? Describe an experiment arranged to measure the latent heat of steam.

3. Explain the principle which is adopted in the modern machines employed for the liquefaction of air in quantity.

4. What do you understand by the terms continuous spectrum, line spectrum, and absorption spectrum? How can each be obtained, and what explanation can be given of the differences observed in spectra of each kind.

5. Describe the construction, and explain the action, of the Wimshurst electrical machine.

6. After a shower, the water upon a wet pavement sometimes dries up rapidly and sometimes very slowly. Mention all the causes you know which tend to produce variation in this respect, and give such explanations as you can.

7. Explain the principle of fractional distillation, and clearly state the conditions under which this process may be applied so as to effect the separation of mixed liquids.

8. What are specific volumes, and how are they determined? Mention any theoretical conclusions that have been arrived at from a study of the results of specific volume determinations.

9. Describe the construction of a Nicol's prism, and state any purposes for which Nicol's prisms are employed.

PHOTOGRAPHIC NOTES—SCIENTIFIC AND PRACTICAL.

One of the most interesting applications of photography of recent date is the production of water marks on papers. A matrix is made by exposing a sheet of gelatin sensitised with a bichromate salt to the action of light under a negative, so that the gelatin is rendered insoluble where the light acts. When all the soluble gelatin is washed away an extremely delicate skin of gelatin is left, and this is so hard that it may be forced by hydraulic pressure into a plate of type metal without suffering any harm. In water-marking paper, however, several of these matrices are formed and forced into the sheets of paper whilst they are still damp, with the result that a permanent water mark is caused which nothing will eradicate. W. B. Woodbury, in 1860, suggested a similar process, and many specimens of such pictures, which he called "Photofiligrain," are still in existence.

No doubt many of our readers have wondered how it is possible to sell reprints of such works as the 'Encyclopedia Britannica' at such low cost. By the aid of photography it is possible to reproduce the whole of any work, no matter what its size, at one-third of the cost of type. And there is this further advantage, that these plates may be reproduced at any time at very little outlay. In connection with this subject, a recent use of photography in America which is extremely useful was the copying, in miniature form, of the whole of the MSS. of the 'Century Dictionary,' which was so extremely valuable that no fire insurance office would accept the risk. There are numerous books in the Library of the Pharmaceutical Society at 17, Bloomsbury Square, which are seldom, if ever, read; they occupy considerable space, and are still valuable. Why should not minute photographic copies of them be kept, and thus give greater space for those that are useful?

The subject of colour photography is one which always has a great attraction for photographers as well as the outsider, and the latest method suggested by Professor R. W. Wood, of Wisconsin, U.S.A., is extremely ingenious and one of the most striking that has yet been brought forward. He uses as a fundamental basis the theory of the primary colour sensation curves of Clerk Maxwell, and, therefore, three negatives taken through green, orange, and violet screens. He then sensitises a sheet of thin glass with bichromated gelatin, allows it to dry, and it is next exposed under diffraction gratings having 2,000, 2,400, and 2,750 lines to the inch. A positive representing the red sensation is placed behind the 2,000-line grating, and the exposure made, then the sensitive plate is shifted till it comes in contact with the 2,400-line grating, behind which is the green sensation positive, then exposed, and again shifted to the third grating, behind which is the violet sensation positive. On washing the plate and allowing it to dry we have an image formed of varying distances of impressed lines, which give us all the colours exactly as a diffraction grating does.

All that is now required is merely to mount the gelatin positive on a stand and view the image of it formed by a convex lens, through a minute hole. Unfortunately, the process is by no means perfect, but some of the results shown have been wonderful, and there is the great advantage in this process that, having once obtained a diffraction picture, it is possible to duplicate it by mere contact printing in sunlight on bichromated gelatin.

It has long been one of the aims of those workers who adhere to gelatino-chloride of the P.O.P. to obtain black tones similar to those given by the true platinotype paper, and whilst it seems somewhat a roundabout way to obtain these when we have such excellent papers as the platino-bromide and Velox, there is not the slightest doubt that the reason why such tones are desired on P.O.P. is that one can actually see the image during the whole of the operations, and therefore have it more under control. The best method up till quite recently has been Valenta's method of toning first with a gold and borax bath, and then with the normal phosphoric acid and chloroplatinite of potassium. His last recommendation, however, is quite satisfactory—namely, the use of *m*-phenylenediamine.



The bath will not keep long, and it is therefore advisable to make up stock solutions, one of chloroplatinite and another of *m*-phenylenediamine, both 1 per cent., and when required for use take ten parts of each to 100 parts of water, washing the prints first in soft water. The tones obtained are excellent, and may be varied at will from brownish black to pure black.

CHEMICAL SOCIETY.

Bunsen Memorial Lecture.

The high esteem in which Bunsen is universally held was demonstrated on Thursday, March 29, when the Chemical Society met to hear a memorial lecture on the great chemist, delivered by Sir HENRY ROSCOE. In the crowded lecture hall were recognised many Fellows of the Society, who, living in distant parts of the country, are rarely seen at ordinary meetings.

The PRESIDENT (Dr. T. E. Thorpe, F.R.S.) occupied the chair.

Sir HENRY ROSCOE stated that he had enjoyed the friendship of Robert Bunsen for nearly half a century, and he had to speak of him not only as one of the greatest chemists but also as one of the truest and noblest of men. He first briefly outlined the career of Bunsen up to his death, which took place at Heidelberg on August 16, 1899, at the ripe age of eighty-eight years; and then proceeded to enumerate his more important researches. The discovery of the cacodyl compounds and their investigation, although his only research in organic chemistry, was of such a classical nature as to place him in the rank of pioneers in this branch. Berzelius, who was unsparing in his criticisms of work that was untrustworthy, as well as Adolf Baeyer, spoke in high praise of this work. His work on the gases of the blast furnace was of singular importance. Having set on foot the work of improvement in the economy of the fuel of blast furnaces in Germany he came to England at the instigation of his friend, Sir Lyon Playfair, and found that here even greater waste was allowed to take place than in his own country. His only book, a book dealing with the collection, preservation, and measurement of gases, is a model of accurate work.

The discovery of the Bunsen battery marked an era in the economic production of electricity, and after he had discovered how to get rid of the disintegrating effect of nitric acid on the carbon by igniting, he was able to describe the first step towards lighting by the electric arc.

In 1852, while at Breslau, he turned his attention to the electrolytic production of metals that had hitherto only been obtained either impure or in a powdery condition. By the ingenious device of making inverted pockets in the carbon, into which the metal could be collected without oxidation, he succeeded in obtaining magnesium. He also brought to a successful issue the investigation of the conditions most favourable to the production of the alkali metals. Mention was made also of the grease-spot photometer and the ice calorimeter, elaborated for the purpose of determining the specific heats of cerium, lanthanum, didymium, and germanium. His vapour calorimeter, which was devised when he was 76 years of age, was a masterpiece in originality, and was considered a wonderful achievement for a man of his years.

He was quick to recognise the ability of Kirchhoff, and was influential in bringing him to the chair of physics at Heidelberg, where they laboured together in their famous photochemical researches. In a letter written to the lecturer at this period, he stated that he was now engaged with Kirchhoff in a research that gave him sleepless nights; the nature of the Franhofer lines had been discovered and their production artificially imitated, and thus the way was pointed out of discovering the things contained in the sun with the same certainty that they were identified on the earth, as well as of examining terrestrial substances with the same exactitude as the solar ones. This discovery led to that of the rare alkali metals, caesium, rubidium, and others. An accident, singularly like the historical one of Sir Isaac Newton's burnt manuscripts, happened to Bunsen. On returning to his study one day he found the whole of his writings and maps on the spark spectra of metals, a completed work, reduced to ashes, having been set on fire by the sun's rays falling on them through a spherical water bottle. So undaunted, however, were his energy and

zeal that he patiently retraversed the whole of the work, never relaxing until all was replaced. Of the Bunsen burner, the lecturer said it was unnecessary to speak. It had carried his name everywhere, and was known by thousands, who knew little or nothing of the inventor. His studies of the great geyser of Iceland were also described, as well as his work upon the platinum group of metals and mineral water analyses. The lecturer then went on to speak of personal reminiscences of Bunsen. He was impressed at his first meeting with him. Standing fully six feet high, his figure was well knit and powerful, his manner of suave dignity, and his expression of great kindness and rare intelligence. Modest and retiring, he was with difficulty persuaded ever to give public utterance of either a scientific or social character. Having an affectionate nature, he must have felt keenly in his declining years the lack of those on whom to bestow his affection. He often said he had never had time to think of getting married.

A well-known trait of his character was his keen sense of humour, but of all the witty sayings that passed from mouth to mouth as "Bunsen's last," none were ever tinged with ill nature, for that was foreign to his being.

His manipulative ability was remarkable, and his hands, though large and powerful, were supple and dexterous. He was amusingly proud of having a large thumb, with which he was able to close the end of a long eudiometer tube filled with mercury, and immerse it in the bath without admitting the least bubble of air—a feat those endowed with smaller digits were unable to accomplish. He was a skilful glass-blower, while he had a salamander-like power of handling hot glass tubes, and, said the lecturer, "many a time at the blow-pipe I have smelt burnt Bunsen and seen his fingers smoke."

Accuracy of work was the first essential with him—most of his pupils learnt from him for the first time what that meant. Not that he was averse to quick work, for he advocated many methods of shortening chemical processes, but never at the expense of accuracy. Being entirely without monetary ambition himself, he particularly disliked anything savouring of money-making out of pure science. The zinc carbon battery alone might have brought him a large fortune had he sought to turn it to such account. The great variety of subjects studied at one time indicated only a tithe of his energy. It was to be wondered how he found time to accomplish all his work, for he never had an assistant in his own researches, only occasionally giving in his memoirs the analyses of students he could trust. The lecturer recalled a stay with Bunsen upon a certain occasion, when he said that, although he himself rose very early, he always found him already at work. He lectured on general chemistry every morning in the week, from 8 to 9 in summer, and from 9 to 10 in winter. His exposition was clear and his delivery easy. He was accustomed to spend from a half to one hour before each lecture rehearsing the experiments of the lecture, which were always to the point, being never of the firework kind. He did not enlarge on theoretical questions, indeed to discuss points of theory was not to his liking, and although he did much to establish the evidence on which modern theories are based, he used to say that one chemical fact properly proved was worth all the theories one could invent. In his habits Bunsen was frugal, his only extravagance being cigars, of which he usually had one, but as it was allowed to go out several times in the course of his work the number he consumed was less than it appeared to be. Although he took but little active interest in politics, he was a staunch Liberal, and when invited to the Chair of Chemistry in Berlin in succession to Mitscherlich he refused the offer, since, as he explained to his friends, he did not want to have anything to do with Bismarck.

At the close of the lecture Dr. THORPE added a few of his own reminiscences. A vote of thanks was ably proposed by Professor ODLING, and seconded by Dr. ATKINSON.

LETTERS TO THE EDITOR.

Thoughts Suggested by Clause 2 of the Companies Bill.

Is the position of company chemists, as regards the use of titles and the dispensing and sale of poisons, a legal one at the present moment?

If the answer be "Yes," we are led to ask, "Why, then, should the Lord Chancellor burden his Bill by a useless clause?" If the position of the companies be a legal one already, surely they need no further legislation to protect them from any assault of the Pharmaceutical Society or its members. If, on the other hand, the present status of company chemists be illegal, how is it that such an eminent lawyer as the Lord Chancellor should show such anxiety to put them on a legal footing?

Note the *permissive* wording of Clause 2 in regard to company *pharmacy*, as opposed to the *prohibitive* wording of Clause 3, when dealing with company medicine, surgery, dentistry, and *midwifery*. The midwives, by the way, are not yet a registered body, while we pharmacists have for years been compelled to register before we could use the title of chemist, etc., or legally sell a poison.

The *amended* Clause 2, containing the provision as to the posting of the name of the manager, is evidently intended as a sop to registered chemists, for it has not met with the approval of the companies, as evidenced by their circular to members of Parliament. If I held the view that the company chemists' present position were a legal one, I should not think it worth while to discuss Clause 2. It would be a mere waste of time on our part, as this clause would then make the position of the registered chemist neither worse nor better than it is at present. Even if the proviso as to the name of the manager appearing, annoyed the companies, it would be of no practical value to the registered chemists and druggists. But holding firmly the contention that the company chemists are carrying on their businesses in direct contravention of the Pharmacy Act, 1868, I will proceed to notice a few points which seem to me to be of the utmost importance at the present juncture, and require the *careful* study of the *full* text of the Pharmacy Act.

(1) A great point has been made by some of the use of the singular "person" in Section 15 of the Act. If the preamble to the Act be read carefully, I think it will be seen that that argument is neutralised by the use of the plural "persons," the phrase "*all persons*" occurring once in the preamble.

(2) *Registration*.—Sections 12 and 13 should be consulted on this point. The plural "persons" again appears, and the *absence* of name from the Register is evidence of *non-registration* under the Pharmacy Act. If the singular "person" were *always* used, there might be *some* ground for the argument that the term did not apply to a company; but when in several places the plural "persons" is used, it surely cannot be maintained that companies as well as individuals are not included in the operations of the Act. The phrase "*all persons*" in the preamble is very comprehensive. The absence, then, of *registration under the Pharmacy Act* is, I maintain, a strong point against the companies, for *registration* is essential in order to legally keep open shop for the retailing, dispensing, or compounding of poisons, and for the use of titles.

(3) *The Seller of Poisons*.—Section 17 should be carefully read, as it does not seem to be universally understood. It will be seen that the seller is the *person on whose behalf* any sale is made by an apprentice or servant; that is to say, the assistant, or manager, or apprentice who hands the poison to the customer is not the *seller* in the eye of the law. Therefore, how can the sale of poison by any registered *assistant or manager* in the employ of a company legalise that sale, seeing that the *servants* are not recognised as the sellers. No herbalist or unqualified chemist, however intimate he may be with drugs and poisons by long training and

practical experience, may legally keep open shop for the retailing of poisons, even though he employ a *registered* assistant or manager to conduct the sale, for he (the unqualified proprietor) remains the *seller*, and as such his name and address must appear on all the labels. Is it not, then (to say the least), quite as illegal for a company of unqualified persons to sell poisons through the agency of a registered chemist (who is only their *servant*) as for one of that company individually to do so?

To briefly summarise my arguments to show that chemist companies are at present illegal:—

(1) The use of the word "*person*" in Section 15 of the Pharmacy Act must be taken in conjunction with the use of the plural in the preamble and other sections of the Pharmacy Act.

(2) The absence of *registration* under the Pharmacy Act prohibits the keeping of open shop for the sale of poisons, and also prohibits the use of titles.

(3) Chemist companies of unqualified individuals are not legally covered by qualified *servants*.

I think it is to be regretted that the Council of the Pharmaceutical Society should have decided to oppose Clause 2 without making a further attempt to amend it, as proposed by Mr. Walter Hills. I cannot see why Mr. Ritchie's reply should cause such discouragement. One hardly expects a member of the Government to welcome a proposal to amend a Bill of which he has charge, and which he is naturally anxious to get through with as little opposition as possible. We have nothing to lose by a vigorous policy, but much to gain.

March 30, 1900.

ALPHA (26/8).

The Society's Library.

Being placed at "scratch," so to speak, in the above matter, I wish to make a few further remarks, although I had hoped that the question would be raised long ago by some well-known pharmaceutical "researcher." I think everyone will agree that the keeping open of the Library every night for an average attendance of one or two is nearly as absurd as closing it absolutely to all members engaged in daily work. Those members who do not want the Library are out of the running altogether.

The advancement of pharmacy, which, according to the Charter, was the prime object of the Society, is not the invention of new names, terminating in "ule" or "oid," for slightly dissimilar forms of compact medicines more or less easily swallowed—by the medical profession. Nor can it be much furthered by the student whose interests appear to predominate at No. 17. Pharmacy has been, and is being, advanced by the work of a comparatively few practical, experienced men, who are engaged in business, often in the employment of others, and whose leisure is generally very small indeed.

I admit they are few. The Council of the Society, when arranging evening meetings, finds that they are few. The Conference secretaries, with their much vaster field of influence, find how few they are. The secretaries of the C.A.A. and such bodies turn grey and prematurely aged in their search after men willing to attempt a little original work. Such work, however little, usually requires access to current scientific literature, and any of the few will tell you that, although he visits the Library only five or six times a year, he stays each time perhaps two hours, and consults many works of reference.

I am assured that the members of the Committee only took their closure step—a step, by the way, a trifle too long—after much consideration. I can imagine that they were in possession of, and duly assimilated, a few of those statistics so necessary in proving a fact, or its antithesis, but I do not suppose that it occurred to any of them that they were seriously interfering with the work of a few men whose work is already classic, and positively discouraging a possibly good deal larger number from entering upon any research work at all. Even the students appear to be dissatisfied, according to Mr. Jewson.

In all probability, one evening per week, till 10 p.m., as Mr. Gamble suggests, will meet the necessity. Members must make it convenient to come on whatever night should be appointed, and to meet the Committee in that way. I would remind Mr. Miller that discussion in a library should not be allowed, but there seems no reason why the room adjoining should not be opened for that purpose on the same evening.

London, N.W., April 2, 1900.

T. MORLEY TAYLOR.

It may not have been the original intention that the Library should be used as a reading (studying) room by students, but that it has been so for many years nobody would deny; and to close it in the evening would, I doubt not, be a great hardship to many who, in their student days, have, like myself, to accommodate attendance at lecture and laboratory to a limited purse. That some relief should be found for Mr. Knapman, the most courteous and omniscient of librarians, whose hours are much too long, without curtailing the hours during which the Library is open, ought not to be beyond the ability of such a Council as we possess.

London, April 2, 1900.

C. A. PARKINSON.

The Society's Library is practically useless for town visitors unless it at least is kept open as late as some of the town shops and public libraries. I think it is now high time that something was done for the benefit of Junior Pharmacists as an incentive to encourage them, the same as is done at Brighton, where I belonged; and what can be done at nights in a country town so easily on a small scale I fail to see why it cannot be done on a much larger scale in a magnificent city like London. The Junior Pharmacy Association at Brighton not only met for self-improvement on certain evenings in the week by holding concerts, reading essays, and collecting some substantial sums of money towards the Benevolent Fund at the end of each meeting, when the box was handed around, but was patronised by several members of the Senior Pharmacy Association, who offered prizes for the best essays and papers written at set times there.

Apart from the prevalent idea of some energetic minds that the only resource left open to the bewildered student is the tap-room and the bar of a public-house, after having travelled mayhap some miles to make a cross reference, is, indeed, a very sad one. Why not keep open the temperance bar, and, in case of any overcrowding, have the Library accommodation enlarged? All the additional expense required for such a praiseworthy undertaking would be met by the resident attendant in taking the names and addresses of visitors on entering, seeing to the books, and regulating the supply of light, which, on these dark nights, is so much needed.

Hampstead, April 3, 1900.

A. SMITH.

The letters which appeared in the *Pharmaceutical Journal* last week will, I trust, have the effect of drawing attention to the inconvenience experienced by many residents in London on account of the closing of the Society's Library in the evening. It is true that books can be obtained from the Library by sending for them, or through the post, but when reference has to be made to a special subject one often requires to consult perhaps twenty volumes before lighting on the information sought. There are few who can spare the necessary time for prolonged reference during the day, and, in my own case, when I have wished to make use of the Library for this purpose, the evening has been my only opportunity. I would be the last to wish to add anything to the duties of the Library staff, whose courteous chief, Mr. Knapman, is always so willing to assist inquirers, but I think the difficulty could easily be met by making the daily time of opening the Library an hour later and keeping it open on one evening in each week until ten p.m.

London, April 2, 1900.

F. C. J. BIRD.

Glaucium Luteum.

I was interested in seeing Mr. Ashton's letter *re* the above in this week's *Journal* (see p. 344), as I had already contemplated writing, drawing attention that this plant could be found on the Sussex littoral. I can now, however, corroborate his statement, as I found it growing last summer along the coast at Elmer, half-way between Littlehampton and Bognor, and also in abundance to the west of the latter place, at Selsey Bill.

In John's 'Flowers of the Field' it is mentioned as being "conspicuous on the sandy seashore," from which one would infer that it is not uncommon, or that it is not sufficiently localised to mention where it may be found. I think if botanists would give their experience when points arise like these, we should know more correctly the habitats of some of our more interesting flowers.

Bognor, March 31, 1900.

C. T. JOHNSON.

The Preliminary Examination.

Having passed only the "Modified" Examination myself, to which I was entitled, as an assistant of three years' standing, when the Act passed, I think there is good reason to deal leniently also with the present apprentices, who may present themselves at the April and July Preliminary Examinations—the last to be held. If the comparison has not been raised, it is, in my opinion, a fair one, and worth acting on. I admit having a friendly interest in the matter as a reason for writing on it. Regarding the future, unless School Boards can turn out the necessary certificates, I expect we shall have to train message-boys—if we can get them—or otherwise leave our apprentices in the lurch, to swell the ranks of the great unqualified. Taking diminished trade and diminished profits into account, this, it seems to me, will be the net result of the Society's efforts up to date.

Edinburgh, April 2, 1900.

S. WALKER.

The Blackburn Committee Meeting.

The criticisms on the committee meeting of the North-East Lancashire Chemists' Association held on Tuesday, March 27, certainly call for some reply. At the outset let me disclaim any intention of submitting that our Association and its committee are above criticism, for that is not the case. Any just criticism founded on facts we gladly welcome.

As to the remarks in the first Annotation in regard to committee meetings being private, our meeting was certainly private, but as Mr. Gifford had attended the Liverpool dinner in his capacity as Secretary of the N.E.L.C.A. and representative of the Association, he at this meeting reported his visit and gave a short *résumé* of the proceedings at the dinner. He also had occasion to mention some of the statements of the President of the Pharmaceutical Society, and took the opportunity of refuting some of them. Many of the members present spoke on the subject, but as they were in accord with Mr. Gifford's views, it was not thought necessary to take note of their remarks. The committee, thinking Mr. Gifford's remarks sufficiently important to justify publication, ordered their issue to the Press, and the notes were given to the local reporter in due course. I am not aware that there is anything irregular in this. As to Mr. Gifford's intentions when he wrote his report for presentation to the committee, of course I cannot speak; but one thing is certain, that the meeting was not called for the special purpose of hearing Mr. Gifford and putting his views before the "world of pharmacy at large."

There is no need to "draw the bow at a venture," for I suppose the reporter supplied you with the same report as the other papers, and in that it was distinctly stated that it was an *Election* Committee meeting, and generally committees meet for the transaction of the business which they were formed to transact. You have in your report of the meeting and Annotations altogether omitted to insert *Election* Committee. Had Mr. Gifford or the committee wished the matter to be reported, we could easily have called a general

meeting to meet after the committee meeting and asked reporters to be present. Of course, as a committee we are open to instruction in the methods of procedure and the correct way of conducting our meetings, if your "Annotator" will give us what he considers the orthodox manner of so doing. As to your statements "that there was a chairman and apparently the meeting was properly constituted," I suppose you intend "the world of pharmacy" to understand that sometimes we *do manage without* a chairman, and that our meetings are sometimes *not* properly constituted. Such a supposition is very wide of the truth, however. My purpose in writing is not to defend Mr. Gifford's views or to attack those of the President, for they are both able to do that for themselves. I must, however, protest against criticisms which are not founded on facts. It certainly seems that no good thing can come out of North-East Lancashire. Will you kindly give this disclaimer of mine equal prominence with the Annotation which has caused me to make it?

Blackburn, April 2, 1900.

JOS. HINDLE,
Chairman of the Meeting.

The Business of a Chemist and Druggist.

The leading article in this day's *Pharmaceutical Journal* is well worth reading, and worthy of the thoughtful consideration of all engaged in our calling. The case, so far as my memory serves me, has never been so concisely or so plainly stated; there is an impression abroad, not only amongst the public, but even amongst some of our own people, that our object in opposing company trading is to put a stop entirely to the sale of all drugs and chemicals by others than chemists and druggists; but there is really no such wish, I am sure, in the minds of those who object to companies carrying on the business of chemists and druggists. My object now in calling attention to the matter is to ask our friends, when talking to the public or to their members of Parliament, to make it quite clear, as you have done, that the real objection to company trading is not that we pharmacists wish to have a monopoly of the sale of drugs and chemicals, but only to carry on business on the lines that were laid down by the Pharmacy Act of 1868; if that is done, I feel sure there will be little or no difficulty in attaining the object we have in view at present—namely, the defeat of Clause 2 in the Companies Bill. But are we to rest there? Do we wish to preserve the *status quo* only? Is not our wish to have the *status quo ante* company trading? If that be so, it behoves the Council to face boldly the question of the use of titles by companies which are in no sense qualified under the Pharmacy Act. I am of opinion the Council is bound to succeed. If it should not in the first instance, the matter should be taken to the highest court. If then the Act is found to be so utterly faulty that such misuse of titles cannot be prevented, it will be necessary to go for an amended Act. I cannot think that Parliament would allow the use of titles by others than those who have earned them by legitimate means.

March 31, 1900.

M.P.S. (26/36).

The following statement I quote from the *P. J.* editorial of to-day:—"The question to be considered—whether companies should be prevented from carrying on that very small part of a chemist and druggist's business for which an individual qualification is required by the Pharmacy Act, 1868—is therefore a very narrow one, and it is really a question affecting the public interest more than the interests of chemists and druggists." Speaking by the strict letter of the law, the statement may be absolutely accurate; taking a view as it affects the daily business of an ordinary retail chemist, it is sheer nonsense. If companies, stores, etc., were only allowed to trade outside the limits of the Pharmacy Act, would not the discerning public rapidly discover that there was a screw loose

somewhere, and while ready enough to patronise them for Beecham's at 10½d., etc. (which the chemist would never regret), would purchase their drugs, etc., from the responsible retailer.

March 31, 1900.

C. P. (26/30).

ANSWERS TO QUERIES.

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

LONDON MATRICULATION (E. A. T.—40/26).—All the information you ask for was given in the Students' number of the *P. J.*, published September 9, 1899.

CHEMISTRY OF THE B.P. (S. A. J.—40/27).—There is nothing of the kind in existence except the notes in The Students' Columns of the *P. J.*, published during the last three years.

LAVENDER OIL (D. S.—10/31).—The price varies from 2s. 6d. to 50s. per pound, according to quality. You might offer the oil to a firm of wholesale druggists and the blooms to a florist.

PRELIMINARY EXAMINATION (A. B. G.—40/29).—Having already passed one preliminary examination and been registered as a "Student," there is no occasion for you to pass any other.

STILL (D. S.—40/31).—Any dealer in chemical apparatus, such as J. J. Griffin and Sons, Limited, 20, Sardinia Street, Lincoln's Inn Fields, London, W.C., will quote a price and supply you with the information you require.

MEDICAL DIPLOMA (H. D.—40/30).—Passing the Minor Examination will not save you anything in connection with the medical curriculum. Refer to the last Students' Number of the *P. J.*, published September 9 last, for the other information required.

PRESERVING THE COLOUR OF FLOWERS (H. C. T. G.—40/25).—Various processes have been recommended for the purpose and two are given here:—(1) Immerse in aqueous solution of sulphurous acid before drying; (2) plunge for an instant in a boiling alcoholic solution (1 in 600) of salicylic acid and dry.

REGISTRATION OF WORD (F. W. J.—40/28).—You must pay five shillings for a form of application, obtainable at any money order office, and, having filled it in, send it to the Comptroller, Patent Office, Trade Marks Branch, 25, Southampton Buildings, Chancery Lane, London, E.C. If the word be accepted for registration you must then pay twenty shillings for the registration form.

LIQUOR AMMON. ACET. CONC. (M. S.—40/19).—Take 64 fluid ounces of glacial acetic acid, add to it 30 ounces of water, then gradually add freshly powdered or crushed ammonium carbonate, 64 ounces: stir occasionally until all the salt has dissolved, then nearly neutralise by the addition of a little more acid. It is not easy to determine the exact neutral point of this liquid. It may be made just faintly acid after dilution 1:7 then as the taste is, less nauseous. Finally, adjust the volume to one gallon with distilled water. Instead of glacial acid the equivalent quantity commercial 80 per cent. acetic acid may be used. That materially lessens the cost.

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LONDON: SATURDAY, APRIL 7, 1900.

THE COUNCIL MEETING.

AFTER confirmation of the minutes of the previous meeting, the PRESIDENT drew attention to the death of Mr. JAMES WATT—a former member of the Council and of the Executive of the North British Branch of the Society, as well as local secretary for Haddington for many years, and a resolution was passed expressing regret and sympathy with his family.

Mention was also made of the death of Mr. WILLIAM BURLEY, of Edinburgh, a member of the Executive of the North British Branch.

The TREASURER announced that, in compliance with the instructions of the Council in reference to the Waterall legacy, particulars of which are recorded at page 258 of the Journal, he had purchased one thousand pounds of Consols.

The additions to the Society comprised, 52 members, 18 student-associates, several restorations to membership, and 4 persons were restored to the Register of Chemists and Druggists.

The SECRETARY read the report of Dr. STEVENSON to the Privy Council on the examinations conducted by the Pharmaceutical Society during the year ending in March last, stating that the improvement in the quality of the candidates mentioned in last year's report has not been altogether maintained, and showing that the number of candidates for the qualifying examination was exceptionally large, and that the proportion of failures was above the previous average, a very large percentage of them being due to deficiency in regard to the most essential and practical subjects of chemistry, pharmacy, and dispensing (see page 366).

The SECRETARY read a list of nominations for the Council election, and the names of those who had signified their willingness to take office if elected (see page 365).

Pursuant to the Bye-law 4, Section 5, Mr. CHARLES HODGKINSON was nominated to fill the vacancy arising from the retirement of Mr. STACEY from the office of Auditor. Mr. CARTEIGHE supported the nomination, and it was agreed to.

The report and recommendations of the Finance Committee were adopted without comment.

On the recommendation of the Benevolent Fund Committee, six grants, amounting in all to eighty-three

pounds, were ordered to be paid, and Dr. SYMES mentioned that on this occasion only one of the recipients had been a subscriber to the Fund. Another donation has been received this year from the Liverpool Students' Association of a sum collected at a smoking concert.

The report of the Library, etc., Committee stated that in addition to carrying out ordinary work, the Committee has sat as a Research Committee, and received reports from the Professors as to the progress of work undertaken at the request of the General Medical Council.

The SECRETARY stated that Mr. THOMPSON has represented that in Birmingham the increase in the number of members of the Society rendered necessary the appointment of an assistant local secretary for the western division of that city, and on the motion of the PRESIDENT, Mr. GEORGE E. PERRY was appointed to that office: Mr. W. T. WILSON was also appointed local secretary for the Haddington division, in the place of the late JAMES WATT.

In consequence of the ill-health of one of the Examiners a necessity has arisen to obtain assistance in the heavy examinations now in progress, and on the motion of the PRESIDENT, Mr. EDMUND WHITE was appointed to assist the examiners.

The SECRETARY reported that letters had been received;—

1. From the Manchester Pharmaceutical Association with a resolution passed at a meeting on the 14th March, approving of the action of the Council in regard to Clause 2 of the Companies Bill, and suggesting the propriety of including pharmaceutical chemists in Clause 3 of the Bill.

2. From the Sheffield Pharmaceutical and Chemical Society with a resolution passed at a general meeting on the 14th March, expressing the opinion that the action of the Council in reference to Clause 2 of the Companies Bill should have universal support from the chemists of Great Britain.

3. From the Oxford and District Chemists' Association with a resolution passed at the annual meeting on the 14th March, urging as an amendment of Clause 2 of the Companies Bill, that "no company of unqualified persons may use the description of pharmaceutical chemist or chemist and druggist, or any other title implying registration under the Pharmacy Act, 1868."

4. From the Lancaster and Morecambe Chemists' Association with a resolution passed on the 15th March, supporting the amended Clause 2 (A) in the Federation programme (see *ante*, page 237).

5. From the Bolton Pharmaceutical Association with resolutions passed on the 19th March, supporting the Council's opposition to Clause 2 of the Companies Bill, and the candidature of two nominees for election on the Council.

6. From Mr. BIRKBECK, local secretary for Lincoln, communicating the decision of the chemists of that district to support the Council in opposition to Clause 2 of the Companies Bill.

7. From the Leicester Chemists' Social Union, with a resolution passed on 22nd March, supporting the action of the Council in regard to Clause 2 of the Companies Bill, and suggesting that the Council should at an early date proceed to framing a Pharmacy Bill.

8. From the Forfarshire and District Chemists' Association with resolutions passed on 29th March approving decision of Council in regard to Clause 2 of the Companies Bill, and urging the preparation of a Bill to amend the Pharmacy Act.

9. From the Midland Pharmaceutical Association, with a resolution passed 15th March, supporting the action of the Council in regard to Clause 2 of the Companies Bill, and suggesting the issue of a circular for signature by all registered chemists in Great Britain.

10. From the Glasgow and West of Scotland Pharmaceutical Association, with resolutions passed on the 22nd March, to oppose Clause 2 of the Companies Bill and urging the promotion by the Council of a Bill to amend the Pharmacy Acts.

Mr. HILLS referred to these communications as being very interesting, and expressed a hope that at some of the meetings taking place throughout the country, the friends of the Council would not only advise that steps should be taken to frame a Pharmacy Act Amendment Bill, but also say on what lines they consider legislation to be desirable and practicable. The PRESIDENT also remarked that there is need, not only of destructive criticism, but also of something constructive. On the motion of Mr. CARTEIGHE the communications were referred to the Law and Parliamentary Committee.

On the proposition of the PRESIDENT, that the seal of the Society should be affixed to transfer deeds relating to the Society's Strawberry Hill property, Mr. CARTEIGHE explained the circumstances of the case (see page 367), and the proposition was agreed to.

After consideration of the legal part of the report a resolution was passed adopting the recommendations as to proceedings to be taken by the Registrar.

THE COUNCIL ELECTION.

THE candidates for the Council are seventeen in number, and as there will be only seven vacancies to fill, ten of the nominees must of necessity be rejected. The retiring members, all of whom are offering themselves for re-election, are Messrs. Bateson (Kendal), Cross (Shrewsbury), Grose (Swansea), Hills (London), Storrar (Kirkcaldy), Symes (Liverpool), and Warren (London). The ten who are prepared to replace them are Messrs. Campkin (Cambridge), Cooper (London), Currie (Glasgow), Gibbons (Manchester), Gifford (Blackburn), Gostling (Stowmarket), Morrison (Tring), Pickering (London), Taylor (Bolton), and Wootton (London). Three of those—Messrs. Campkin, Gibbons, and Morrison—have previously offered themselves for election, and been rejected. Mr. Cooper is a director of the Chemists' Defence Association, Mr. Currie is a former Vice-Chairman of the North British Branch Executive, Mr. Gifford has made himself prominent as a strong supporter of the no-surrender policy, Mr. Gostling is a relative of a former esteemed member of Council, Mr. Pickering was formerly Hon. Secretary of the Chemists' Assistants' Union, Mr. Taylor is the author of the paper recently published (see *ante*, p. 148) on "The Outlook in Pharmacy," Mr. Wootton has only recently retired from the editorial chair of a trade paper, the prosperity of which has been based upon constant endeavours to oppose the best interests of the Pharmaceutical Society and, consequently, of pharmacy in general.

ANNOTATIONS.

THE LETTER which appears in this week's Journal under the heading "Thoughts Suggested by Clause 2 of the Companies Bill," is published chiefly because the questions it raises illustrate some misconceptions still prevalent as to the relative positions of persons legally qualified under the Pharmacy Act, 1868, and the companies formed by unqualified persons for carrying on the business of a chemist and druggist, which thus set at defiance the object and provisions of the Statute. Those misconceptions often divert attention from the real points of interest, besides being otherwise a source of mischievous antagonism among registered chemists, and though they have been frequently dealt with on previous occasions, they may now be usefully referred to again in reply to the above-mentioned letter.

THE FIRST QUESTION raised as to whether the position of a company carrying on the business of a chemist and druggist is a legal one is, at the present moment, a quite superfluous question; one that really cannot be discussed: that was the main question when the case of the London and Provincial Supply Association was under consideration by the Courts; but it was not then decided, and, according to the admission of most of the judges, it could not be decided for various reasons. If the question had then been decided, there would not, of course, have been any occasion for Clause 2 of the Companies Bill. Unfortunately, the final judgment of the House of Lords, instead of deciding whether such companies were legal or illegal, only decided that, in the Pharmacy Act, the term "person" should not be held to include a company or a corporate body. That decision—which may be regarded as practically an evasion of the real question at issue—was essentially a declaration that the Pharmacy Act was so defective as to be unequal to securing even the specific object for which the Act was passed—viz., that certain poisons should be supplied, either by sale or as medicine, only by persons whose knowledge of their business had been tested by examination and officially certified. That position was reached twenty years ago; it demonstrated the imperfection of the "patchwork" Act which had been forced upon chemists under the influence of "clashing interests." Consequently the action then taken for the purpose of obtaining obviously necessary amendment should have been supported by all persons registered under the Act. Instead of that, the attempt then made by the Council of the Pharmaceutical Society, and numerous subsequent attempts in the same direction, were opposed and defeated. As a consequence of the influence of conflicting views and tendencies, nothing has been done either to stop the mischief most complained of by persons registered under the Act or to effect various other necessary amendments of the law relating to the practice of pharmacy and to the business of a chemist and druggist.

IN ADDITION to the fact that the question as to the legality of chemist companies still remains undecided, there is a far more important point in the judgment of the House of Lords—viz., the decision that a company, as a "person" in the eye of the law, is not such a person as the Pharmacy Act relates to; consequently, that companies, being altogether outside the scope of the Act, might freely do anything that individual persons are prohibited, by the Act, from doing, except under prescribed conditions. That decision has been considered by many to be absurd because it affords opportunity for unqualified persons—as a company—to violate the purpose of the Act. From a one-sided point of view, there is some reason for that opinion which is, moreover, in accord with the view that was taken of the matter by Lord Chief Justice Cockburn and by his colleague, Mr. Justice Mellor. But careful perusal of the judgments delivered by Lords Selborne, Blackburn, and Watson should suffice to convince an unprejudiced person that the very provisions of the Act furnish some more or less positive foundation for the conclusion they arrived at. In the first place, the Act of 1868—incorrectly called a Pharmacy Act—does not

relate to pharmacy: it does not deal with the practice of pharmacy; but only with the business of a chemist and druggist, and chiefly from a trade point of view. Then the omission of any direct reference to companies, though they were in existence when the Act was passed, appeared to give plausible support to the view that companies were not intended to be brought within the purview of the Act. Further, the evidently personal nature of the chemist's qualification, as well as the opinion that any individual acting contrary to the provisions of the Act—whether as master or as servant—would be liable to its penalties, operated as additional inducements to conclude that the object and purposes of the Act did not necessarily require the proprietor of a business to be personally qualified. Lastly, there was the fatal influence of the "Widows' Clause" to support that view. Still, with all allowance for these circumstances, as accounting for the opinion that the Pharmacy Act is itself defective, the result that has been brought about by the House of Lords' decision is obviously and undeniably a monstrous absurdity, since its effect is to negative the very provisions by which the specific public object of the Act was to be secured. The result of that decision is also unjust to persons registered under the Act; hence it is strange that, for the most part, their attitude should have been confined to mere complaint and lamentation, so long, that the practices of unqualified persons, directly in opposition to the object of the Pharmacy Act, are now made use of to support the argument claiming vested interest in the continuance of those practices.

THE REPRESENTATIONS made to the Government on this subject by the Councils of the Pharmaceutical Societies, have at length been productive of something more than mere expressions of sympathy. The Lord Chancellor has recognised the absurdity of the existing position, as well as the necessity for amendment of the law. He has also given evidence of his conviction "that a company ought not to be permitted to do what a private person is prohibited from doing." But the legislative amendment he has proposed regards the business of a chemist and druggist altogether as a trade instead of an occupation requiring, in so far as its exercise is subject to the law, a qualification that is as much professional as that of the medical practitioner. That he should regard the matter as one primarily affecting the public interest is not remarkable, nor is it surprising that, in proposing a remedy for the legal anomaly that "a company can do the very thing which an individual is not permitted to do without examination as to qualification," he should be guided by, and support, the view of the law Lords as to construction of the Pharmacy Act. From that point of view the Lord Chancellor appears to have come to the conclusion that a provision compelling companies to employ qualified persons to conduct the business to which the Pharmacy Act relates would not only bring companies within the scope of that Act, but would also satisfy all other requirements. He even proposes that a company of unqualified persons may use the titles indicating qualification which a company cannot in any case acquire. That view of the matter is one-sided and erroneous: it leaves out of consideration the vested interest and the just claims of persons registered under the Pharmacy Act; such amendment of the law cannot, therefore, be accepted by them—to any extent—without undue sacrifice of their position and of the only legal privilege attaching to their qualification—viz., the right to use the title of chemist and druggist in connection with their business.

THE EFFECT OF QUALIFICATION under the Act of 1868 is to give the qualified person a right to use the title of chemist and druggist in connection with his business. The whole value of that title—to the public or to the user of it—consists in its being a credential that the person using the title is certified by the State to be competent to discharge certain duties connected with the sale or dispensing of about one-tenth part of the articles constituting the pharmaceutical stock-in-trade of an ordinary chemist's shop. The fact that the other nine-tenths can be dealt

in, either by companies or by individuals without qualification, as freely as ordinary groceries, drysalteries, or the other miscellaneous articles sometimes dealt in by chemists and druggists, altogether disposes of the specious but wholly false pretence often put forward that the Pharmacy Act creates a monopoly of trade; that fact also proves that the intention of the Act was only to restrict trade in certain dangerous articles, because such restriction was deemed expedient in the interest of the public. Therefore, whenever Clause 2 of the Companies Bill comes before Parliament the real question to be considered will involve the alternative whether the salutary provisions of the Pharmacy Act—meagre as they are in regard to the practice of pharmacy—shall be maintained, in the public interest, or repealed in the interest of companies which violate the spirit of the Act. In regard to that question persons registered under the Act can take only one position. No compromise is possible: no admissible amendment of Clause 2 of the Companies Bill would suffice to remedy the alleged defect of the Pharmacy Act, either from their point of view or in the public interest; therefore, as the Council of the Society has decided, nothing should be done by legally qualified persons but oppose the Clause altogether. If any considerable number supported the proposals of Clause 2 while another section remained apathetic or undecided and only a minority adopted the decision of the Council, the result might be doubtful; but, with a properly united effort, the case is so reasonable that success might be confidently anticipated. The further question of adequate amendment of the Pharmacy Acts, in regard to the practice of pharmacy, is for the future: that task must not be attempted with the object of restricting trade; but from the point of view that the business of a chemist and druggist is, to some extent, of a professional character. In that sense the essential point to be secured is limitation of the use of any title indicating legal qualification in connection with the exercise of that business.

MR. JESSE BOOT—with his usual ingenuity as an advertiser—seeks to take an unfair advantage of the remarks made at the dinner of the Liverpool Chemists' Association, in reference to the position of legally registered chemists and that of limited liability companies carrying on the business of a chemist and druggist. In a letter to the *Liverpool Courier* he mentions several instances in which that business is carried on by limited liability companies, viz., Symes and Co., Allen and Hanbury, Southall Brothers and Barclay, and Woolley's, for the purpose, as he says, of showing "that company pharmacy is by no means subversive of the best traditions of the trade." He further asks "why then should the Liverpool Chemists' Association seek to deny the title of chemists and druggists to limited companies?" and he mentions Boot's Cash Chemists as being a case of company trading analogous to that of the firms above mentioned. That comparison may appear plausible to the uninformed and, though Mr. Jesse Boot is not among that number, the question he asks may be replied to for general information by stating the circumstance which he is careful to leave unnoticed, viz., that while the firms he mentions are owned by and conducted by persons legally qualified under the Pharmacy Act to carry on the business and to use the title of chemist and druggist in connection with that business, Mr. Jesse Boot is not so qualified. His position, and that of the company to which he belongs, is therefore a direct violation of the Pharmacy Act, in so far as the company carries on any part of the business which the Pharmacy Act—passed solely in the public interest—was intended to prevent any persons from carrying on but those legally qualified, viz., the sale and dispensing of scheduled poisons. The limitation of that part of a chemist and druggists business to persons legally qualified under the Act was established by the Legislature to secure public safety on the principle always advocated by the Pharmaceutical Society that the only safeguard to be relied upon in dealing in poisons or medicines and dangerous articles of that nature, is the competent knowledge and trained skill of the persons supplying them.

THE RIGHT TO USE THE TITLE of chemist and druggist in connection with that business was conferred by the Act upon qualified persons, and it is the only indication by which the public can distinguish such persons from impostors or pretenders. It is therefore a provision to secure public safety and the use of the title by a company—which in the nature of things cannot be qualified—is as the Lord Chancellor has pointed out essentially absurd, though there is no reason why persons duly qualified under the Pharmacy Act should not form themselves into limited companies such as those mentioned by Mr. Jesse Boot as some of the finest in the kingdom, with the obvious but fallacious desire of bringing his own company under the ægis of their well-deserved credit. The passage from a letter of Mr. Barnard Proctor in the *Pharmaceutical Journal*, which Mr. Boot quotes, apparently for the purpose of discrediting the notions of chemists, does not in its isolated form fully or fairly represent the argument intended by the writer of the letter. In face of the excessive competition now carried on between chemists the attempt made by Mr. Boot to justify the action of violators of the law by the suggestion that the real point at issue between chemists and the companies which usurp their position is whether chemists shall be allowed to charge "exorbitant prices" is too ridiculous to need further comment. The real facts of the case are that the general stores, run by companies of unqualified persons, do carry on greater part of the business of a chemist and druggist; there is nothing to prevent them, nor is there any desire to do so; but in so far as such companies sell or dispense scheduled poisons they act in contravention of the Pharmacy Act and defeat its object, while, in assuming the title of chemist and druggist, or any title conveying the impression that they are acting in conformity with the law, they deceive the public and appropriate what they have no right to. The comparison Mr. Boot seeks to make between such companies and others referred to in his letter has no real foundation, because these latter are not in the ordinary sense joint-stock companies, but merely applications of the principle of limited liability for private purposes which are not, in themselves, illegal and do not in any way violate the law.

MR. HINDLE'S REMARKS in reference to the comments in last week's Journal on the meeting held at Blackburn (see page 371) confirm the suspicion, then expressed, that the meeting was not regularly reported. As to the various potentialities and supposititious matters which Mr. Hindle discusses, the published report of the meeting and his own letter will enable anyone who thinks the matter worth notice to ascertain the facts of the case and to form their own opinion whether Mr. Gifford's *résumé* of what took place at the Liverpool dinner was correct, and also to judge what foundation there is either for Mr. Hindle's innuendo that the plain statement of facts then made by the President of the Pharmaceutical Society was an exposition of his "views" on the subject of Clause 2 of the Companies Bill, or for the equally unfounded suggestion that those facts are capable of refutation by Mr. Gifford.

THE COUNCIL ELECTION WILL TAKE PLACE at the annual meeting on Wednesday, May 16 next, and the Secretary must send voting papers to all members of the Society qualified to vote, not less than ten days prior to that meeting, the names and addresses of the members willing to serve on the Council, if elected, appearing in such voting papers. Being qualified to vote implies the payment of the current year's subscription as a member of the Society on or before Monday, April 30. The voting papers having been received, every person voting must erase the names of all the members for whom he does not intend to vote—leaving not more than seven names, otherwise the voting paper will be void—and transmit his voting paper, under cover, to the Secretary, so as to arrive not later than twelve o'clock noon on May 16, or, if he prefers to do so, he may deliver the voting paper personally at the

time of election. The method of procedure is extremely simple, but many voting papers are spoiled every year owing to the instructions not being strictly followed. Too few names are erased, or the voter marks the names of those he desires to support with a cross, or he neglects to write his name and address on the outside of the cover, or there is some delay in delivering the voting paper to the Secretary. Such errors should be carefully avoided if it is wished to make the votes effective, the more especially as it is very desirable that the result of the election should thoroughly represent the feelings of the members of the Society.

DR. STEVENSON'S REPORT (see p. 366), as Government Visitor, on the examinations held by the London Board of Examiners of the Pharmaceutical Society during the year ending March 31 last, is as full of interest as usual. It will be noted that he expresses gratification at the approaching abolition of the Society's First Examination, and anticipates that the number of candidates who will in future be able to present themselves for the qualifying examination will be reduced as a consequence of superseding that examination by one of higher standard. Referring to the qualifying examination, Dr. Stevenson notes a falling off in the improvement which he observed last year in the quality of candidates. At the same time he is satisfied that the examiners have not been unduly severe, "having regard to the paramount interests of the public." The words quoted are worthy of especial attention at the present moment, in view of the persistent efforts that are being made by chemists who take their opinions from trade journals to bring about a reduction in the standard of examination. Such efforts are, of course, bound to fail, but Dr. Stevenson's timely statement may go far to minimise their apparent importance. The Major examination is dealt with very briefly in the report, the chief points in regard to it being the smaller number of candidates who presented themselves, an increase of failures in specific subjects, and a decrease in the number of failures in aggregate marks.

THE FIRST EXAMINATION, on the approaching supersession of which Dr. Stevenson congratulates the Society, is being abolished, as the more or less direct outcome of a resolution passed some time ago at a representative meeting of Scottish pharmacists. But for their insistence, the examination might have been allowed to continue to exist for many years to come. It is curious, therefore, to find a contrary tendency now being manifested in Scotland, where several chemists seem anxious to put back the hands of the clock in an altogether too pronounced retrogressive manner. Evidence of that tendency is afforded by a report (see p. 386) of a meeting of the Forfarshire Chemists' Association, at which a resolution was adopted, requesting the Council of the Pharmaceutical Society to consider the propriety of preventing the new preliminary examination regulations coming in force for five years. The only reason for this curious suggestion is that a difficulty is anticipated in getting apprentices if the standard of education is raised. But the chief point in favour of the new regulations is that they may be expected to exclude insufficiently-educated youths. Registered chemists have no moral right to take intellectually unfit individuals as apprentices, and the authorities are not likely to pander to any desire to secure cheap labour, and so damage the general interests of pharmacists and the public.

MR. J. F. TOCHER writes to complain that the inaccuracies in his paper, referred to by him last week (see p. 344), should have been allowed to pass uncorrected by the Editor, but he betrays a want of acquaintance with the duties of an author—the due fulfilment of which would justify the expectation that his contributions will be properly reproduced—which no amount of argumentation on his part can conceal or compensate for.

ENGLISH NEWS.

BRITISH PHARMACEUTICAL CONFERENCE (LONDON MEETING).—The following are the names of the gentlemen forming the Local General Committee, as at present constituted:—Allen, C. B.; Allen, E. R.; Andrews, E. A.; Andrews, F.; Arkinstall, W.; Atkinson, Leo; Attfield, Dr. J.; Baker, Parson C.; Barnett, J. A.; Bascombe, F.; Bate, H.; Bourdas, I.; Bowen, J. W.; Bremridge, Elias; Bremridge, Richard; Butler, H. J.; Butt, E. N.; Carteighe, M.; Collier, H.; Cooper, A.; Cooper, A. J. B.; Cracknell, H.; Dyson, W. B.; Ekins, A. E.; Fisk, F. M.; Fletcher, F. W.; Gerrard, A. W.; Glyn-Jones, W. S.; Goldby, F.; Goldfinch, G.; Greenish, Professor; Gulliver, W.; Hanbury, C.; Hanson, A. W.; Harrington, J. F.; Hill, E. W.; Hills, Walter; Holding, J.; Holmes, E. M.; Howard, D. Lloyd; Howell, M.; Humphrey, John; Hyslop, J. C.; Idris, T. H. W.; Jacks, D. R.; Knight, G. J.; Lescher, F. H.; MacEwan, P.; Marsh, E. N.; Martindale, W.; Mathews, J. H.; Miles, C.; Moore, J. E. Langford; Moss, Harold; Moss, John; Naylor, W. A. H.; Nickolls, Theo.; Parker, R. H.; Phillips, A. J.; Philp, W. J. I.; Preston, J. Claxson; Probyn, Lieut.-Col. Clifford; Ransom, F.; Robbins, John; Robinson, R. A.; Robinson, W. P.; Savory, A. L.; Shacklock, J. H.; Smith, F. A. Upsher; Taplin, J. W.; Taylor, G. S.; Turner, J. Scriven; Tyrer, Thomas; Umney, C.; Umney, J. C.; Ward, J. S.; Warren, W.; White, E.; Wiggins, H.; Wiggington, A.; Worsley, A. G. Any gentlemen who would like to have their names added to the list are requested to communicate with the Hon. Local Secretary, Mr. W. Warren, 24, Russell Street, Covent Garden, W.C.

ROYAL INSTITUTION.—A general monthly meeting of the members of the Royal Institution was held on April 2, Sir J. Crichton-Browne in the chair. The following were elected members:—Mr. R. T. Glazebrook, Mr. E. J. Humphrey, Mr. H. S. Maxim, Mr. S. W. A. Noble, Mr. W. F. Snell, W. J. Tennant. The special thanks of the members were returned to Mrs. West and Mrs. F. Colenso for their present of a portrait of their father, the late Sir Edward Frankland, K.C.B., D.C.L., F.R.S., Professor of Chemistry at the Royal Institution from 1863 to 1868.

HALIFAX AND DISTRICT CHEMISTS' ASSOCIATION.—At a meeting of this Association on March 21, before a good muster of members, Mr. Clement Fielding read a paper upon "Pharmaceutical Malthusianism." He first explained the application of Malthusianism to pharmacy. He would limit the supply by curriculum and examinations, weeding out the unfit. He also advocated taking only the better educated youths as apprentices. Specialisation was Mr. Fielding's remedy for the growing evils threatening the profession.—Messrs. H. C. Brierley, Gibson, Dixon, W. C. Hebden, and Tiffany joined in the discussion which followed.—A hearty vote of thanks was accorded Mr. Fielding.

CHEMICAL SOCIETY.—On Thursday afternoon, March 29, the President, Dr. T. E. Thorpe, took the chair at the annual meeting of members, which was held at Burlington House, Piccadilly, W. There was a small attendance. The President, in the course of an address, stated that the strength of the Society at the present time is 2,288; twenty-five Fellows had died during the year, nineteen had withdrawn, and one hundred and eighteen had been elected. He referred briefly to the losses sustained by the Society in the deaths of such men as Frankland, Bunsen, Friedel, Nilson, Rammelsberg, and Waage. With regard to the work of the Society, the President mentioned that during the past year one hundred and seventy-five communications had been made; he also referred to the contents of the Society's Journal and the general index.—In the absence of Professor W. H. Perkin, jun., the Long-

staff Medal was then handed to his father, Dr. W. H. Perkin.—Dr. Tilden, Treasurer, in his report, stated that the Society's income during the year had been, from admission fees and subscriptions, £4,088; Journal, £781 15s. 6d.; interest, £444 13s. 7d. The total expenditure had been £4,993 13s. 1d., including payments on account of the Journal, £3,388 12s. 11d.; proceedings, £171 14s. 7d.; library and catalogue, £322 6s. 5d.; house expenses, £543 5s. 11d. Research grants amounting to £192 had been made.—The election of officers and Council then followed, Professor Divers and Dr. Thomas Stevenson being elected Vice-Presidents in place of Professors Ramsay and Emerson Reynolds (retired); and Professor J. N. Collie, Dr. Chattaway, Mr. A. Dixon, and Mr. W. J. Pope were elected to the Council in place of Messrs. Bevan, Moody, Morley, and Smithells (retired). All other officers, including the President, Dr. Thorpe, continue in office for another year.

PROCEEDINGS UNDER THE PHARMACY ACT.—On Thursday, April 5, a summons taken out by the Pharmaceutical Society against Mr. Gaskell, carrying on business as Gaskell's Drug Stores, at 161, Goldhawk Road, Shepherd's Bush, for two penalties of £5 each, for the illegal sale of a preparation of opium (laudanum), the defendant not being duly qualified within the meaning of the Pharmacy Act, came before the Deputy Judge at the Brompton County Court. Prior to the hearing the defendant had paid the penalties, and did not appear on the summons.—Mr. Vaughan Williams (instructed by Messrs. Flux, Son, and Thompson) appeared as Counsel for the Society, and applied under Section 13 of the Act of 1852 for full costs, including the costs of five witnesses, and a certificate for the attendance of Counsel.—His Honour made the order as asked, payment to be made within fourteen days.

SALE OF SEIDLITZ POWDERS.—At the recent Seaham Harbour Petty Sessions, George H. Brown, wholesale grocer, of Newcastle-upon-Tyne, was summoned by Inspector Scott-Elder, acting on behalf of the Durham County Council, for selling to William Davison, retail grocer, of East Murton, goods bearing false descriptive labels.—The Inspector stated that his object in bringing the case before the Bench was to endeavour to fix the responsibility for adulterated articles, not upon the retail trader, who was innocent in the matter, but upon the wholesale firm which supplied him. In the present case he had charged defendant with selling Seidlitz powders not only seriously deficient in strength, but which bore labels falsely describing the compound thus:—"Effervescent saline powders, formerly called seidlitz powders—not in accordance with the British Pharmacopœia." He pointed out that the words "Seidlitz Powders" were in big letters, whilst the remainder of the writing was so small as not to be readable at a casual glance. The intention was clearly to deceive the purchasers into the belief that they were buying seidlitz powders, whereas, according to the county analyst's certificate, the powders were deficient in the proper ingredients to the following extent:—Sodium potassium, 33 per cent.; sodium bicarbonate, 35 per cent.; tartaric acid, 26 per cent.—Evidence having been given that the invoice issued by defendant for the goods read, "Three dozen seidlitz powders, 2s.," Mr. Hewetson, for the defence, contended that the wording on the label was a true description of the contents of the packet.—The Bench considered the charge proved and fined defendant £5 and costs.—A charge against Mr. Davison for selling the powders was withdrawn, and his costs remitted.

SCOTTISH NEWS.

GLASGOW INTERNATIONAL EXHIBITION, 1901.—It is officially notified that all applications for space at the Glasgow International Exhibition, which is to be opened in May, 1901, must be lodged, not later than June 1, with the general manager, Mr. H. A. Hedley. There are in all eight classes, embracing agriculture, mining, indus-

trial design and manufactures, machinery and labour-saving appliances in motion, locomotion and transport, marine engineering and shipbuilding, lighting and heating, science, education, music, sports and sporting appliances. Separate sections will be devoted to women's exhibits, archæology and fine art.

GLASGOW SCHOOL OF PHARMACY.—On Saturday, March 31, the students, accompanied by the principal and demonstrators, visited the works of Messrs. Harkness, Beaumont, and Co., manufacturing chemists, Junction Bridge, Edinburgh. The preparation of malt extract was explained by Mr. McDiarmid, chemist to the firm. The malt is crushed, infused, and the wort evaporated in vacuum pans. The liquid extracts are also evaporated *in vacuo*, by which a finer flavoured product is obtained than by evaporation in open steam pans. The preparation of spt. ether. nit. in earthenware stills was next witnessed, and also the stills for the recovery of alcohol from tincture marcs. The disintegrators were seen in operation, and a visit was then paid to the calcium bisulphite works. Sulphur dioxide is generated by the action of charcoal on vitriol and passed into slaked lime. The visit was terminated by an inspection of the malt vinegar plant. The wort is rapidly cooled by means of refrigerators, fermented by means of yeast, and acetified by being sparged over birch shavings (containing the *Mycoderma aceti*), while kept at a temperature of about 90° F. The product contains from 10 to 12 per cent. of acetic acid, and on keeping the flavour is developed by the action of the acetic acid on the unoxidised alcohol, ethyl acetate being formed.

POISONING CASES.

POISONING BY HYDROCYANIC ACID.—The Manchester City Coroner held an inquest on Friday, March 30, concerning the death of Thomas Hart (58), pharmaceutical chemist, 56, Ducie Street, Greenheys, Manchester. Evidence was given to the effect that deceased had lately been depressed because his business was not prospering, and that he had also had some trouble with his youngest son. Early on Thursday morning, March 29, Mrs. Hart awoke and found that her husband had already risen; she sent her daughter to look for him, and he was found lying on the bathroom floor. It was subsequently discovered that he had taken a quantity of hydrocyanic acid. A verdict of suicide whilst insane was returned.

OVERDOSE OF OPIUM.—At an inquest, held on Thursday, March 29, evidence was given to the effect that James Joseph Lovibond (33), pharmaceutical chemist, lately residing at 56, Galatley Road, Nunhead, was, on the previous Friday, found unconscious on a seat on the Thames Embankment, and that before he could be removed to King's College Hospital he died. It appeared that deceased had suffered from bronchitis, and on the day of his death had been told by the manager of a wholesale firm of chemists in Whitecross Street, where he was employed, to go home, as he was too unwell for business.—The medical evidence showed that a quantity of opium had been swallowed.—The jury was of opinion that there was no evidence to show that the drug had been taken with any improper motive.

POISONING BY CARBOLIC ACID.—Michael O'Neil (38), a fireman on board the s.s. "Holgate," while the vessel was lying at Tyne Dock South Shields, on March 19, found a bottle containing liquid in his bunk, and, mistaking it for spirits, drank some of the contents, which proved to be carbolic acid. At a subsequent inquest a verdict of "Death from misadventure" was returned.

POISONING BY CARBOLIC ACID.—On Thursday evening, March 29, a young woman, about twenty years of age, was found lying unconscious in Firs Lane, Winchmore Hill, suffering from poison-

ing. A doctor was called, but he was unable to prevent death from claiming another victim to carbolic acid, which had evidently been contained in a pint bottle labelled "Champion's Vinegar."

POISONING BY AMMONIA.—On Sunday, March 25, Frederick Joseph Elliot, butcher, 76, High Street East, Sunderland, after partaking of dinner, complained of being unwell; went to a cupboard to get some whisky, accidentally picked up a bottle which contained ammonia, and drank the contents. Medical aid was requisitioned, without avail, death occurring shortly afterwards.

OVERDOSE OF LAUDANUM.—At Kidderminster, on the evening of March 26, John Wright, veterinary surgeon, of that town, died from the effects of an overdose of laudanum. An inquest was held on March 27, and a verdict of "Death from Misadventure" was returned.

AN OVERDOSE OF COUGH MIXTURE.—An inquest was held at Belfast on the 30th ult. touching the death of an engineer named Robert Brown, of Wellington Park, Belfast, who, it appeared had been suffering from a cold, and had taken an overdose of cough mixture on the 27th ult., from the effects of which he died on the following day in the Royal Hospital, Belfast. Medical evidence having been heard, the jury returned a verdict that death was due to morphia poison taken by misadventure.

Obituary.

FREW.—On March 29, James McDonald Frew, Chemist and Druggist, Dingwall, N.B. Aged 33.

HART.—On March 22, Thomas Hart, Pharmaceutical Chemist, Greenheys, Manchester. Aged 58.

HENDRY.—Last week, Alex. John G. Hendry, Pharmaceutical Chemist, late of Edinburgh. Mr. Hendry served his apprenticeship with a chemist in Turriff, and afterwards studied in Edinburgh, gaining practical experience in the laboratories of one of the wholesale houses there. Latterly he has acted as chemist in the laboratory of Messrs. Lorimer and Co., Limited, London, which position he held for several years, winning the entire confidence of his principals.

JONES.—On March 31, Hugh Jones, Student-Associate of the Pharmaceutical Society, Llanfairfechan. Aged 21.

KENNERLEY.—On March 31, William Kennerley, Chemist and Druggist, Liscard. Aged 51.

LOVIBOND.—On March 23, James Joseph Lovibond, Pharmaceutical Chemist, late of Nunhead. Aged 33. Mr. Lovibond was a life member of the Pharmaceutical Society.

NORFOLK.—On March 27, Henry Norfolk, Chemist and Druggist, Darlington. Aged 42.

SUTHERLAND.—On March 30, John Sutherland, Chemist and Druggist, Portsoy (Banff). Aged 52. Mr. Sutherland was a native of Portsoy, and was apprenticed to Mr. Findlay, druggist, of that place, afterwards serving as an assistant at Greenock. A little over thirty years ago he returned to Portsoy, commenced in business on his own account, and succeeded in establishing a good connection in the district. He took an active interest in local affairs, although he never allowed himself to be connected with any public bodies, except as one of the burial-ground trustees, the extension and beautifying of the burial-ground being largely due to his exertions. Death occurred suddenly. He was apparently in the enjoyment of his usual health, and was attending to the duties of the shop, when, without warning, he fell to the floor and was picked up unconscious. Medical aid was quickly summoned, but life was found to be extinct.

MIDLAND PHARMACEUTICAL ASSOCIATION.

A well-attended meeting of this Association was held at Mason College, Birmingham, on the 29th ult., at which a highly-interesting paper on

Pharmacy and Medicine.

was read by Mr. ALFRED H. CARTER, M.D., F.R.C.P., senior physician to the Queen's Hospital and Professor of Medicine at Mason University College. At the outset Dr. Carter said the two professions of pharmacy and medicine were bound together by ties of many kinds, but all arose from their common interest in drugs as used for the treatment of disease. Doctors used the drugs which the pharmacists prepared. This had ever been the fundamental and essential nature of the relation between the two professions, but increasing knowledge on both sides had placed them on very different platforms from those occupied less than a century ago. The doctrines and methods of the medical men had undergone complete revolution, and so had those of the pharmacist. It had occurred to him that out of these changed relations he might find a few topics for discussion, and so he passed on to describe what he conceived to be the place of drugs in the treatment of disease as doctors understood it to-day. There was, he said, no part of the doctor's art with regard to which there was more popular misconception, and for this the non-medical public were not entirely to be blamed. The erroneous views which prevailed were due in some considerable measure to irrational expectations from the employment of medicines, encouraged too often by those who ought to know better. The first thought occurring to the great majority when overtaken by illness was what medicine should be taken. Medicine of some kind was forthwith prescribed and swallowed. If recovery followed, all the credit was given to the drug, which quite possibly had had little or nothing to do with the result. Unfortunately, this attitude rested upon such deep-rooted convictions that the best of medical men were compelled largely to conform to it, and thus it came about that a prescription still continued to form at least a part of nearly every medical consultation. At any rate, the letter of the prejudice was observed, though the spirit of it, he was glad to know, was very often evaded. He admitted the doctors had the remedy in their own hands, but it was one that must be employed with much tact and discretion, or the patient would promptly transfer his favours to quarters in which his prejudices received greater consideration. Little could be done until public opinion became educated to more intelligent and reasonable views on the subject. Such education was undoubtedly in progress. Sounder views of the nature and causes of disease were spreading; the scope and limitations of the art of healing were coming to be better understood, and there was a growing trustfulness in the knowledge and good judgment of medical practitioners which year by year made it easier to take an independent line in the regulation of such treatment as was thought to be desirable.

WHAT THE PHARMACIST CAN DO.

Next to medical practitioners themselves, there was no class of the community which, if well-informed, could do more to bring about a sounder state of things than pharmaceutical chemists. They were expected by the public to be, and had a right to be, better acquainted with the inner methods of working adopted by the medical profession than any other body of men outside its ranks, and the interests of the two professions were so closely allied that, in the long run, whatever was good and right for the one was equally so for the other. It might, therefore, be worth the while of the pharmacist to look somewhat closely into the question as to what sphere of action might reasonably and legitimately extend to drugs as a means of treating disease. Although it was true that drugs still held an important place among the means at disposal for the treatment of disease, it was equally certain

that in the course of the last half-century the attitude of the medical profession, as he had already pointed out, had been radically altered. The change was primarily and mainly due to truer conceptions of the nature of disease in general, to a far more exact knowledge of the causes of diseases and the mode in which they operated, and to an extraordinary advance in the art of diagnosis. Scarcely second in importance to the influence of these facts was that which had arisen from more exact knowledge of the means at the doctor's disposal for the purposes of treatment. This not only held good with regard to the actions of drugs—pharmacology pure and simple—but to the whole range of measures which were available for modifying bodily action. The three master questions which the modern practitioner put to himself were: (1) What is the nature of the disease or disturbance which has been set up; (2) where is it located; (3) what are its probable causes. From the answers he got to these questions the medical man proceeded to construct a picture in his mind of the natural history of the morbid disturbance, and then turned his attention to the means at his disposal for treatment.

THE PLACE OF DRUGS.

In the light of modern knowledge and experience, he soon grasped the fact that among the means capable of accomplishing these ends drugs had to take a very different rank from that which had hitherto been accorded to them. With the exception of a few diseases dependent upon some simple specific cause such as an animal or vegetable organism or poison which is capable of being directly removed or neutralised by drugs, the latter were incapable of dealing directly with the large majority of ailments which depended upon faults of environment. At any rate, they could do little or nothing by way of cure; and whatever advantage they were capable of conferring must be of an entirely subordinate nature. Again, it was only reasonable to assume that in all bodily disturbance, under whatever circumstances it was brought about, the system would be more naturally influenced for good and more readily turned in the direction of recovery by those agents to which it was accustomed to respond by nature, such as climate, nourishment, fresh air, light, heat, cold, rest, exercise, and the like, rather than by the introduction of agents which were naturally foreign to the body, such as drugs. Whilst admitting, therefore, that there was a legitimate sphere for the beneficial employment of medicinal remedies, it must be understood that as a class they occupied for the most part a position of secondary and subordinate importance as compared with the value of what were known as general remedies. No treatment could supersede or replace, when lost, the natural powers of recovery which the human body possessed. Treatment helped the body which could help itself, but for the body which was no longer able to help itself it could do practically nothing. It was no derogation of their art thus to wait upon nature. On the contrary, it made a far greater demand upon the knowledge, patience, courage, and good judgment of a practitioner to interpret the inarticulate appeals of nature for help, and to minister to her needs, than to treat a disease by a formula, pharmaceutical or otherwise, however cunningly devised or however plausible the doctrine on which it rested. The only drugs, then, that could be said in any sense to cure disease were just those few which struck at prime causes. They might almost be numbered on the fingers of one hand—namely, quinine in malarial fever, mercury and iodide of potassium in certain forms of syphilis, sulphur in scabies, certain parasiticide drugs in skin diseases, permanganate of potash in early stages of opium-poisoning by the mouth, and chlorate of potash in certain forms of stomatitis. Salicylate of soda only just fell short of being a specific for uncomplicated acute rheumatism. It checked the development of the disease close to its source so long as the patient was under its influence, and if this was maintained until the morbid condition—which was a temporary one—passed off, the disease for the time being was cured. Again, digitalis in certain types of heart disease helped the organ so directly to contend successfully with its difficulties

that in such cases it almost deserved to rank as a curative drug. Antiseptic drugs for the purpose of diminishing or actually preventing purely local effects of bacterial activity in accessible parts like open wounds, the throat, and the like, deserved to be included in the same category. In all other cases drugs could only minister indirectly to recovery, with greater or less effect, in one of the following ways: (1) By relieving symptoms especially by the relief of pain and sleeplessness; (2) by supplying something of which the body is in need, such as lime, iron, or fat in the form of cod liver oil; (3) by promoting natural process of elimination by skin, bowels, or kidneys; (4) by assisting the processes of nutrition; (5) by helping to obviate the tendency to death.

FEATURES OF PRESENT-DAY PHARMACY

Turning to topics of a more strictly pharmaceutical order, Dr. Carter said that in the course of the century which was just now expiring there had been vast changes in the application of pharmacy for medical purposes. What an enormous change from the first Pharmacopœia of 1618, with its 1,254 drugs and preparations, to that recently issued! Yet even this change, vast as it was, did not cover the whole ground, because there has always been a large amount of unofficial medication carried on with drugs that had never found a home in official formularies, and this had never been more truly the case than at the present day. The leading features of present-day pharmacy naturally followed from the considerations referred to in the earlier part of the paper. First and foremost a much smaller number of drugs was employed than ever before, especially if they considered the practice of any individual prescriber. So closely was this progressive elimination related to the progress of medical knowledge that it was possible to measure with considerable accuracy the state of knowledge in respect of any disease by the number of the different remedies recommended or employed for it. Whenever a great variety of medicinal remedies was recommended for any complaint, they might be quite sure either that very little was known about it or that very little could be done for it. A second feature of modern pharmacy was increased simplicity in the construction of prescriptions, which often consisted nowadays of only one active ingredient, and the total amount of medicine prescribed was also much smaller. This arose from a better appreciation of what was expected from medicinal treatment, and a truer estimate of the chances of the drug accomplishing the purpose for which it was selected. It was obvious that from this point of view the combination of drugs, except in a very limited and simple way, must obscure and confuse the mind in judging the results of medication, and thus place the practitioner at a disadvantage. A third feature closely allied to and growing out of the first-mentioned was an increasing preference for active principles in the place of crude drugs. By this means they were enabled to bring medication to a focus, as it were. A fourth feature was the great increase in the relative prominence of chemical as compared with galenic preparations. Unfortunately, the chemical structure of a large number of these substances was exceedingly complex, and in the absence of that chemical knowledge which was essential for their intelligent use, the rank and file of practitioners were compelled more or less exclusively to rely on the statements contained in the literature with which the introduction of these drugs was boomed—a literature which endeavoured to compensate for its lack of authority by dogmatic statements inspired rather by the instincts of commercial enterprise than by any desire to extend knowledge for its own sake. A fifth and last characteristic of modern pharmacy was the extraordinary progress that had been made in the form in which remedies were prepared and presented for use. Perles, granules, sugar-coated tabloids, capsules, and cachets had not only given to nauseous drugs the attractiveness of bon-bons, but had greatly ministered to the convenience of both practitioner and patient. He feared, however, that the new régime imposed a good deal of extra trouble upon the pharmaceutical chemist for which he got no adequate remuneration. These elegant and con-

venient modes of preparation had not yet found a place in the Pharmacopœia, but their existence had been recognised to some extent by the requirement that their ingredients should conform to the official tests of purity.

TO PREVENT SELF-MEDICATION.

It would be very desirable if some plan could be devised which would meet the objectionable and rapidly-growing habit of self-medication with active and powerful drugs on the part of the public, which was due to the facility with which bottles of medicinal tabloids, labelled with full therapeutic directions, could be obtained. If any member of the Association could suggest any remedy (even though it were partial in its effect), he should be glad to take such steps as were possible with a view of securing the co-operation of members of the medical profession. He thought something might be done if the leading dispensing chemists of the city were to draw up a list of such preparations as they were prepared to stock without reference to any particular maker, so that doctors could prescribe them in the ordinary course like any other preparation. But whether this would be practicable or not, the question was an important one and deserving of attention.

IMPROVEMENTS IN THE PHARMACOPŒIA.

With regard to the last Pharmacopœia, there could be no doubt that from the point of view of students and practitioners it represented a considerable advance on any of its predecessors. He was not qualified to speak of its more strictly pharmaceutical aspects, but, seeing that the Pharmaceutical Society took such an important part in its compilation, there was every reason both to hope and believe that from this point of view also it represented an advance. From the varied interests which such a work had to meet it was, of course, impossible that it should please everybody; but for his own part, the more familiar he became with it, and the more he was able to understand the conditions of its construction, the higher was the opinion which he was inclined to form of it. One was glad to see the omission of no fewer than 188 items which found a place in the previous issue, and it might have been better, perhaps, if the advice of the Pharmaceutical Society as to the omission of eighty-two additional items had been followed. But apart from the riddance of rubbish, it was a most conspicuous merit of the present edition that it tended to a greater simplification of dosage standardisation and methods of preparation. A greater uniformity of dosage as regarded analogous preparations—such as the tinctures, for instance—was a great boon, both to the student and the practitioner. When once a practitioner came to believe and to know that all he could reasonably require for the medicinal treatment of disease might be found within the four corners of the Pharmacopœia, when once he could rely upon a fair standardisation of the preparations it contained, when once he found it easy to grasp their dosage, he would at the same time come to see that the more strictly and exclusively he confined himself to such official resources, the better for himself, for his patients, and for the dispensing chemist. The deficiency of such attractions, which had been only too apparent in previous editions, had much to answer for in the relatively small use that had hitherto been made of it. Of course, there always was, and ought to be, room for the introduction of new drugs and methods of preparation which deserved attention from those who had the opportunity and personal qualifications for giving them fair investigation and full trial. But the wholesale fashion in which chemical compounds issued from German laboratories, and the multiplicity of vegetable extracts which we owed to the ruthless enterprise of American drug firms, nine out of ten of which were simply a delusion and a snare, was an evil of colossal magnitude. It was for the most part a monstrous system of quackery, which demoralised the whole art of medicinal therapeutics, struck at the very root of reasonable and intelligent practice, and sacrificed the best interests of a noble profession to the rapacity of a hungry commercialism which cared for nothing but the filling of its own pockets. It was easier to state the evil than to provide a remedy. Something might be done by giving greater prominence in the medical schools to

the methods of medicinal treatment, and by attaching greater importance to the selection of appropriate medicines and the art of prescribing. The crowded condition of the medical curriculum, the pressure arising from the number of patients to be seen and dealt with, and the promiscuous employment of a cut-and-dried hospital formulary, were not favourable to the cultivation of the arts and methods of modernised pharmacy, as applied to the treatment of disease. He liked also to think that it was something more than a vain Utopian dream to look forward to the organisation, at some not very distant day, of a society for the systematic therapeutical and pharmacological investigation of current new remedies, with access to laboratories and hospitals for the purpose, and affiliated with independent workers all over the country, whose special business it would be to sift the wheat from the chaff and publish their reports at periodic intervals, or to draw up from time to time something in the nature of an authorised extra Pharmacopœia, accessible to medical and pharmaceutical practitioners alike. Such an organisation might also deal with chemical analysis in relation to the composition of advertised foods, malt extracts, and quack medicines, for the benefit of medical practitioners. It was obvious this knowledge was essential for the rational practice of the art of medicine, and so long as practitioners were continually using vaunted remedies and preparations of which they knew little or nothing, the whole practice was degraded and debased. On the other hand, every fresh light on the nature of their work and on their means of fulfilling it, led to a greater intellectual interest in the performance of their duties, a greater efficiency in their results, and the general elevation of professional life and work.

PROGRESS OF PHARMACY.

This thought brought to mind the splendid progress made by the profession of pharmacy during the last fifty years. It would ever redound to the credit and sagacity of the Pharmaceutical Society that, in spite of the prejudice, ignorance, and indifference with which they had had to contend, they had kept steadily before them the ideal of progress through knowledge, and fought their way step by step, with magnificent perseverance, until they attained the important and influential position they now occupied. Looking back upon these struggles, it was difficult to understand the opposition that was encountered, and it was a matter for unfeigned regret that no small portion of it came, directly or indirectly, from the ranks of the medical profession—from a fear that higher education would convert chemists and druggists into medical practitioners, and thus bring the two professions into conflict. We heard a good deal still of so-called "prescribing chemists," and it no doubt happened that some of these carried their practice to an illegitimate point, to the detriment of their craft and at considerable risk to themselves and still greater risk to their customers; but he would fain believe that such practice was repudiated and condemned by all pharmacists of position and repute. It was necessary to bear in mind that the factor of public requirements should not be altogether ignored. It was impossible to forbid a person applying at a pharmacy and obtaining a simple remedy for a passing toothache, a muscular pain, or a trifling dyspeptic ailment, and to insist upon a man having a formal interview with his medical adviser under the penalty of going without what he wanted. The line which separated legitimate from illegitimate prescribing on the part of chemists was an arbitrary one, and to some extent a variable one according to circumstances. The drawing of the line must be left to the guidance of common-sense, ordinary fair dealing, and the influence of honourable tradition.

AN OBJECTIONABLE PUBLICATION.

There one would be content to leave the matter but for occasional unpleasant reminders that in some quarters considerations of this kind carried but little weight. For instance, his attention was called in May of last year to a book entitled 'Diseases and their Remedies,' published from the offices of the *Chemist and Druggist*. A prefatory editorial note to the publication said it was offered to

chemists and druggists under the conviction that it was of the utmost importance that they should be well acquainted with diseases as well as with remedies, and that they failed to occupy the position they were often called upon to hold in their relation to the public, and as an intermediary between them and the medical man, unless they had an intelligent acquaintance not only with the medicine, but also with the cases in which it was used. Now, all this was mere balderdash, and the information which followed with regard to the diseases referred to was quite in keeping with such nonsense. The book could only be described as a counter-prescribing manual of the worst possible type. Serious diseases, such as no honourable chemist would take the responsibility of dealing with, were in many cases recommended to be treated with powerful and dangerous drugs without a single hint as to the necessity of caution or discrimination in their use. A book of the kind, from such a source, did incalculable harm to the honour of the pharmacist's profession, and should be emphatically repudiated by the Society as a highly objectionable publication.

COMPANY TRADING.

In conclusion, Dr. Carter referred to the recent proposed legislation on medical and pharmaceutical practice by companies. In the circumstances, he said, the professional pharmacists deserved all the sympathy and support which the medical profession could give them. In the first place, it was obviously unfair and inexpedient that responsible professional positions should be held by unqualified persons under the "cover" of a single qualified person, such as the clause in the latest Bill provided for. Secondly, it was monstrously unjust and inadvisable that professional men should be placed under the control of, and be exploited for profit by, a body of unqualified persons. For the medical profession the former had already been made illegal, and they hoped to be speedily relieved by legislation from the latter. He earnestly hoped that Clause 2 in the Bill (applying to pharmacy companies) would not be carried, but replaced by a clause, practically on all fours with Clause 3, which applied to medical practice. Any such proposal would, of course, be hotly contested in the interests of drug companies and their shareholders. In this event it was not improbable that the pharmacy clause might be dropped in Committee, and that the medical clause would then share the same fate. Such a result would be deplorable in the last degree, and indefinitely postpone a much-needed reform. Although it seemed desirable that the clauses applying to each profession should be kept separate, it was much to be desired that influential representatives of each should combine to approach Mr. Ritchie in defence of important professional principles common to both.

DISCUSSION.

Dr. KAUFFMAN pointed out that in dealing with specifics Dr. Carter had made no reference to the anti-toxins, which were pre-eminently specifics, and reached the cause of the disease, in many cases alleviating it, and in some cases stopping it entirely. He felt, with regard to the companies question, that legislation was imperative, and it behoved the Pharmaceutical Society to take the matter in hand.

Mr. A. SOUTHALL, in moving a vote of thanks to Dr. Carter, expressed himself as disappointed at finding that the lecturer did not attach that importance to drugs which he himself, as a pharmacist, attached to them. Nevertheless, there was great truth in the statement that environment, particularly climate and diet, had an effect upon illness which could not be produced by drugs. The dispensing of tabloids and the like was particularly objectionable because when a person got his prescription he forthwith began to medicate himself for every ailment by the medicants thus prescribed.

Mr. GERRARD, in seconding the vote, thought the principal cause of self-medication was the publicity given to it by the Press. The periodical Press were the greatest sinners in this respect, and seemed to be sustained in a great measure by such advertisements as were disastrous alike to the medical profession, the pharmacist, and the public.

Mr. C. THOMPSON, as the local Secretary of the Pharmaceutical Society, said there were few unqualified chemists employed in Birmingham. There were, however, a number of shops in the city made to look like chemists' shops, and no doubt the public were misled by the similarity. In these places unqualified men were no doubt employed, but seldom, if ever, were the scheduled poisons sold by retail.

The vote was heartily accorded, and Dr. CARTER briefly replied.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION.

The weekly meeting of this Association was held in the Masonic Chambers, W. Regent Street, on the 23rd ult. Mr. J. P. GILMOUR, President, occupied the chair, and in introducing Dr. COULL, who lectured on the

STEREO-CHEMISTRY OF CARBON,

expressed warmly, on behalf of the members, their lively sense of gratification at Dr. Coull's visit and contribution to the session's work. Dr. COULL, having acknowledged what he called the Chairman's too hospitable references, proceeded with his lecture, in the course of which he first showed the necessity for a new theory, owing to the insufficiency of the existing theories to explain the occurrence of only one di-substituted methane, when ordinary structural formulæ indicated the existence of two isomers, and, among other cases of isomerism, to explain the existence of ordinary fermentation, lactic acid, and paralactic acid, and of the four tartaric acids. A short historical sketch was then given of the history of the theory since its enunciation by Van't Hoff and Le Bel, the aid the latter received from the work of Pasteur and the former from Wislicenus being mentioned. Indeed, it was the words of Wislicenus, in his classic paper on "Lactic Acid"—"The facts compel us to explain the difference between isomeric molecules having the same structural formulæ by the different arrangement of their atoms in space"—that set Van't Hoff thinking. Van't Hoff's fundamental conception is that the valencies of the carbon atom are situated at the apices of the solid angles of a regular tetrahedron, of which the carbon atom occupies the centre. When a carbon atom is united to four different elements or groups there is a manifest want of symmetry, and the atom thus combined is called an asymmetric carbon atom, written thus: *c*. In this case we can predict the possibility of two different relative positions of the groups. This is shown in the *d*- and *l*-lactic acids, which have the same chemical properties, their only difference being in their optical activity and in the solubility of their salts. Their solid formulæ, illustrated by these models, are the mirror images of each other. For experimental proof of the truth of his fundamental conception, and that the peculiar isomerism demanded by his three-dimensional formulæ really existed, Van't Hoff pointed to the right and left-handed modifications of substances that rotate the plane of polarised light, to the fact that the property of rotation in the case of solutions is peculiar to substances which contain an asymmetric carbon atom, and to the fact that the relation between his formulæ for the two modifications—the object and image relation—is identical with the relation between the crystal forms of the two modifications. The latter relationship—enantiomorphism—is very clearly seen in the right and left-handed ammonium bimalate and right and left-handed sodium ammonium tartrate. Accordingly, then, every compound containing *c* ought to exist in two modifications which possess equal and opposite activity. This relation was first discovered by Pasteur, in 1848, with the tartaric acids, and was afterwards observed in the case of malic and mandelic acids, and many other substances. But many substances which possess an asymmetric carbon atom do not rotate the plane of polarised light, the explanation of which is that when a substance is prepared in the laboratory an equal number of right and left-handed molecules are formed which neutralise each other, and an inactive mixture results. Before discussing the methods of dividing the

inactive mixture, it was pointed out that when a derivative is formed from an active compound, the activity remains with the asymmetric carbon atom and vanishes when the resulting compound does not contain *c*. Active amyl alcohol by oxidation gives valeric acid, which contains an asymmetric carbon atom and is optically active, and, by reduction, dimethyl-ethyl-methane, which contains two methyl groups attached to the carbon atom; the latter is, therefore, no longer asymmetric, and the compound is inactive. Similarly, with tartaric and malic acids, the rotating power is preserved in their salts, esters, etc., but disappears, for example, in succinic acid, which does not contain an asymmetric carbon atom. It must be added, as a final restriction regarding the activity of molecules containing *c*, that no compound has yet been discovered containing less than two carbon atoms, united with the asymmetric atom, the group *c. c. c.* being evidently essential to the possession of optical activity by the molecule. The separation of the inactive mixture resulting from equal numbers of molecules of equal and opposite activity was then discussed. The various methods of division were described, and their value indicated, for different purposes, (1) by the addition of an active substance such as cinchonine to racemic acid, restricted to acids and bases, but useful for preparing a large quantity of pure substance; (2) by the use of organisms—*penicillium*, for instance, when added to racemic acid, feeds upon the right-handed modification of tartaric acid and leaves the left-handed, and in the case of amyl alcohol it feeds upon the left-handed variety and leaves the right. This method is mainly used qualitatively to ascertain whether a compound is divisible or no, and was applied by Le Bel in all his investigations. (3) Spontaneously, by the temperature at which crystallisation takes place; not much used, but interesting historically. Tartaric acid was taken as a type of a substance containing two asymmetric carbon atoms in a symmetric formula, and the long unexplained isomerism of the tartaric acids clearly shown by the aid of the models; the spatial relationships of the active acids—*dextro* and *laevo*—and the inactive acids—racemic acid, a mixture of the two active acids, and merotartaric acid, an example of the inactive, indivisible type, being described.

The case of unsaturated carbon compounds was next considered, double-linking being shown by placing the edges of two tetrahedra in contact, and triple by placing two surfaces together. As examples of previously unexplained isomerism in doubly linked (ethylene) derivatives, fumaric and maleic acids were specially referred to. It was shown by means of the models how the occurrence of two such bodies was possible, the greater stability of fumaric acid, and the ability of maleic acid to form an anhydride being mentioned as differences in properties, due to their three-dimensional formulæ.

In conclusion, Dr. Coull expressed his thanks to Dr. Dobbin, of Edinburgh University, for the loan of the models and crystals used to illustrate the lecture.

After some remarks by the CHAIRMAN on the fascinating nature of the subject and the extraordinary recent progress of molecular physics and their application to chemical problems, Mr. J. LOTHIAN moved a vote of thanks to Dr. Coull, complimenting him highly on the lucid way in which he had expounded an essentially technical subject. Mr. Lothian contrasted the state of knowledge on the subject in his student days and now. He had recently been reading a remarkable pamphlet by a German chemist who had worked out the stereo-chemistry of nitrogen, etc. The whole subject seemed to be on the eve of great developments. Dr. COULL then replied briefly, and the meeting separated.

ANNUAL DANCE.

The first annual dance of the Association was held in the Rosemount Academy, Renfrew Street, on Wednesday evening, 28th ult., and was attended by a large and brilliant gathering of honorary members, members, and their friends. The invited guests who were present included Messrs. J. L. Hatrick (W. and R. Hatrick and Co.), Dykes (Lorimer and Moyes), J. Gray (Gray and Co.), Thom-

son (J. Taylor), ——— (C. T. Cockburn, Limited), W. L. Currie (President, Glasgow and West of Scotland Pharmaceutical Association), J. Lothian, and Dr. J. Forrester; and apologies for absence were received from Dr. G. Coull, and Messrs. J. R. Hill and F. McDiarmid (President, Edinburgh Chemists', Assistants', Etc., Association, Edinburgh), Dr. Grant Andrew (Victoria Infirmary), and Messrs. R. McAdam (Hon. President of the Association), W. Greig, T. Maben, T. S. Barrie, T. Macfie Smith, W. Bowie, and Coun. Wm. Martin (Glasgow). Mr. J. T. Lynn made a model M.C., and a formidable programme of well-arranged dances was fulfilled without hitch or hurry to well-selected and skilfully-executed dance music. The only song of the evening was given by Mr. W. L. Currie, whose rendering of "The Soldiers of the Queen" made a great hit. The running buffet, which was in charge of Mr. McKinstry, maintained a liberal supply and ready service of solid and liquid refreshment. On its social side the dance was in every respect quite a triumph.

The closing meeting of the session was held on the 30th ult., when Mr. J. P. GILMOUR, President, occupied the chair, and Mr. J. THOMSON read a paper, postponed from the 9th, on

The Decline of Pharmacy,

in which he contended that, owing to the extending use of proprietaries by medical men, the multiplication of widely-advertised factory-made specialties, and the pharmacopoeial enforcement of standardised drugs and galenicals, the pharmacist's occupation *quâ* pharmacist would soon be gone, and he would sink into the commercial rôle of a mere distributor of commodities. In the discussion that followed, the PRESIDENT and Mr. J. P. TAYLOR both deprecated the pessimism of Mr. Thomson's outlook, and suggested that he came nearest the truth when he surmised that we are in a transition state. The CHAIRMAN also attributed the weakness of medical men for compressed drugs, etc., largely to their deficient training in materia medica and pharmacy, a subject which was relatively more neglected in the modern than in the old curriculum. Mr. Thomson was warmly thanked for his paper. The

First Annual Business Meeting

was then constituted, Mr. J. P. GILMOUR being in the chair. The SECRETARY, Mr. M. Meldrum, read his report, which related the circumstances under which the Association was formed, and gave a brief account of the state of its membership and the session's work, describing the one as encouraging and the other as satisfactory. From the statement of the TREASURER (Mr. J. Sturgeon) it appeared that after all claims were met there would be a small surplus. After some motions of amendment to the constitution had been discussed and adopted, the following office-bearers were elected for the ensuing year:—Hon. President, R. McAdam; President, J. P. Gilmour; Vice-President, J. Dickie; Secretary, M. Meldrum; Assistant Secretary, J. T. Lynn; Treasurer, J. Sturgeon; Members of Committee, Messrs. Taylor, Williams, Rowan, Radwell, Adams, Thomson, Wright, Walls, Davie, Grierson, Mackay, and Hannah.

TUNBRIDGE WELLS AND DISTRICT CHEMISTS' ASSOCIATION.

The annual general meeting of this Association was held at the Castle Hotel on Thursday, March 8. Mr. E. DUNKLEY was in the chair, and the members present were:—Messrs. Booth, Chatterton, Gower, Green, A. E. Hobbs, Johns, McRae, G. Nicholson, Ogle, Rogers, and Wardley. The Companies Bill was again discussed, and suggestions from the Federation of the Local Pharmaceutical Associations were dealt with. It was decided to forward to the local M.P.'s the circular letter sent by the Federation, together with the Clause "B," this seeming the better course. It was also decided that the letters should bear the signatures of all those chemists who would endorse them. The following officers were elected: President, Mr. Gower; Vice-President, Mr. O. Rogers; Treasurer, Mr. Ogle; Secretary, Mr. S. V. Booth; Com-

mittee, Messrs. Hobbs, Pearmund, and Wardley. A vote of thanks was accorded to Mr. E. Dunkley for his services as President.—Mr. A. E. HOBBS, as local secretary of the Pharmaceutical Society, suggested that a donation should be given to the Benevolent Fund, and on the proposition made by Mr. E. DUNKLEY, the meeting voted £1 1s. for that purpose.

The annual dinner of the Association was held at the Castle Hotel on Wednesday, March 28. An excellent musical programme was arranged between the several toasts, which were ably proposed and responded to by the following members: Messrs. Gower, Dunkley, Robinson, Blair, Harris, Sells, Hobbs, Rogers. Songs and instrumental music were given by Messrs. A. E. Hobbs, Warwick, Oliver, F. Hobbs, Burgess, and Booth.

CHEMISTS' ASSISTANTS' ASSOCIATION.

A meeting of this Association was held on Thursday, March 29, at 73, Newman Street, London, W., the PRESIDENT, Mr. F. W. Gamble, in the chair. There was a fair attendance. After the usual light refreshments and the reading of the minutes, Mr. J. A. DEWHIRST communicated some notes on

B.P. Standardisations.

the substance of which is printed at page 358.

The PRESIDENT said that the Association appreciated nothing so much as theory applied to practice, but, unfortunately, the members saw little enough of it at the meetings. On that occasion, however, they might not only congratulate Mr. Dewhirst, but also themselves on having listened to so eminently practical a paper. The members of the Association were pharmacists, not scientific chemists, but, as he noticed several chemists present, he hoped they would have something to say on the subject. In speaking of ipecacuanha, he had expected Mr. Dewhirst to refer to the deterioration of some kinds of ipecacuanha preparations. Pharmacists were familiar with the copious deposit which appears at the bottom of the bottles, and it was usual to pour it away, but, according to one worker, that was all wrong. In listening to the paper, they gathered that some of the B.P. processes are bad. "How is it," he asked, "seeing that there are so many pharmacists on the B.P. Committee, that these processes are bad?" It would, he thought, appear that it is necessary that there should be more chemists than doctors working on the B.P. assay processes. If the addition of some manufacturing and scientific chemists to the B.P. Committee would be of advantage, he thought it should certainly be done. He thanked Mr. Dewhirst most heartily for his paper.

Mr. H. HYMANS echoed the President's remarks concerning the practical nature of Mr. Dewhirst's paper. With regard to the official process for opium, he did not think it was necessary to take the full quantity. If one worked carefully, half the quantity could be taken. Of course, they were expected to stick to the B.P., but it would be rather rough on the retail pharmacist in some cases.

Mr. F. C. J. BIRD said that he had listened with pleasure to an admirable paper on a subject which was of great importance to all engaged in the analytical examination of pharmaceutical preparations. He would only allude to a few of the principal points which had been raised. With reference to chloroform, he quite agreed with Mr. Dewhirst that it was the best general solvent for alkaloids. But he thought the author had misunderstood the purport of some recently published notes on the extraction of the alkaloids of ipecacuanha. His object was to show that the alkaloidal residue obtained in the assay of liquid extract of ipecacuanha consisted of two substances—alkaloid and a deep brown substance of unknown composition, sometimes forming as much as 30 per cent. of the weight of the residue. Ether or ether benzene dissolved out nearly all the titratable alkaloid, leaving the brown substance, whilst chloroform extracted both. Whether the brown substance should be included in the residue or not was a question for the future; if

not, clearly chloroform was not the best solvent in that particular instance. Emulsification, which appeared to be the bane of most of the assay processes mentioned, could be generally got over in a very simple manner. Liquids containing either easily saponifiable or suspended matter, especially when made alkaline, were very prone to emulsify chloroform; but the same liquids, when fairly acid, as a rule separated quite readily. He therefore, whenever possible, acidified the diluted liquid extract, and washed out with chloroform, which removed fatty and resinous bodies, the chloroform being afterwards washed with a little water. He quite agreed with Mr. Dewhirst as to the unreliability of "aliquot part" processes for absolutely accurate figures. A little consideration would show that several factors combined to influence the result, but when a rough comparison only had to be made between several samples of crude drug, such results were near enough for the purpose, and (excepting that for opium) the processes themselves were comparatively rapid. He could not share the author's opinion that titration of a chloroformic solution of the alkaloid might be usefully substituted for a gravimetric determination. It appeared to him that the most rational plan was to weigh the alkaloid and check its purity by titration. He was very much interested in the author's suggested alternative processes for nux vomica and opium. They promised well, and he should take an early opportunity of trying them. With reference to the broad subject of Mr. Dewhirst's paper, he considered that standardisation as applied to pharmaceutical preparations was an ideal principle. But there were many practical difficulties in the way of its more general application. Nux vomica was a case in point; in that case standardisation was not so easily applied. The present official method for nux vomica was not quite satisfactory, for, as Mr. Dewhirst had mentioned, the wash-water removed strychnine ferrocyanide as well as brucine. There was also the difficulty that the alkaloid, finally weighed, always contained an unknown proportion of brucine, nor was it certain that the B.P. process gave comparable results when dealing with different samples of unstandardised liquid extract, which probably varied in strength as much as the seeds from which they were made. The clearing up of such points was an urgent necessity, and this opened up a vast field of really useful work for an institution he had in mind at the moment—viz., the Research Laboratory of the Pharmaceutical Society. The energies of that institution had in the past been turned rather in the direction of pure chemistry, and he thought now the time had arrived when pharmaceutical research might be allowed to come to the front. There was another branch of standardisation to which he might be permitted to allude. Some years ago he had suggested the inclusion in the B.P. of such physical details relating to galenical preparations as specific gravity, extractive, colour, etc., but whilst admitting that that might be going a little too far, such information was exceedingly useful to every pharmacist. There was so much work, however, involved, that private individuals could hardly be expected to undertake it. Here, again, was unquestionably a very useful, if humble, field for the work of the Research Laboratory, and he most earnestly appealed to them, as members of an influential Association, to use their best endeavours to induce the powers that controlled the Research Laboratory to take this view of the question and turn the Laboratory to account for the purpose of pharmaceutical research. He trusted they would make it their duty to do what they could to bring about this desirable result. With so many problems awaiting solution, it seemed a great pity that such an ideal means of accomplishing useful pharmaceutical work should be allowed to lie neglected. He congratulated Mr. Dewhirst on the able manner in which he had treated a very interesting subject.

Mr. T. MORLEY TAYLOR having referred to the subject matter of the paper, and, humorously, to Mr. Hyman's remark about taking half quantity in the official processes,

Mr. BREWIS said he had experienced nearly all the difficulties referred to by Mr. Dewhirst. He then drew attention to some of

the "tips" which had been suggested from time to time for either avoiding or getting rid of the troublesome emulsions sometimes met with in the determinations of alkaloids by the use of immiscible solvents. Many infallible remedies had been put forward, but he had noticed with regret that their efficacy seemed to be sadly wanting when tried upon the emulsions to be found in laboratories other than those from whence these certain cures emanated. In this work the problem of "How to make an emulsion?" presented far less difficulty than "How not to make an emulsion?" or "What to do with an emulsion when you had made one?" Samples of drugs and preparations which came in for alkaloidal assay, of course, varied very much in their composition; sometimes the extractive and gummy bodies, and at others resins and fatty matters, were the causes of the emulsion trouble. In the former case precipitation of the offending bodies by alcohol, and in the latter their removal by chloroform or other suitable solvent; preliminary to proceeding with the extraction process, seem to be the best general methods. In the nux vomica assay he found that a mixture of 2 vols. chloroform and 1 vol. ether worked somewhat better than chloroform alone. As to the strychnine-brucine separation, he could only confirm what other speakers had said. He had found that when washing the strychnine ferrocyanide 50 C.c. of acid water, if applied in small successive portions (say, 5 C.c. each) was generally sufficient to render the last portion of the filtrate, if not quite free from bitterness, at any rate sufficiently so for all practical purposes. He would certainly try Mr. Dewhirst's nitric acid process, as it seemed most promising, and would probably not only save time, but also afford more accurate results. In the belladonna assay Bird's preliminary treatment of the diluted, acidulated solution, and the final titration under the conditions recommended by him left nothing to be desired. He thought Mr. Dewhirst's difficulty as to the evaporation of the amylic alcohol could be overcome by conducting the operation in a flask and under reduced pressure. In this connection he might mention that he was having a flask of a new pattern made, with a very wide and flat bottom, which he thought would prove specially serviceable for the evaporation and subsequent treatment of the alkaloidal residues.

Mr. DEWHIRST having replied, the meeting adjourned.

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION.

At a meeting, held on Monday, April 2, Mr. W. STEAD in the chair, there was a large attendance, including Mr. R. L. Gifford (Blackburn), Mr. S. N. Pickard (Bradford), and Mr. H. Sykes (Huddersfield).

The CHAIRMAN, having thanked the members of the Association for electing him as President,

Mr. J. WALKER (Cleckheaton) reported that a deputation had waited upon Mr. T. P. Whittaker, M.P. for the Spen Valley Division, with regard to

THE COMPANIES BILL.

They explained that they regarded it as a great injustice that a man who qualified for a chemist and druggist, at great expense, should have to compete with companies, but Mr. Whittaker replied that so long as companies put in qualified men to manage their shops the public were protected. That was all that concerned the House of Commons. He (Mr. Walker) contended that the public were not protected. Ultimately Mr. Whittaker promised to make further inquiries, and it was understood that he would be communicated with when the Bill came on.

Mr. R. GLEDHILL (Dewsbury) explained that a memorial, signed by all the chemists in the Parliamentary borough of Dewsbury, had been forwarded to Mr. Mark Oldroyd, the borough member, who was asked if he would receive a deputation. Mr. Oldroyd had replied, thanking them for the letter, and stating that he would give the matter his most careful consideration. The suggested

clause (Clause B, proposed by the Federation) seemed clearly explanatory of their requirements, and that being so, there was hardly any need for an interview.

Mr. GIFFORD being called upon to speak, said that for all practical purposes the Pharmacy Act of 1868 had become a grotesque travesty of what the Legislature intended it to be. But if registered chemists could be got to join the Pharmaceutical Society and intelligently watch and govern it, the present state of affairs would be altered as by a magician's wand. The profession of pharmacy should be placed in such a position that it might be possible for natural evolutionary forces to work. The proposal to permit companies to carry on the business of a chemist and druggist if they had qualified managers possessed one merit; it threw into relief the point at issue, which was the personality of the qualification. On the question of a qualified directorate, if they in Dewsbury believed it to be a sound remedy, it was their duty to give that belief logical justification. If the proposers of qualified directorate could have their way, they would bring about the state of things he desired to see established. The fault of this proposal was that it started by giving personal qualification and responsibility. If they allowed that corporations could exercise their rightful prerogative, then the Legislature would assuredly see that no conditions were imposed which would tend to make that exercise impossible (*sic*). He thought it was Mephistopheles who originated the idea of a qualified directorate. The policy he favoured would rigidly restrict unqualified persons from any interest in the qualifications and privileges earned by personal endeavour and personal sacrifice. The esteemed President of the Pharmaceutical Society made at Liverpool the most humiliating statement it was possible for a twenty years' member of the Council to make. He started off with the dogmatic statement that justice was impossible in this country [Reference to page 351 will show that no such statement was made, or could be inferred from the President's remarks.—Editor *P.J.*], but he (Mr. Gifford) believed that they needed to ask nothing but the merest elementary justice; he also thought if the Council would use the resources of the Society quickly, intelligently, and determinedly, they could speedily bring about a reformation. When matters were explained to members of Parliament, or the general public, they were simply amazed that chemists needed to ask for what they wanted. The policy he advocated was to claim all the rights intended to be granted in 1868, on the ground that it was merely justice; that what was admittedly a compromise then, could not be too much now, seeing that the present body was an examined one, which was not the case then. He would take up this policy on the Companies Bill, because it focussed the issue—objection to Clause 2 and the necessary corollary, inclusion in Clause 3, which would make effective the Pharmacy Acts. If these clauses were dropped, he would have a short amending Pharmacy Bill ready, and in that he would ask nothing but that the intention of the Act of 1868 should be made effective. So far as the Companies Bill affects chemists and druggists, it is not a trade question. If it is right for a limited company to practise the profession of chemist vicariously, it is equally right for individuals (unlimited) to do the same; yet such a proposition is absurd in regard to any professional qualification. There can be no objection to companies dealing in drugs, or doing anything that is lawful; but there is a strong and grave objection to companies acquiring qualifications specifically intended for examined and duly qualified persons.

Mr. ROBERT GLEDHILL, in proposing that Mr. Gifford be heartily thanked for his remarks, recommended all the members of the Association to support him by their votes in his candidature for a seat on the Council of the Pharmaceutical Society. The Dewsbury chemists adopted Clause B, sent out by the Federation, as the lesser of two evils. If they could not get the title protected, then by all means get an amendment, whereby all directors would have to qualify.

Mr. R. BROADHEAD, in seconding the proposition, said Mr. Gifford seemed to think the Council was very much to blame, but it was in a most difficult position. The members of the Council were elected by members of the Society, and they had to be guided by the views of those members. It was an anomalous thing that, although chemists had a representative Society and Journal, many of them took their views, political ideas, and their cue in everything from an opposition trade journal. That was an anomaly which led to division, and he did not suppose the trade journal referred to cared a jot for his views so long as he paid his subscription. The duty of all qualified men was to join the Society and exercise the franchise, instead of grumbling and complaining, and taking their views from any trade journal.

Mr. PICKARD also said he did not think the Council of the Pharmaceutical Society was altogether to blame for the present position of affairs. He believed it had tried to do its level best. It was because of the apathy of chemists that the present state of affairs existed. It was necessary that they should be thoroughly organised. He thought, with Mr. Newsholme, that they ought to have a local secretary in every Parliamentary division in the country. By that means almost every chemist in the country could be brought into line.

After further conversation the vote of thanks was accorded unanimously.

FORFARSHIRE AND DISTRICT CHEMISTS' ASSOCIATION.

At a meeting held in Mather's Hotel, Dundee, on March 28, Mr. CHARLES KERR presided, and there were present Mr. Storrar (Kirkcaldy), Mr. Currie (Glasgow), John Anderson, Booth, Cummings, W. Doig, J. Doig, Ferrier, J. Russell, Milne and Taylor (Dundee), Bennett, Buchan, Naysmith and White (Arbroath), Fleming and Park (Broughty ferry), Walker (Downfield), Macfarlane (Forfar), Ford (Kirriemuir), Pecbles and Thomson (Lochee), Harley (Perth), Kermath (St. Andrews), and Marshall (Tayport).

Mr. KERR said he had first to thank Mr. Seabury, of New York, on behalf of the Association, for sending to each of their members a copy of his book, "Should Pharmacists Become Tradesmen?" The next thing to mention was the steps which had been taken on their behalf to oppose Clause 2 of

THE COMPANIES BILL.

Shortly after their meeting in November an opportunity occurred to send a protest to Mr. C. T. Ritchie, President of the Board of Trade, who introduced the Bill to the House of Commons, and whose connection with the district they considered entitled them to do so. Then he (Mr. Kerr) and their Secretary had an interview with Sir John Leng, M.P., previous to his resuming Parliamentary duties. Further, letters had been sent to Mr. Edmund Robertson, Mr. John Morley, and Capt. Sinclair at the House of Commons, inviting their attention to the matter. Mr. Kerr proceeded to say that the Pharmaceutical Council having now come to a decision to oppose Clause 2, he thought it was their duty to support that decision. But he hoped the Council would not stop there. They had been looking to the Council for years to get the Pharmacy Act amended, and a serious attempt ought to be made in that direction without any more delay.

Mr. KERMATH proposed that the meeting should approve of the steps taken by the Chairman and Secretary in the matter. He said it was a case for prompt action, and it was necessary that they should move on their own account. He would insist upon that, though it did not seem to please some members of the Council. But let the Council show a little more backbone, and take members a little more into its confidence if it had anything to confide. There was too much waiting to see what would turn up. Hesitation and procrastination had had a long innings, and as a result, chemists had lost positions they should have held. He wished to take that opportunity of refuting the statement attributed to Mr. Ritchie—that chemists were running

branches with unqualified managers. In the district of Fifeshire, of which he was local secretary, there was no example of that. He thought it was a strange argument for Mr. Ritchie to use, even if there were any truth in it.

Bailie DOIG seconded. He said they were quite within their rights in addressing their grievances to the highest authorities at any time, and their thanks were due to the Chairman and Secretary for their action.

Bailie DOIG moved "That this meeting approves of the decision of the Pharmaceutical Council to oppose Clause 2, at the same time urging the Council to take immediate steps to obtain an amendment of the Pharmacy Act." He considered there was very little likelihood of the Companies Bill passing this Session or next, but they must do what they could to defeat it.

Mr. NAYSMITH seconded, with much pleasure.

Mr. STORRAR, in supporting the resolution, proceeded to give a summary of the reasons which led to the recent decision at the meeting of Council. He said he had been again nominated for the Council. He had served for ten years, and thought he should now retire to allow some others to share the work of the Council. He had not yet accepted nomination, but if he thought anyone was coming forward to challenge his actions he was prepared to accept the challenge.

Mr. CURRIE said he could endorse a very great deal of what Mr. Storrar had said. He wished to assure Mr. Storrar that when he accepted nomination he was sure that no support would be given him at the expense of Mr. Storrar. Mr. Currie proceeded to say he thought they in Scotland took a broader view of the Companies question than their English friends—that the Council was lax in giving no lead. What was the Council there for? It had lost many opportunities. He would have the Council go strongly for restriction of titles and effective control of companies.

Mr. WALKER wished to move an amendment, as he did not approve of the recent decision of the Council, but, as he failed to find a seconder, the resolution was put to the meeting and carried.

THE NEW PRELIMINARY EXAMINATION.

Bailie DOIG wished to know if it would be possible to suspend the coming into operation of the new Preliminary Examination arrangements. He said they were going to be face to face with a serious difficulty in getting apprentices. The present race was quite unable to meet the new conditions which seem, for the time being, unnecessarily high, and this would be so until the secondary education of the country, which is only now developing, begins to tell upon youths.

Mr. STORRAR did not know if it would be possible to do as proposed, but he had great sympathy with it, and thought a representation should be sent to the Council. He had been making inquiries of the Rector of the High School, Kirkcaldy, and was able to confirm what Bailie Doig had said. Any lad would be unable to face the examination until after two years' further study.

Mr. KERR said he could endorse those remarks.

Bailie DOIG moved:—"That this meeting would respectfully memorialise the Pharmaceutical Council to consider the propriety of suspending the operations of the new regulations for the Preliminary Examination for a period, say, of five years, until the standard of secondary education has so advanced that youths may be more able to pass the higher examinations now proposed. Otherwise, chemists, in country districts especially, will have great difficulty in obtaining apprentices."

This was agreed to.

Mr. KERMATH gave notice of the following motion for next meeting:—"That the time has now arrived when the method of conducting the Minor Examination should be altered, and that the same rules should apply as obtain in medicine and law—namely, that candidates be credited with the subject or subjects on which they obtain pass marks."

PRESTON CHEMISTS' ASSOCIATION.

At a well-attended meeting held at the Bull Hotel, Preston, on Thursday, March 29, Mr. W. STEWART in the chair, it was announced that the Borough Members had been communicated with regarding

CLAUSE 2 OF THE COMPANIES BILL,

and that replies had been received from the Right Hon. R. W. Hanbury, M.P., Financial Secretary to the Treasury, and Mr. W. E. M. Tomlinson, M.P. Mr. Hanbury wrote: "I am much obliged by the letter you have sent to me on the subject of Clause 2 of the Companies Bill, and I will gladly bring the points you raise before the Minister who is responsible for the Bill in question. Mr. TOMLINSON replied: "I have received your letter with reference to this Bill, together with a statement signed by a considerable number of chemists and druggists in Preston, and beg to say that the subject shall have my earnest consideration, my present feeling being that the clause in question ought not to pass in its present form."

Mr. ARKLE then said that meeting had been called to pass a resolution, which would be forwarded to the members of Parliament in the district, with a view to securing

THE DISMISSAL OF CLAUSE 2

from the Companies Bill. As chemists they felt that the clause as it stood was absolutely at variance with all that was fair and just. Clause 2 of the Bill proposed to allow the qualification and title of the individual chemist to be usurped and practised by a conglomeration of nonentities under the Companies Act. There could be no doubt in the mind of any reasonable being that to attempt to take away the individuality of the title and the personality of the qualification was a most unfair and illegal proceeding. As chemists they did not want a monopoly, but they wanted everyone who claimed to be a chemist to enter the ranks by the front door. If Mr. Ritchie would not see any wrong in the conduct of the business by companies, then the profession must close its ranks, cease internal strife, put all personal grievances in the background, and go solid for the total rejection of Clause 2. He begged to move:—

That this meeting is of opinion that Clause 2 of the Companies Bill, now before Parliament, should be opposed with a view to its entire elimination from the Bill, and that the local, borough, and county members of Parliament be communicated with, urging them to do their utmost to prevent its passing.

Mr. WILLIAMSON seconded the resolution, and said he felt that no candidate for the Council of the Pharmaceutical Society ought to receive the support of pharmacists who were not prepared to favour a campaign calculated to relieve the profession of some of its burdens. Capable men were needed at headquarters, men who had dared to speak, and having given utterance to their opinions, to act—men who would work for the interest of the honourable calling they represented, and who could bring to bear upon the affairs of a corporate body the same business capacity introduced in their own private transactions. Those in the past who had failed to do what they required must be replaced, and then they would perhaps be able to claim that the Pharmaceutical Council rejected the opinion of chemists at large. Let chemists record their votes in this spirit, and their reward would be the dawn of a brighter day.

Mr. FISHER accorded the resolution his very hearty support, and expressed the fervent hope that they might secure the reforms so urgently needed.

The CHAIRMAN, in submitting the resolution, which was unanimously agreed to, also addressed himself to the proposition, and expressed the hope that Clause 2 would be deleted.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Cimicifugæ Rhizoma.

CIMICIFUGA, or *Actææ Racemosæ Radix*, consists of the dried rhizome and roots of *Cimicifuga racemosa*, Ell. (N.O. Ranunculacæ) a tall, herbaceous plant, which grows freely in shady woods in



CIMICIFUGA.—Rhizome and roots of *Cimicifuga racemosa*.

Canada and the United States. The plant produces a stout perennial rhizome, which is collected in the autumn—after the fruit has formed and the leaves have died down—cut into pieces, and dried. The drug possesses bitter stomachic, analgesic, and expectorant properties; it is used in the preparation of *Extractum Cimicifugæ Liquidum* and *Tinctura Cimicifugæ*.

CHARACTERS AND TEST.—*Cimicifuga* is a thick, hard, and knotty horizontal rhizome, from 5 to 15 Cm. long, and from 12 to 25 Mm. in diameter. It is nearly cylindrical in shape, and bears the remains of numerous stout ascending branches, which are about 25 Mm. or more in length, about 9. Mm. in thickness, and so close together as almost to conceal the rhizome. The branches curve upwards and terminate in the remains of a bud, or in a circular cup-shaped scar which exhibits a distinctly radiate structure. Encircling scars of cataphyllary leaves mark the rhizome and its branches, being more conspicuous



CIMICIFUGA.—A, Transverse section of rhizome; B, Transverse section of root. Both slightly enlarged.

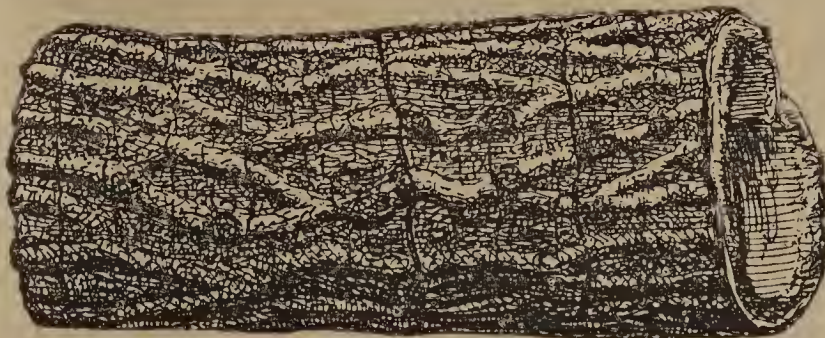
on the latter. The straight, stout, dark-brown roots, which are given off from the under surface of the rhizome, are obscurely quadrangular or longitudinally furrowed; they are brittle, usually broken off quite close to the rhizome, and exhibit in transverse section from three to five, or even six—but usually three or four—wedge-shaped bundles of porous whitish wood, separated by broad and dark medullary rays. A similar section of the rhizome or one of its branches exhibits a large dark-coloured horny pith, surrounded by a ring of numerous pale wedges of wood, alternating with wide dark medullary rays outside which is a thin dark horny bark or cortex. *Cimicifuga* is blackened when test solution of ferric chloride is applied to the

rhizome or roots. This reaction distinguishes the drug from black hellebore, and it is stated to be due to the presence of tannic acid, but it has also been attributed to a body allied to the glucoside quercitrin, which gives a dark green colour with ferric salts. The odour of *cimicifuga* is faint and not characteristic; its bitter acrid taste is said to be due to the presence of a crystalline body, *racemosin*.

NOTES.—The distinctive characters of *cimicifuga* are the numerous stout branches curving upwards, and the appearance of transverse sections of the rhizome and roots. Black hellebore rhizome, which has been confused with it, is tortuous, and its irregular branches are not prominently curved upwards; sections of the rhizome show a thicker bark and fewer wood bundles than *cimicifuga*, and in sections of the roots the wood is much less distinctly cruciate.

Cinchonæ Rubræ Cortex.

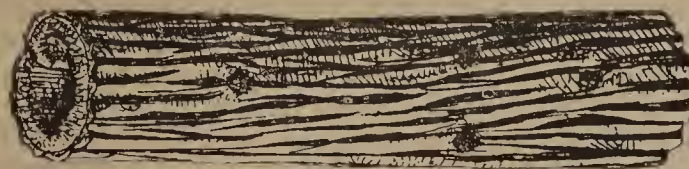
RED CINCHONA BARK is obtained from the stem and branches of cultivated plants of *Cinchona succirubra*, Pavon (N.O. Rubiaceæ), and imported chiefly from India, though bark corresponding to the official description and test is occasionally received from Jamaica, Ceylon, and elsewhere. The drug possesses tonic, bitter stomachic,



RED CINCHONA BARK.—Stem bark of East Indian *Cinchona succirubra*.

and astringent properties; it is used in the preparation of *Extractum Cinchonæ Liquidum*, *Infusum Cinchonæ Acidum*, *Tinctura Cinchonæ*, *Tinctura Cinchonæ Composita*, and is a source of the official salts of Quinine.

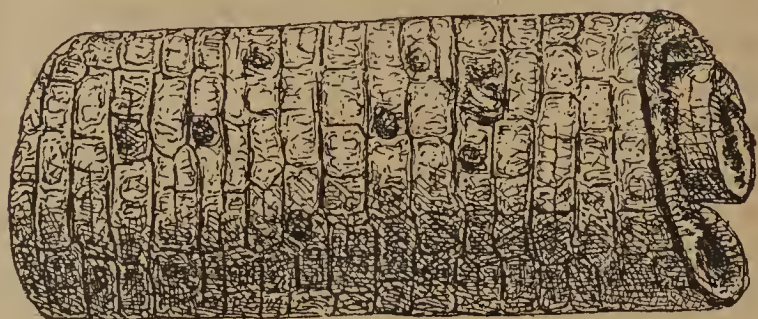
CHARACTERS AND TESTS.—Red Cinchona Bark occurs in quilled or more or less incurved pieces, coated with the periderm, and varying in length from 5 to 30 Cm. or more. The bark is usually from 2.5 to 6 Mm. thick, and the quills vary in size, but are often about 35 Mm. in diameter. The outer surface of the bark is brownish or reddish-brown, and often bears greyish lichens; it is also more or less rough from longitudinal ridges and numerous reddish warts or enlarged lenticels which often run into lines in the larger pieces of bark. The ridges are most apparent in the bark obtained from the branches; in some varieties (e.g., Jamaica bark, from *C. succirubra*, var. *subpubescens*) there are numerous transverse cracks, the edges of which are not thickened or raised. The inner surface of the bark is brick-red or deep reddish-brown, but when the exposed portion is cut away the surface appears of a yellowish-brown colour, which



RED CINCHONA BARK.—Branch bark of East Indian *Cinchona succirubra*.

darkens on exposure owing to a change in the tannin of the bark, by which a reddish phlobaphene is produced. Other features of the bark are the irregularly and coarsely striated appearance of its inner surface, the fibrous fracture—short in smaller and fine in larger pieces, the brownish or reddish-brown colour of the powder, the bitter and astringent taste, and the absence of any marked

odour. When used for making galenical preparations, it should yield from 5 to 6 per cent. of total alkaloid, of which not less than half should consist of quinine and cinchonidine.

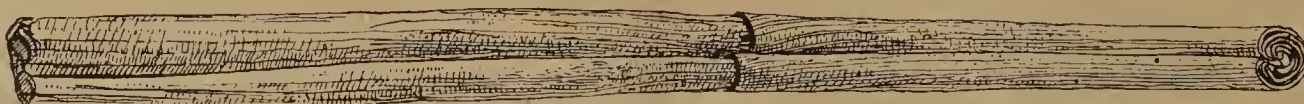


RED CINCHONA BARK.—Stem bark of Jamaica *Cinchona succirubra*.

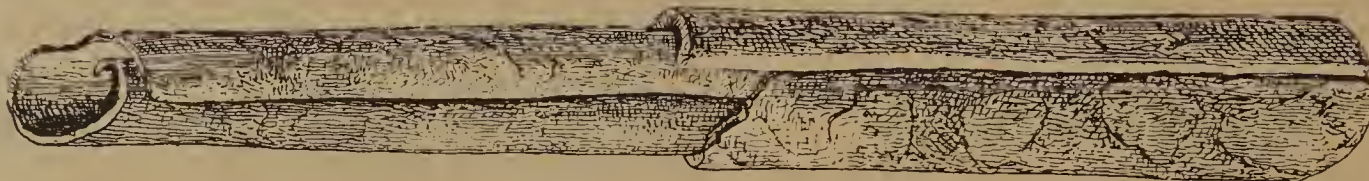
NOTES.—The distinctive characters of red cinchona bark are its quilled or incurved appearance, more or less spongy nature, longitudinal wrinkles, and reddish warts. There are several other quilled

used in the preparation of *Aqua Cinnamomi*, *Decoctum Hæmatoxyli*, *Oleum Cinnamomi*, *Pulvis Catechu Compositus*, *Pulvis Cinnamomi Compositus*, *Pulvis Cretæ Aromaticus*, *Pulvis Kino Compositus*, *Tinctura Cardamomi Composita*, *Tinctura Catechu*, *Tinctura Cinnamomi*, *Tinctura Lavandulæ Composita*, and, indirectly, of *Acidum Sulphuricum Aromaticum*, *Mistura Cretæ*, *Mistura Guaiaci*, *Mistura Olei Ricini*, *Mistura Spiritus Vini Gallici*, *Pilula Aloes et Ferri*, *Pilula Cambogiæ Composita*, *Spiritus Cinnamomi*, *Syrupus Aromaticus*, and *Syrupus Cascaræ Aromaticus*.

CHARACTERS.—Cinnamon bark occurs in closely rolled quills, each about a metre or more long, from 6 to 9 Mm. in diameter, and containing numerous and very short quills or channelled pieces. The quills are dull pale yellowish-brown externally, and somewhat darker on the inner surface. They are extremely thin, brittle, splintery, and marked by small scars or holes (indicating the insertion of leaves or lateral shoots), and faint shining wavy lines, formed by bundles of bast fibres. A transverse section of the



CINNAMON BARK.—From *Cinnamomum zeylanicum*.



CASSIA BARK.—From *Cinnamomum cassia*.

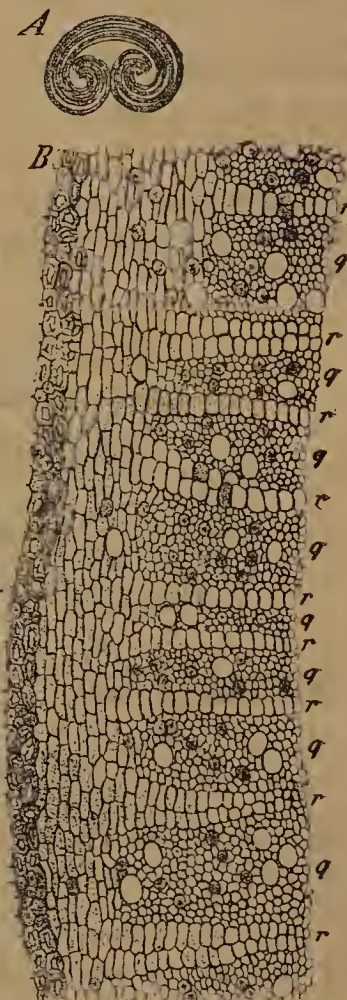
cinchona barks, none of which meet the official requirements. That from *C. calisaya* occurs in firm and hard quills, with longitudinal furrows, transverse cracks, and an outer corky layer which shows a tendency to exfoliate in flakes. The bark of *C. officinalis* is also firm, but has numerous small transverse and longitudinal cracks, and the quills are usually small and rough, with thickened edges. That of *C. lancifolia* has a more or less uniformly smooth surface, with patches of silvery-grey cork and a very fibrous fracture. The chief constituents of cinchona barks are the alkaloids quinine, cinchonidine, cinchonine, and quinidine; other constituents are hydroquinine, hydrocinchonidine, quinamine, homo cinchonidine, quinovin—a bitter amorphous glucoside, quinic or kinic acid, cinchotannic acid (the peculiar tannin which yields on oxidation the reddish phlobaphene—cinchona red), starch, calcium oxalate, etc. Red cinchona bark of average quality contains about 1.5 per cent. of quinine, 2.5 per cent. of cinchonidine, 1.0 per cent. of cinchonine, and 0.8 per cent. of amorphous alkaloids. For an explanation of the official assay process, see *P.J.*, April 17, 1897, page 337. For a detailed account of the macroscopic and microscopic characters of the drug, see *P.J.*, September 24, 1898, page 350.

Cinnamomi Cortex.

CINNAMON BARK is the dried inner bark of shoots from the truncated stocks of *Cinnamomum zeylanicum*, Breyn. (N.O. Lauraceæ), a small evergreen tree, indigenous to Ceylon, and cultivated in that island. Ceylon cinnamon from cultivated trees is alone official. The shoots are cut down when nearly two years old and from 1 to 2 metres long; the bark is then removed in strips, which are exposed in heaps for about twenty-four hours, and afterwards freed from epidermis and cortex by scraping. The strips are next packed inside one another, rolled into sticks and dried. The drug possesses carminative, astringent and aromatic properties; it is

bark shows an outer pale layer of sclerenchymatous cells and an inner dark layer of bast. The fragrant odour and warm, sweet, aromatic taste are due to the presence of volatile oil.

NOTES.—The distinctive characters of cinnamon bark are the compound quills, uniform colour, absence of cork, narrow wavy longitudinal lines, odour, and taste. The commercial varieties differ in the thinness and smoothness of the quills, which also vary considerably in size. For a detailed macroscopic and microscopic description, see *P.J.*, December 3, 1898, page 584. Cinnamon of good quality comes from Southern India, and inferior varieties from Brazil, the West Indies, and Java. The chief constituent of the bark is the volatile oil, of which it yields 0.5 to 1.0 per cent.; other constituents are tannin and mucilage. Cassia bark, from *Cinnamomum cassia*, Blume (N.O. Lauraceæ), resembles cinnamon in odour and taste, but is less delicate in aroma and more mucilaginous and astringent. It occurs in thicker, usually single, quills, which are darker in colour than cinnamon and bear patches of cork.



CINNAMON BARK.—A, Transverse section of a roll of cinnamon quills; B, Transverse section of bark, enlarged; r, Medullary rays; q, Phloem masses; s, Sclerenchyma ring. $\times 65$. (After Berg.)

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

PARASITES OF WHEAT

M. L. Malgin has studied the disease of wheat known as "piétin." It chiefly attacks the haulms, and is caused by *Leptosphaeria herpotrichoides*, often accompanied by *Ophiobolus graminis*, *Pyrenophora trichostoma*, and the conidial forms of *Dictyosporium opacum* (?), *Coniosporium rhizophyllum* (?), and *Aspergillus circinatus*, sp. n. Cultural experiments showed that *Dictyosporium opacum* (?) is the conidial form of *Leptosphaeria herpotrichoides*, and *Coniosporium rhizophyllum* (?) the conidial form of *Ophiobolus graminis*. *Septoria graminis* is also very destructive, putting out germinating filaments which do not enter through the stomates; their action is purely chemical.—*Overs. k. Dansk. Vidensk.*, 1899, 213.

PIGMENTS OF AMANITA MUSCARIA.

Dr. A. B. Griffiths gives the formula for the green pigment of the poisonous "fly amanita" as $C_{20}H_{20}O_{10}$, and for the red pigment he proposes the formula $C_{19}H_{18}O_6$.—*Comptes rendus*, 130, 42.

MOULD-FUNGI AND ARSENICAL WALL-PAPERS.

Herr H. A. Schmidt has confirmed by experiment the current opinion that the effect of moulds on hangings or papers coloured by an arsenical pigment is to reduce the arsenic-compound and to set free arseniuretted hydrogen. This reducing power is especially strong in four of the commonest mould-fungi, viz., *Penicillium glaucum*, *Aspergillus flavus*, *Mucor mucedo*, and *Dematium pullulans*, but is possessed also to a lesser degree by nearly everyone of twenty-four species examined.—*Zeitschr. für angewandte Mikroskopie*, 1899, 176.

IS PLEUROTUS OLEARIUS A POISON P

According to Professor G. Arcangeli, this alleged poisonous fungus is greedily eaten by the larvæ of some insects, and by snails, without appearing to do them any harm. Although rabbits in the wild state refuse it, it does not appear to have any specially injurious effect on them in small quantities. On dogs it acts as an emetic, as it does with man.—*Atti Soc. Toscana Sci. Nat.*, 1900, 22.

MANNITE IN THE TUBERACEÆ.

Professor O. Mattirolo has extracted from a number of different species of Tuberaceæ—*Tuber excavatum*, *Elaphomyces variegatus*, etc.—a substance identical in chemical composition and in properties with the mannite of the mountain-ash, $C_6H_{14}O_6$. It can be crystallised out from an aqueous solution in the form of small white shining needle-like crystals.—*Malpighia*, 1899, 154.

MYRME- COPHILOUS TREES AND SHRUBS.

Observations made during a stay in South America have led Dr. L. Buscalioni and Herr J. Huber to doubt the correctness of the current theory of myrmecophilous trees and shrubs, that the ants protect the plants against the attacks of other injurious insects, especially leaf-cutting ants. They find myrmecophilous species to abound chiefly in localities which are frequently submerged by floods, where leaf-cutting ants do not exist. This is especially the case with species of *Cecropia*. The authors advance the theory that the habit is simply one for the advantage of the inhabiting ants themselves, and that the myrmecophilous habit is confined to species which inhabit localities liable to be flooded, or which have been at some previous period liable to be flooded, or to species descended from those which inhabited such localities.—*Beih. z. Bot. Centralblatt*, 1900, 85.

LUTEOL, A NEW INDICATOR.

Another addition has recently been made to the many indicators for use in alkalimetry. This is luteol, a derivative of phenacetine, chloroxydiphenyl-quinoline. It crystallises from alcohol in fine, slightly yellow needles, melting at 246° C. The indicator is prepared by dissolving 1 Gm. of luteol in 500 C.c. of alcohol. It is extremely sensitive towards alkalies, giving, in their presence, an intense yellow colour, which disappears in the presence of free acid, by which it is at the same time precipitated.—*Nouv. rem.*, 16, 25.

FUNCTION OF HYDROCYANIC ACID IN PLANTS.

Plants containing hydrocyanic acid—the bitter almond and *Pangium edule*—have been investigated by Dr. M. Soave, with the view of determining the part played by this substance in the vital economy of the plant. He concludes that cyanogen compounds are transitional substances from which plants obtain their nitrogenous food materials. At the time when the seeds begin to swell, as long as the embryo is dormant, the bitter almond contains no trace of hydrocyanic acid; it makes its appearance only in the stem, not in the root nor in the cotyledons. The sweet almond contains no trace of amygdalin.—*Nuov. Giorn. Bot. Ital.*, 1899, 219.

INFLUENCE OF CARBON DIOXIDE ON PLANT GROWTH.

M. E. C. Téodoresco has carried on a series of experiments on a number of flowering plants and on some Hepaticæ (*Marc'antia polymorpha* and *Lunularia vulgaris*) with the view of determining the effect on their form and structure of growth in an atmosphere containing more than the normal amount of carbon dioxide (2 p.c.), and growth in an atmosphere deprived as completely as possible of that gas. With the Hepaticæ growth is much more luxuriant when the atmosphere contains an excess of CO_2 , and the gemmæ are formed only in the presence of this gas. With flowering plants, CO_2 appears to retard growth so long as the plant is consuming the food-materials of the seed; but after that period an increase in the proportion of CO_2 causes the leaves to become thicker, the palisade-tissue better developed, and the aciferous chambers larger.—*Bonnier's Rev. Gén. de Bot.*, 1899, 429.

ANATOMY AND MORPHOLOGY OF RHUS VERNICIFERA.

An exhaustive account of the anatomy and morphology of the Japanese lacquer tree is published by Professor M. Mœbius. The species is strictly dioecious, no intermingling of male and female flowers having been observed. The wax exuded from the mesocarp forms a thick incrustation on the inner side of the cell-walls. Its purpose appears to be the attraction of birds, especially pigeons, to assist in the dissemination of the seeds, which pass through their bodies without digestion, when they feed on the fleshy mesocarp. The seeds contain a thin layer of endosperm within the thin testa.—*Abhandl. Senck. Naturf. Gesellsch.*, 1899, 201.

ASSIMILATION OF ATMOSPHERIC NITROGEN.

D. L. Hiltner brings forward evidence to show that the power of assimilating the free nitrogen of the atmosphere is not confined to the bacteroids which inhabit the root-tubercles of the Leguminosæ and some other plants, but is possessed also by endotrophic mycorrhiza in the underground or aerial organs of other plants. He especially mentions in this respect the mycorrhiza of *Podocarpus*, and he believes this to be the case also with the mycorrhiza of other Coniferæ, as also of the Ericaceæ and Orchideæ. He gives also experimental reasons for the belief that the fungus found by Nestler and others in the ovary of *Lolium temulentum* has also the property of increasing, by absorption directly from the atmosphere, the small amount of nitrogen contained in the seed.—*Centralbl. f. Bakteriol. u. Parasitenk.*, 2te Abt., 1899, 191.

THE DRUGGIST AS A CIVIL SERVANT.*

BY J. P. TAYLOR.

In conversation with a medical man some time ago, he gave it as his opinion that instead of the continual struggle and worry which many doctors have to face in their efforts to build up a practice—instead of some men having too many patients and some too few—if Government would only make the practice of medicine a civil service, then those misfortunes would be obliterated, and both doctor and patient benefit—the doctor in having a free mind and more leisure to perfect himself in his profession and assimilate the teachings of experience; the patient in having a medical man who would devote more time to his case, and who would have, presumably, more skill in the treatment of disease. Well, it occurred to me that if such a course would be for the benefit of the medical profession, it would probably be equally for the benefit of drug trade, and so I determined to discuss this matter with you.

Let us consider now what such a change as this would involve. It is a common saying that opposition is the life of trade, but like all proverbs this one is only partly true. It is said that opposition and competition in business are the means of bringing out the best that is in a man; that they bring the best men to the front, and put the laggard out of the running. In other words, this is simply the doctrine of the weakest going to the wall—a doctrine which, to say the least of it, is lacking in common humanity. There are many advantages in opposition so long as that opposition is legitimate and honest. But when it comes to the system which is in vogue to-day of each man trying to cut his neighbour's throat—when opposition means that we are all playing a game, and very much in earnest, of beggar my neighbour—then opposition becomes contemptible and despicable. It is contended that opposition makes tradesmen sell the best article at the lowest price in order to hold his own with his opponents. Well, I am willing to admit that it lowers the prices, but I am certain that it does not improve the quality of the goods sold. On the other hand, I do hold that opposition such as we have to-day is the cause of the inferior quality of goods which are put on the market now, and is responsible for the amount of adulteration which prevails at the present time. In an article in the *Pharmaceutical Journal* of May 20, 1899, on "Pharmacy in Germany," the writer says: "Too much competition is not elevating in its tendencies." And I think that applies very particularly to pharmacy. I have two reasons for thinking so. The first is, that purity of drugs being essential for the proper practice of pharmacy, it is unwise to bring in the element of competition, which, as I have pointed out above, is likely to throw inferior articles on the market. The second is, that the worries of business competition prevent the pharmacist having the leisure to become as perfect in the higher branches of his work as he otherwise might be.

My first reason seems to me to be a very important one, and I think no one can deny that it is correct. Where one man is being hard pushed by an opponent close by there is a great temptation for him, in the hope of nullifying the efforts of his neighbour, to cut prices as keenly as he can. He may commence with the honest intention of doing so only so far as is consistent with supplying the finest quality of drugs. But as he goes on cutting so does his opponent, the prices become lower and lower, and in order to have any profit at all various dodges are resorted to in order to place inferior drugs on the market. Then the food and drug inspector steps in, and we hear of prosecutions for various offences, such as camphorated oil, deficient in strength or made with sesame oil; zinc ointment prepared with lard instead of benzoated lard; and numerous other paltry and contemptible artifices, all the outcome of this degrading competition and of the craving for cheapness, which it begets in the public. Then there are other devices which, while

outside the reach of the law, are still very questionable, such as the habitual stocking of second and third-rate drugs by men who advertise to a too-confiding public as using only the best quality they can obtain. Well, all this is far from creditable to us who are fond of posing as something superior to the ordinary grocer or draper; and it has a more serious side than this, in so far as the use of inferior drugs in dispensing is apt to diminish the action which the prescriber is entitled to expect, if indeed it does not disappoint him altogether.

My second reason for thinking that competition is especially hurtful to pharmacy is because the worries of business caused by undue opposition prevent the pharmacist having the leisure to become as perfect in the higher branches of his work as he otherwise might be. My first reason applied purely to our business side; this one refers to what there is of the professional. The strain of long hours, business anxiety, and the hundred and one little annoyances incidental to shop work nowadays, especially in our cities, is not conducive to a frame of mind which would make study a pleasure instead of a toil after a man has had a twelve-hours' day behind a counter in the vain effort to please all his customers. It is a difficult matter to settle down to a study of the many new drugs which are continually appearing, or to refresh the memory by a run over some such interesting work as the "B.P." The result is that most chemists finish their education with the Minor examination. If we can learn enough to qualify that is sufficient for most of us. The conditions of life which we have to face after qualification do not encourage us to make our trade or profession a real study—a book which we must learn thoroughly in the school of experience. It is a pity that all this should be so. It is a pity that so many of us should be content with merely qualifying for registration, but as things are I do not think we need feel surprised. So long as this blameworthy competition forces upon us all, masters and assistants alike, long hours, poor remuneration, and excessive worry, so long will such a state of things endure.

Having thus briefly touched on the disadvantages of opposition, the question arises, What remedy can we suggest? To my mind there is only one way of removing those evils—that is, by removing the cause—excessive competition. Take away from men the necessity for all this petty lying and cheating. Give them the prospect of a remuneration sufficient to keep them in comfort, give them leisure for study and self-improvement, and then I have sufficient faith in human nature to believe that men will show themselves worthy of their new circumstances. I believe then that the public would benefit by the change, that they would have pure drugs, and men to compound them who would be skilful and apt in doing so, men who would be, in short, experts in their business instead of a sort of mongrel mixture of business and professional men who know sufficient to carry on their businesses, but who are not in any real sense experts. I do not mean to say that the stopping of competition would in itself work such changes, but I think that the improved conditions under which we would then work would be sufficient to spur men on, and would be an inducement for us to strive after a higher level of attainment. We hear much about the necessity for raising the standard of the *personnel* of the drug trade. I do not see the necessity for that. I think that as we are at present we have nothing to complain of in the general standard of those in the trade. What we want to do is to give them a position which will enable them to take a deeper interest in the professional part of the trade by giving them time and inducements to do so.

I have already said that the way to do so is to remove the destructive opposition which now prevails. How, then, can we do so? By placing the trade under Government control—in other words, by making the trade a civil service and druggists civil servants. As to the methods by which this is to be done, I think we may safely leave these to be discussed when there is some near prospect of such a change taking place. Let us suppose that all

* Read before the Glasgow Chemists' and Druggists' Assistants' Association.

the preliminary difficulties have been overcome, and that the Government has acquired all the drug businesses in the country, and let us try to picture the conditions under which we would then work. In the first place, instead of half-a-dozen shops within a radius of two or three hundred yards, each working for its own interest and in antagonism to the others, we would have the number of shops regulated to suit the requirements of the population. This is the case in Germany at the present time. In that country a chemist is not at liberty to start business for himself when he qualifies. He must have permission to do so from the Government, which is granted only when his opening is not in opposition to the rule laid down that the number of shops in a district will be in proportion to the population. This arrangement seems to work satisfactorily enough in Germany, and there is no reason to suppose that it would be otherwise here. Certainly it would be to the advantage of those who received the appointment: while as for the others well, they would have to grin and bear their disappointment. The position would be somewhat like that which the Post Office is in. There can only be comparatively few postmasters and a large number of assistants, so there would be few dispensing masters and many assistants. To get over this seeming injustice, it seems to me that it would require to have examinations for qualifying assistants, and higher and stricter requirements for those who wished to have charge of a shop. We must bear in mind, however, that assistants under Government would probably be better paid than they are just now, and the higher grades of assistants would in all likelihood receive as much as many master chemists at present.

We would have then to hand over the whole management of the examinations to Government, and they would become special civil service examinations. This is a point which I think should be considered, even in the existing circumstances. If the Legislature demands certain qualifications from chemists, and appoints that these qualifications shall be determined by examination, and if all this is, as we are assured, in the interests of the public, then I hold that the representatives of the public—the Government—should control the examinations, and should bear the expense of conducting them. Were the trade to become a civil service this would become a necessity, and our examinations would be conducted as the present civil service examinations are.

Well, then, supposing that all preliminaries were settled, let me sketch the conditions which would prevail. The youth who aspired to the honour of serving his country as a dispensing chemist would require, as now, to satisfy duly appointed examiners of his possession of a sufficiency of general knowledge to give a reasonable prospect of success in his after studies. The examination would probably be conducted exactly as it is at present, the only change being that the civil authorities would be the responsible party instead of a semi-private body such as the existing society. Having gained the required number of marks for appointment, he would be passed into Government dispensaries, to be trained in the practical work of his profession. Our aspiring youth, being instilled into the mysteries of pill and powder making, would then be handed over to the tender mercies of a Government School of Pharmacy. He would take the necessary curriculum, and would then be at liberty to offer himself for examination as a candidate for an assistantship. Being again successful, he would receive the first vacant appointment, and would content himself as an assistant for the remainder of his life, or prepare himself for a higher position, such as manager or master. There could, of course, only be a limited number of such appointments, so the exam. would require to be a searching one, and the percentage of marks would be high. This would stimulate to higher exertion those possessed of the ambition and ability to better their positions, and they would have what few of us have—a certainty of a secure position. Such in outline is the drug trade as a civil service.

Is such a plan feasible? I think it is, and especially if all the dispensing were done by Civil Service chemists—let the Government reserve to him the entire right of dispensing prescriptions. The time may not yet be ripe, but I believe that it will come. Co-operation is the same principle, except that instead of public control they have private committees; and I would rather be under the control of a public body. Then, again, I shall be told that such a scheme would kill all enterprise. I cannot think so. Were such a system as I have sketched to become an accomplished fact, there would still be scope for the man of push. At present the man of capital is the man who has the best chance of success. Then, capital would be at a discount, and the man with perseverance and ability would be the successful man.

Such then is the scheme which I have to lay before you. I do not suppose that it will be accomplished in our time. I believe that in time individualism must give place to communism. The municipalities are quickly developing in this direction, as we, in Glasgow, must see. The movement is bound to spread and involve all enterprises, and I hold that it will lead to the greater prosperity of the chemist and druggist.

In conclusion, I should like to refer to a point I have already touched upon, that of handing over the management of the examinations to Government.

The object of making us face the ordeal of examination is to assure the public that only competent men handle poisonous drugs, and that the safety of consumers of medicines is guaranteed. If this is the real object of examinations, should not the Government take the trouble of conducting these examinations? Why should any private society have the trouble of doing so?

If the examinations were held for the purpose of keeping down the number of those entering the trade, were they merely a means of preserving a monopoly, then it would be quite fair. But since they are for the public interest, let the people pay for them.

I do not suggest that there should be no entrance fee. By all means have a sufficient fee to ensure that those going up for examination shall be *bonâ fide* candidates, but do not require us to pay such a sum as would pay the expenses of several examinations. If the public desire skilled labour, let them pay for it. This question is worthy of consideration, and I hope the after discussion will elicit some views upon it. It is in this way that we may hope to achieve something which will give tangible results and further the interests of the drug trade—whose interests are ours, and the success of which is our success.

THE CLINICAL SIGNIFICANCE OF URIC ACID.

In a paper, entitled "Facts and Fallacies in Ureanalysis," in the *Medical Record*, Schaefer discusses, among other topics, the clinical significance of uric acid, a subject on which much new light has been thrown within recent years by the labours of Horbaczewski, Kossel, Von Noorden, and other physiological chemists and clinicians.

The uric-acid theory (says Schaefer) is now the great pathological fetis of the medical profession. It is contended by many writers, foremost among whom is Haig, the great apostle of the uric acid theory, that uric acid is the responsible factor of the *fons et origo mali*, of a large number of ills and aches. This is a great question, and it is the firm conviction of the writer that the day is not far distant when we shall be obliged to give up the uric acid hypothesis altogether and be compelled to look for causes elsewhere. The amount of uric acid excreted in twenty-four hours ranges from 0.4 to 1 Gm. (gr. vi. to xv.). The quantity of uric acid in the urine should never be presumed to be excessive from the mere fact of deposit of uric acid crystals in the urine upon cooling, as in fact such may, and very often does, occur when the uric acid is both relatively and absolutely deficient. The conditions of the urine which tend to precipitation of uric acid are as follows:—
(1) High grade of acidity of the urine; (2) poverty in mineral salts;

(3) low percentage of pigmentation; (4) long standing. Any urine upon standing will deposit uric acid crystals in consequence of the changes culminating in ammoniacal decomposition.

Now a word or more in regard to the so-called brick-dust sediment of the urine. I will say that it is usually not of much diagnostic value, although physicians frequently attach great importance to it. A uric acid sediment is observed in cases in which an increased excretion of uric acid occurs, but it should be remembered that, as a rule, it is not permissible to infer an increased production or elimination from the presence of an abundant deposit of urates alone. Brick-dust sediments are frequently observed in the urine during winter months; but nothing would be more erroneous than to infer an increased elimination from such an observation, as the phenomenon in nine out of ten cases is explained by the fact that uric acid is far less soluble in cold than in warm water. According to Bunge, it takes about fourteen litres of water at the ordinary temperature of the room to dissolve 1 Gm. of uric acid, at the boiling temperature it required two litres, and at the temperature of the body seven to eight litres. The acid urate of sodium dissolves in eleven hundred parts of cold and one hundred and twenty-four parts of boiling water. Much more difficultly soluble are the urates of ammonium and those of the alkaline earths. During summer months a deposit of urates is less frequently observed, although an increased amount may nevertheless be present, being held in solution owing to a higher temperature. The more concentrated the urine and the more uric acid it actually contains, the more readily will a deposit of the kind occur. Uric acid sediments are most often encountered in very acid urines (Purdy). Horbaczewski and others have shown in recent years that enormous amounts of uric acid are excreted under a diet rich in nucleins, thymus having been employed in the cases observed.

Now permit me to express a few words in regard to the so-called uric acid diathesis, particularly gout, and its relationship to uric acid. It has long been a matter of doubt in my mind as to whether uric acid has actually any casual connection with the varied manifestations pictured under the name of uric acid diathesis. Recent investigations seem to show in a very conclusive manner, notwithstanding numerous statements to the contrary, that the excretion of uric acid in gouty patients moves in the same wide limits as in the healthy. In this disease the urates are neither increased nor diminished in any stage. An increase of uric acid in the blood of gouty patients has not been established with any great degree of certainty. Von Noorden has arrived at the conclusion that the gouty condition is independent of the presence of uric acid in the blood. This experimenter holds the opinion that the gouty process can be traced back to a specific local inflammation of the respective tissues. Changes occur which show partly the character of an inflammation, partly that of a necrosis. The acuteness of the process and other conditions may produce a slight or an abundant deposit, or even a deposit entirely free from uric acid. The uric acid which is once formed remains *in loco* at the necrotic areas, because it is insoluble in the fluids, notwithstanding their alkaline character. In leukemia the presence of uric acid is greatly increased in the blood and in the tissues, and yet no gouty deposits nor symptoms characteristic of gout occur. This late view of the nature of gout seriously questions the rationale of the treatment at present advocated against the malady in question. Besides, clinical experience teaches clearly enough the absolute immunity of gouty nodules against alkaline medication.—*Food and Sanitation.*

COSMETIC ALMOND MEAL—Sweet almond, peach kernel, or white poppy oil, 60 Gms., is rubbed up with sodium carbonate, 120 Gms., and then with wheat or barley meal, 2,000 Gms.; then put through a fine sieve, and perfume with 60 drops of a mixture of equal parts of oils of bergamot, bitter almonds, sandal, and ylang-ylang.—*Pharm. Post*, 32, 721, after *Sudd. Ap. Ztg.*

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

Problems to be Solved.

I note with mingled feelings of pleasure and apprehension the very general expression of a desire for amendment of the Pharmacy Acts by a Bill to be promoted by the Council of the Pharmaceutical Society. That amendment of the law affecting the practice of pharmacy and the business of a chemist and druggist is urgently needed has long been apparent, and the general recognition of that fact affords satisfaction. But the question which raises doubt in my mind has reference to the lines on which amendment of the law is to be attempted. As the Editor has recently pointed out, there has not been any qualification for the practice of pharmacy in this country since the qualification of the Society of Apothecaries became obsolete in that respect. Qualification under the Act of 1858 only does duty as an inadequate substitute, while qualification as a pharmaceutical chemist is merely voluntary. Assuming that opposition to Clause 2 of the Companies Bill proves successful and that the clause is withdrawn, there will then be the diversity of opinion and practice prevailing among legally qualified chemists to be dealt with. How great that is may be seen by comparing Mr. John Taylor's definition of pharmacy (see *ante*, p. 148), with the opinion that the dispensing of medicine is the proper business of the pharmaceutical chemist and should be confined to those holding that qualification, or the opinion that the proprietor of a business is the person who requires to be qualified, with the probably more popular one that the person actually conducting business in a chemist's shop is the only person who need be qualified. Then there is the practice of many legally qualified persons, who hire themselves to unqualified persons and thus enable companies to carry on the business, for some part of which legal qualification of individuals is necessary. How all these different views and tendencies of interest are to be harmonised and amalgamated is truly a very difficult problem.

Two Qualifications Needed.

If it were possible to make a separation of the dispensing of medicine from the sale of poisons the basis of an arrangement by which the professional practice of pharmacy could be connected with the title of pharmaceutical chemist, as a qualification of the proprietor of a business, while the title of chemist and druggist was made a personal qualification for the sale of scheduled poisons in connection with the ordinary trading operations now carried on under that title—as well as a qualification to be publicly used for the information and guidance of the public, either by the proprietor of a business, or by a person in his employ—such an arrangement might be a convenient means of solving the problem. It would probably require considerable concessions on all sides; but it appears to offer some prospect of possible adjustment so as to meet all existing requirements. Such a compromise would have the great advantage of opening a way to the establishment of a purely professional qualification for the practice of pharmacy, realisation of which can scarcely be expected otherwise. A professional qualification of that kind could not be adapted to the entire rank and file of registered chemists and druggists and to the very varied conditions under which their business is carried on in many instances in different localities. Those who have cognisance of these circumstances, who also take an intelligent interest in the future of British pharmacy and of the drug trade in this country, might render good service to their calling and to their colleagues by thinking over this fancy and discussing the difficulties that will naturally suggest themselves to practical men looking at it from various points of view, as well as the means by which they might be overcome with advantage to all concerned.

The Council Election, 1900.

Mr. Glyn-Jones, who was formerly credited, as I stated three weeks ago, with the intention of doing all in his power this year to secure the rejection of seven of his colleagues on the Council of the Pharmaceutical Society, limited himself in his recent letter to a proposal that at least three or four new members should be returned at the approaching election. More recently, in a type-written letter sent to a limited and very select circle, he has stated that he has received about a hundred and thirty communications from members of the Society, including a number of local secretaries throughout the country, who desire to see at least four new candidates returned. Emboldened apparently by the support of those one hundred and thirty persons, he invited the whole of them to a private meeting at the Holborn Viaduct Hotel, London, on Monday last, to discuss the election and make a selection from the list of new candidates, "in order that a combined effort may be made to secure their return." Members who received Mr. Glyn-Jones' letter, and found it inconvenient to attend the meeting, were requested to send him, "for the guidance of the meeting," a selection in writing of four or five candidates out of the ten at present standing for election. A type-written slip, enclosed with the letter, gave the names of the ten new candidates, with all too brief particulars about them. Thus:—

A. S. Campkin, Cambridge.

Albert Cooper, Gloucester Road, London. (Chairman of the Chemists' Defence Association, and of the Retail Section of the P.A.T.A.)

J. Currie, Glasgow. (Supported by Glasgow Association.)

Walter Gibbons, P.A.T.A. Local Secretary, Manchester.

R. Lord Gifford, Blackburn. (Secretary of the Blackburn Association.)

G. J. Gostling, Stowmarket.

J. W. T. Morrison, Tring.

C. E. Pickering, Chemists' Assistant, London. (Supported by Chemists' Assistants' Union.)

John Taylor, Bolton. (Supported by Bolton Chemists' Association, of which he was formerly Convener.)

A. C. Wootton, London. (Formerly Editor of the *Chemist and Druggist*.)

Mr. Currie's name, I may say, was given incorrectly in the type-written slip, as in the foregoing list. It should be W. L. Currie.

A Pharmaceutical Caucus.

The information regarding the candidates seems to me decidedly meagre and quite unworthy of Mr. Glyn-Jones, who is nothing if limited in his statements. But that doubtless counted for little with the fraction of his one hundred and thirty supporters who attended the meeting arranged by him, with the object of forming a caucus to influence the approaching election. For the action taken by Mr. Glyn-Jones amounts to nothing less than a deliberate attempt to run a caucus, which may be expected to receive the support of self-proclaimed disinterested trade journals, with such assistance as the well-arranged machinery of the P. A. T. A. may be capable of affording. Mr. Albert Cooper, the Chairman of the retail section of that organisation, is one of the candidates included in Mr. Glyn-Jones' select list, along with Mr. A. C. Wootton, the former conductor of the one trade journal which is capable of serious mischief. Mr. John Taylor, of Bolton, is the third selected candidate, and Mr. Walter Gibbons, of Manchester, the fourth. I have nothing to say with regard to the merits or demerits of the respective individuals, but I imagine that it may not prove an un-mixed advantage to be mentioned in the list issued by the caucus. Readers of the Journal will not remain long in suspense as to what is likely to be done in the attempt to influence the result, as only a month remains before the day of election and anything serious in the nature of canvassing must be done within the next three weeks. Meanwhile, I may be permitted to point out that—with regard to the four new candidates recommended by the Glyn-Jones caucus for election—voters would do well to ask why they should act on that recommendation and in what respect the new men are better than those they may reasonably expect to displace.

The Support Required by Candidates.

I find there appears to be some misconception as to the amount of support a candidate must receive to insure his return. Judging from the experience of last year, not less than eighteen hundred votes will suffice to return a candidate, and if the usually apathetic ones should record their votes to any great extent, some hundreds must probably be added to that number. The one hundred and thirty votes which may be supposed to be at the command of the caucus will, therefore, not go far in themselves, even if the voters plump for the same candidates. Of even less avail will one vote prove, though Mr. James Reid appears to think that it would have given him a good position at the poll. In a letter buried, so far as the members of the Pharmaceutical Society are concerned, in the pages of a trade journal, he has thanked those who nominated him, and states that he has every reason to believe that their support would have given him "a good position at the poll." In view, however, of the fact that probably only one person nominated him, it is difficult to see how that good position could have been attained by the means referred to, and Mr. Reid may therefore have exercised a very wise discretion in deciding not to stand for election "just now." It is interesting, by the way, to learn that he does not think anything can be done within the Council towards the redemption of pharmacy—whatever that may mean—for a considerable time to come. It would, therefore, be little short of an absurdity for him to waste his talents at present by boating the air; in the dim and distant future, however, he may sacrifice himself in the interests of pharmacy, and attempt to secure a seat upon the Council. That, at least, is something for us to be thankful for.

POLITICAL GOSSIP.

PARLIAMENT stands adjourned until Thursday, April 26, for the Commons, and until Monday, 30, for the Peers. On resuming, the House of Commons will have a very full menu on which to exercise its renewed appetite for work, for there are no less than twenty-nine items on the Order Book for the first day. Thirteen of these are Government-measures of first-class controversial power, such as the Companies Bill, Factories and Workshops Bill, and so forth, whilst the other sixteen are ordinary Bills, six of which are blocked and the majority of the remainder objected to by individual members who find the public device of a "block" inexpedient. The first business on Thursday will probably be the Civil Service Estimates, which may occupy a considerable time, as there are on the paper seven motions for the reduction of various items in the Vote. The Companies Bill, being number six on the official list, is manifestly not intended for active service on that night.

MR. FAITHFULL BEGG, the London stockbroker who represents the St. Rollox Division of Glasgow, is apparently convinced that the way to undying fame does not lie through the thorny paths of Companies Acts amendment. He has not abandoned his measure on the subject, but it has dropped out of the list of immediate possibilities, being twenty-four down the list for Wednesday, May 2. This has given the hon. member some leisure, which he has devoted to the task of drafting a new Bank Holiday Bill. This attempt to out-Lubbock Lord Avebury was well received by the House on the 6th instant, and has been relegated to May 23 for further consideration. The proposal contained in the Bill is to amend the Bank Holiday Acts of 1871 and 1874 by providing for an additional public holiday to be called Empire Day. May 23 being the eve of the Queen's birthday, seems a highly fortunate date for the second reading, and Mr. Begg is to be congratulated on having taken the tide of loyalty and patriotism at its flood.

MORE REGISTRATION AND REGULATION.—After the midwives, the plumbers. Mr. Lees Knowles (Salford West), who formerly assisted

Mr. Ritchie as an unpaid private secretary at the Local Government Board and at the Board of Trade, has notified that on May 15 he will call attention to the national registration of plumbers, and will move a resolution thereon. Mr. Knowles has been much interested for a long time past in the question of protecting the public from incompetent workmen, and has introduced on more than one occasion a Plumbers' Registration Bill. This year he is confining himself to a tentative motion, with a view to ascertaining the temper of the House in regard to the question. As chemists know, to their cost, Parliament does not view the registration remedy with a too favourable eye.

THE REGISTRATION OF FIRMS is a much more important matter to the general public than the desire of Mr. Knowles to evolve a certificated and registered worker in lead-piping. As has been many times maintained in these columns (and we are glad to notice the support of Mr. C. Symes), the Registration of Firms Bill now before Parliament is almost as important in regard to the efficient administration of the Pharmacy Acts, as an amendment of the Companies Acts. For the first time for many years there appears to be a chance of progress with the Bill, which is now in the charge of Mr. Emmott (Oldham). It is first order of the day for Wednesday, May 2, and if any pharmacists possess opportunities for influencing members of the House, they are hereby urged to put in a good word for the modest measure of reform above stated. All who are interested in knowing with whom they are dealing and desire to avoid being victimised by the thousand and one anonymous transformations of unprincipled adventurers, should heartily support the Bill.

THE PRESENT POSITION of the Bills possessing interest for pharmacists is indicated below:—

Midwives: Consideration of the amendments of Grand Committee.....	Wed., June 27
Petroleum: Second Reading	April 26
Shop Hours: (Steadman) Second Reading.....	May 2
Shop Hours: (Provan) Second Reading	April 27
Shops: (Dilke) Second Reading.....	May 1
Veterinary Surgeons: Second Reading	April 30
Accountants (Professional): Second Reading....	May 2

USERS OF STEAM POWER who wish to be heard before the Select Committee on the Registration and Inspection of Boilers now sitting should communicate with the Chairman, Mr. J. Penn (Lewisham). The committee will have its first business meeting on Friday, May 4.

ROYAL INSTITUTION.

A lecture of remarkable and historical interest was given on Friday, April 6, by Professor DEWAR, F.R.S., on

Solid Hydrogen.

He observed that since the dawn of chemistry conjecture had been rife as to the properties of hydrogen in the liquid and in the solid condition. Black, a loyal disciple of Newton, said that what the nature of solid hydrogen was no man could foretell. Lavoisier promulgated the metallic theory when he suggested that the atmosphere might contain certain substances possessing a metallic character. Davy said of nitrogen and hydrogen that their elastic state was no proof that they were non-metallic. Faraday and Daniel supported this view, so did Dumas, and, generally speaking, chemists have thought hydrogen to be metallic in character. The two theories as to the constitution of salts have given support to this view—viz., the old idea that salts were composed of two oxides, one basic, the other acidic; and the more modern view, that salts are produced by the replacement of the hydrogen of an acid by a metal.

To Professor Odling, of Oxford, belongs the credit of having first suggested the contrary. He said some years ago that he did

not expect liquid hydrogen would have the properties of a metal because, among other things, it had a chlorous as well as a basyous half. In this he hit upon the true physical characters of liquid hydrogen.

Professor Dewar went on to show a long series of brilliant experiments, showing that unless reasonable quantities of liquid hydrogen were available it was not possible to do much with it, in consequence of its physical characters. When liquid air is poured into a cup a heavy vapour of air falls over the side. When liquid hydrogen is similarly treated the superincumbent atmosphere falls down bodily as a solid, the vapour of hydrogen rising in the air. During the condensation of the air so much heat is given out that the liquid hydrogen soon evaporates.

By means of two thermo-junctions it was shown that the temperature of liquid hydrogen is 70° below that of liquid air, the former being from —250 to —252° C., the latter —180° C. As a consequence, to reach a still lower temperature the difficulties are greater, it being well known the lower the starting point on the scale the greater the difficulties to be encountered. The difference in the behaviour of liquid nitrogen and liquid air when made to boil under diminished pressure was next illustrated. The temperature of both was reduced, but, while the nitrogen became viscid and ultimately solid, the oxygen absolutely refused to solidify. In fact, it is quite impossible to get solid oxygen in this way by evaporation, the reason being that at the lowest temperatures it has an inappreciable pressure of vapour, whereas that of nitrogen is considerable, being about 45 millimetres. That of oxygen, like mercury vapour, at normal temperature amounts only to about a millionth part of an atmosphere.

To give an idea of the power of liquid hydrogen as a cooling agent, he performed an experiment depending on the same principle as a Wollaston's cryophorus, with the difference that the fluid to be solidified was not water, but liquid air containing a large proportion of nitrogen, the material used to effect condensation being liquid hydrogen. He next showed how hydrogen could be liquefied in a closed tube, explaining the importance of this fact in determining its density and other constants, and then proceeded to exhibit the gas in the solid form.

This experiment was the *pièce de résistance*, and was carried through successfully. This result was effected by putting a portion of the liquid into a vacuum vessel isolated from heat as perfectly as possible. When the pressure on the liquid in the vessel was slowly reduced, the hydrogen was suddenly seen to appear like a white mass of solidified foam, possessing the lowest steady temperature it is possible to reach at present—viz., 258° below zero Centigrade, or 15° on the absolute scale.

Professor Dewar remarked that the solidification of hydrogen at this point was in a sense a disappointment to those who had hoped to reach by means of liquid hydrogen a point nearer the absolute zero than 15°, inasmuch as a solid is a bad conductor for cooling purposes. Coming to

THE USES OF LIQUID HYDROGEN

for scientific research, the lecturer showed how it afforded the only means of obtaining solid oxygen. Another important application is in the separation of the more volatile gases of a mixture. By way of illustration coal gas was passed through liquid air, liquid oxygen, and liquid hydrogen. On emerging from the last it was found to be non-luminous, and in each case it was found to be different in composition, showing that each liquid removed certain gases by condensation. In this way it is possible to get pure nitrogen, preferably by condensing Bath gas, which contains no oxygen. The behaviour of metals with regard to electrical conductivity at very low temperatures is an interesting question. From experiments with liquid air it was expected that at the zero of absolute temperature pure metals would have no electrical resistance at all. But although the resistance curves appeared to be going straight to zero at the temperature of liquid air, he found that lower down

below the temperature of solid air they bent sharply round, so that a finite resistance was expected. Samples of pure metals were obtained for the experiments, iron from Mr. Swan, and gold from Professor Roberts-Austen.

In conclusion, Professor Dewar acknowledged the generosity of those who had contributed to the cost of the investigations, notably the Goldsmiths' Company. He paid a glowing tribute to the skill, fidelity, and perseverance of his assistants, who had given ungrudgingly of their leisure to achieve success. In this connection special reference was made to Mr. Lennox and Mr. Heath. It had been suggested, said the lecturer, that the costliness of the investigation had not been justified by the results, but he was unable to share this view.

PHARMACEUTICAL SOCIETY.

Library, Museum, School and House Committee.

At the ordinary monthly meeting of this Committee, held on Wednesday, April 11, the following particulars respecting the Society's Libraries and Museums were presented:—

ATTENDANCES.

	Total.	Highest.	Lowest.	Average.
Museum (March)	611	50	3	23
Library (March).....	511	38	4	19

CIRCULATION OF BOOKS.

	Total.	Town.	Country.	Carriage Paid.
London (March)	179	110	69	17s. 8½d.
Edinburgh (March) ..	168	115	53	4s. 10d.

DONATIONS TO THE LIBRARY (LONDON).

Mr. F. Manson Bailey, F.L.S., Colonial Botanist, Queensland:—Queensland Flora, part 1; Contributions to the Flora of Queensland, 1900.

College of Preceptors, London:—Calendar, 1900.

Prof. Dr. G. Lagerheim, Stockholm:—7 pamphlets.

DONATIONS TO THE MUSEUM (LONDON).

Mr. A. Peake, Earlstown:—Five specimens of native remedies from British Honduras.

Mr. Th. Wardleworth, F.L.S., Liverpool.—Large specimen of the fruit of *Theobroma cacao*; fruits of *Mucuna pruriens*.

TO THE HERBARIUM (LONDON).

Mr. C. P. Andrews, St. John's College, Battersea:—Specimen of *Phalaris minor*.

Mr. E. W. Hunnybun, Godmanchester:—Specimens of *Mibora verna*.

PURCHASE OF BOOKS.

The Committee authorised the purchase of the undermentioned work:—

For the Library (London), The Times Atlas, latest edition.

EXAMINATIONS IN EDINBURGH.

April, 1900.

MAJOR EXAMINATION.

One candidate was examined, and failed.

MINOR EXAMINATION.

Candidates examined.....	117
„ failed	84
„ passed	33

Andrews, Martha
 Arnott, David
 Birnie, James Murison
 Dawson, Frederic William
 Dowell, James
 Drummond, Wallace Blair
 Duncan, Howat
 Fairbairn, Alexander
 Ferrier, John Greig
 Hedger, Harry Ormsby
 Hume, Robert Marshall
 Johnston, Robert Adamson
 McEwan, Arthur
 McMillan, Allan
 Melrose, Francis
 Middleton, Edward Loggie
 Milne, William Farquhar

Nicoll, Thomas
 Owens, Thomas Owen
 Patten, Mary
 Petrie, David Laurance
 Ross, Albert
 Russell, William
 Shadforth, William
 Smith, Charles Monie
 Strachan, Robert Guild
 Thomson, George
 Traill, Alexander Melville
 Walker, James
 Wallace, Robert
 Waters, Robert Sandison
 Weir, John
 Wilson, Robert Mackie

MAJOR EXAMINATION QUESTIONS (LONDON).

CHEMISTRY.

April 10, 1900, from 10 a.m. to 1 p.m.

[Six questions only are to be attempted, and, of these, at least two must be taken from Part II.]

PART I.

- 0.5 gramme of an element gives 0.6355 gramme of oxide. The vapour density of a chloride of the element is 130. Show how these data can be used in deducing the probable atomic weight of the element.
- Compare and contrast the properties of phosphoric and arsenic acids.
- Write an account of the common chlorides which contain three atoms of chlorine to one of the element.
- Hydrogen sulphide is passed at ordinary temperatures into the following: (a) nitric acid; (b) sulphuric acid; (c) solution of ammonia; (d) solution of potassium permanganate made alkaline with potassium hydrate. Describe the changes which occur in each case, and give equations where possible.
- Describe three experiments illustrating the reducing action of magnesium, and give equations representing the changes which take place.
- Give detailed instructions for the preparation of crystals of chrome (potash) alum from potassium dichromate and of a solution of subacetate of lead from lead nitrate.

PART II.

- Starting from acetic acid, how could you obtain (a) carbonic acid, (b) glycollic acid, (c) oxalic acid, (d) malonic acid?
- If you were given an organic compound and were told that it was an amine, amide, or an ammonium salt, what tests would you apply in order to ascertain to which of these groups the substance belonged?
- Commercial (synthetical) benzoic acid frequently contains chlorine compounds. Indicate the origin of this chlorine, and describe one method by which you could estimate the quantity in a given sample of the acid.
- Write a short account of any three derivatives of naphthalene, and give the constitutional formulæ of the compounds chosen.

PHYSICS.

April 10, 1900, from 2 p.m. to 5 p.m.

[Only six questions to be attempted.]

- A mass of iron of 750 grammes at a temperature of 400° C. is introduced into an ice calorimeter when 420 grammes of water are produced; what is the specific heat of iron?
- An object is held in front of a convex mirror at a distance equal to its focal length; what is the size of the image?
- Describe the construction of an induction coil and explain its action.
- Describe the method for determining the velocity of light by a revolving mirror.
- What do you understand by the expression "the diffusion of gases"? Describe a case in which the determination of the rate of diffusion has substantiated the molecular weight of a gas.
- What is meant by the co-efficient of absolute expansion of a liquid? How can it be experimentally measured?
- Describe some method of measuring the angle of a prism and the refractive index of the material of which it is composed.

MATERIA MEDICA (A Paper).

April 11, 1900, from 10 a.m. to 11 a.m.

- What are the chief commercial varieties of Aconite root? How would you distinguish each one severally from the others?
- What are the chief chemical properties of Quinine and Cocaine?

PRACTICAL MATERIA MEDICA (B Paper).

April 11, 1900, from 10 a.m. to 11.30 a.m.

- Prepare transverse and epidermal sections of the leaf provided. Draw and describe your sections, pointing out anything characteristic observed.
- Is the sample of powdered Coea leaf genuine or not? State your reasons for the opinion expressed.

BOTANY (A Paper).

April 11, 1900, from 11 a.m. to 1 p.m.

- Describe the structural modifications seen in plants which inhabit a dry climate (Xerophytes).
- Describe the chief forms of fruit met with in Cruciferae.
- What is a Ferment? Write an account of the mode of action of any vegetable ferment other than Diastase.

PRACTICAL BOTANY (B Paper).

April 11, 1900, from 11.30 a.m. to 1 p.m.

- Prepare a transverse section of A. Draw your preparation, identify it, and indicate any features that suggest to you the environment in which it lives.
- Dissect the specimen B. Accompany your preparation with explanatory sketches.
- Determine the natural order of specimen C, giving your reasons.

PRACTICAL MATERIA MEDICA (A Paper).

April 11, 1900, from 2 p.m. to 3.30 p.m.

1. Prepare transverse and epidermal sections of the leaf provided. Draw and describe your preparations, pointing out anything characteristic observed.
2. Is the sample of powdered Senna leaf genuine or not? State your reasons for the opinion expressed.

MATERIA MEDICA (B Paper).

April 11, 1900, from 2 p.m. to 3 p.m.

1. What are the chief commercial varieties of Ginger? How may the non-official ones be distinguished from the official?
2. What are the chief chemical properties of Morphine and Salicin?

PRACTICAL BOTANY (A Paper).

April 11, 1900, from 3.30 p.m. to 5 p.m.

1. Prepare a transverse section of A. Draw your preparation, identify it, and indicate any features that suggest to you the environment in which it lives.
2. Dissect the specimen B. Accompany your preparation with explanatory sketches.
3. Determine the natural order of specimen C, giving your reasons.

BOTANY (B Paper).

April 11, 1900, from 3 p.m. to 5 p.m.

1. What are the essential differences between Gymnosperms and Angiosperms? Enumerate the Gymnosperms native to the British Isles.
2. What is meant by Irritability? Illustrate your answer by reference to a special case.
3. Give a short account of the minute structure of a foliage leaf, and point out the uses of the various parts.

FIRST EXAMINATION QUESTIONS.

LATIN.

April 10, from 11 a.m. to 12.30 p.m.

I. For all Candidates. Translate into Latin;—

1. The soldier's daughters are very unhappy.
2. This servant will be praised by the father of Crassus.
3. The fourth legion has been sent to the assistance of the Gauls.
4. The book which we were reading has been lost.
5. This thing being done, she wished to return.

II. Translate into English either A (Caesar) or B (Virgil).

[Candidates must not attempt both authors.]

A.—CAESAR.

1. Pro multitudine autem hominum, et pro gloria belli atque fortitudinis, angustos se fines habere arbitrabantur, qui in longitudinem millia passuum ducenta et quadraginta, in latitudinem centum et octoginta patebant. His rebus adducti, et auctoritate Orgetorigis permoti, constituerunt, ea, quae ad proficiscendum pertinent, comparare; jumentorum et carrorum quam maximum numerum coemere; sementes quam maximas facere, ut in itinere copia frumenti suppeteret; eum proximis civitatibus pacem et amicitiam confirmare.

2. Cognito Caesaris adventu, Ariovistus legatos ad eum mittit: Quod antea de colloquio postulasset, id per se fieri licere, quoniam propius accessisset; seque id sine periculo facere posse existimare. Non respuit conditionem Caesar, jamque eum ad sanitatem reverti arbitrabatur, quum id, quod antea petenti denegasset, ultro polliceretur; magnamque in spem veniebat, pro suis tantis populique Romani in eum beneficiis, cognitis suis postulatis, fore uti pertinacia desisteret. Dies colloquio dictus est, ex eo die quintus.

Grammatical Questions.

[For those only who take Caesar.]

1. Decline, in full, in the singular *magnam spem*, and in the plural *eo die*. (Passage 2.)
2. Give the principal parts of all the verbs in Passage 1. Parse fully—"Cognito Caesaris adventu, Ariovistus legatos ad eum mittit." (Passage 2.)
4. What cases are used in Latin to express (a) motion to a place, (b) measure of space? Give sentences in illustration.

B.—VIRGIL.

1. O Dea! si prima repetens ab origine pergam,
Et vacet annales nostrorum audire laborum;
Ante diem clauso componet Vesper Olympo.
Nos, Troja, antiqua (si vestras forte per aures
Trojae nomen iit) diversa per aequora vectos,
Forte sua Libycis tempestas appulit oris.
2. Dixit, et in mensam laticum libavit honorem,
Primaque, libato, summo tenus attigit ore:
Tum Bitiae dedit increpitans. Ille impiger hausit
Spumantem pateram, et pleno se proluit auro.
Post alii proceres. Cithara crinitus Iopas
Personat aurata, docuit quem maximus Atlas.
Hic canit errantem lunam solisque labores;
Unde hominum genus et pecudes; unde imber et ignes
Arcturum pluviasque Hyadas geminosque Triones;
Quid tantum Oceano properent se tingere soles
Hiberni, vel quae tardis mora noctibus obstet.

Grammatical Questions.

[For those only who take Virgil.]

1. Decline, in full, in the singular *errantem lunam*, and in the plural *tardis noctibus*. (Passage 2.)
2. Give the principal parts of all the verbs in Passage 1.
3. Parse fully—"Cithara crinitus Iopas personat aurata, docuit quem maximus Atlas." (Passage 2.)
4. What cases are used in Latin to express (a) motion to a place, (b) measure of space? Give sentences in illustration.

ARITHMETIC.

April 10, 1900, from 12.30 p.m. to 2 p.m.

[The working of these questions, as well as the answers, must be written out in full.]

1. A dishonest inn-keeper buys 12 pipes of wine, and mixes $1\frac{1}{2}$ quarts of water with every 3 gallons of wine. How many pints will he have to sell? (Answer in words.)
2. If $\frac{1}{10}$ of 1 cwt. cost £7 3s., what will $\frac{6}{11}$ of 1 ton cost?
3. If 25 men can perform a piece of work in 16 days, working 12 hours a day, in what time will 20 men perform a similar piece of work 6 times as large, when they work only 8 hours a day?
4. Simplify $\left(\frac{3\frac{1}{2}}{7} + \frac{2}{10\frac{1}{2}} - \frac{5}{6} \times \frac{4}{21}\right) \times 1\frac{3}{4}$.
5. Add 0.40972 of 3s. to 0.27 of 8s., and express the result as the decimal of £1.
6. The difference between the incomes derived from investing a certain sum in 6 per cent. stock at 126 and a similar sum in $4\frac{1}{2}$ per cent. stock at 105 is £22.10s. What is the amount invested in each?

The following question must be attempted by every candidate:—

7. A journey of 725 kilometres can be performed by railway in 18 hours. Find, approximately, the average number of miles per hour at which the train goes.

ENGLISH.

April 10, 1900, from 3 p.m. to 4.30 p.m.

1. Analyse:—

"Like a knell of death and judgment
Rung from heaven by angel hand,
Fell the words of desolation
On the elders of the land."

2. Give the force of the suffixes in the following words:—*yeomanry, lancet, womanish, freedom, gosling, youngster*.
3. Correct the following sentences, giving your reasons:—
(a) He neither knows Latin or French.
(b) He did not get so many rewards as me.
(c) She had fair hair, which was quite different to her sisters.

4. In the following passage, supply the necessary capital letters, and put in the stops and the inverted commas where necessary:—quite so said the editor and it is just that reputation for accuracy that I want to gain for the daily bugle dont you think the truth of it is that the man wants more money who hazel oh no I am sure the money does not come into the matter at all replied hardwick.

[The following question must be attempted by every candidate]:—

5. Write a short Composition on *one* of the following subjects:—
(i.) Wireless Telegraphy.
(ii.) Conscription.
(iii.) Changes in the Social Condition of the People of this Country during the Nineteenth Century.
(iv.) Coal.

A NEW TREATMENT FOR PULMONARY CONSUMPTION.—Mendel has instituted a new kind of treatment for consumption, which has given him considerable satisfaction. By means of a long curved syringe of the capacity of a drachm, he injects through the mouth into the trachea about 3 drachms of the following solution:—Oil of eucalyptus, oil of thyme, oil of cinnamon, of each 1 drachm; iodoform, 20 grains; bromoform, 10 drops; sterilised olive oil, $3\frac{1}{2}$ fluid ounces. The tracheal injection is practised daily. The patient, who feels the solution trickling into his lungs, experiences an agreeable sensation of warmth, and does not cough. In his early experiments Dr. Mendel operated with a mirror, but now he is able to dispense with that aid. The patient holds his tongue himself outside his mouth between thumb and finger by means of a napkin. The treatment is simple and inoffensive, and the effects vary with the stage of the disease. In patients in the first stage, he has succeeded after two or three weeks' treatment in relieving the cough and expectoration, and even stopping them altogether; strength, sleep, and appetite also return. In the two remaining stages of the malady, the results are not so satisfactory, but still considerable benefit is obtained, expectoration being easier and less abundant, while strength and appetite improve.—*Med. Press*, 69, 87.

LETTERS TO THE EDITOR.

The Council Election, 1900.

As a candidate for election on the Council, I have been asked in several quarters to make some statement of my views—I do not know that I can add very much to what I have recently said in the paper and letter published in the *P. J.* for February 17 and 24 last. When asked to stand for the Council my first thought was that I could do as much or more for the trade in a position of "greater freedom and less responsibility" than a councillorship permits. But there is a consideration that weighed heavily with me—viz., that without a seat on the Council one cannot get that first-hand acquaintance with the ways of Bloomsbury Square which I think is desirable for those who seek to shape in any way the policy and future of our trade. Until a man has experienced the responsibilities and opportunities of office he cannot gauge what is and what is not possible to effective administration and policy. To gain that acquaintance, and in the hope that I might be of service to my fellow-craftsmen I resolved to stand. That point being settled, other and personal considerations which would have led me to decline were put aside.

I have not seen any cause to change my mind on the wisdom of opposing Clause 2. I think there is little chance to amend it satisfactorily. It may be true that if this opportunity of amendment be let slip we may, for a long time, lose the chance of legislating on the question. I think such a lapse of time would not be entirely wasted. The Society and Council have, for a long time, been out of touch with provincial pharmacists. They have not made the most and best use of the Pharmacy Act—at least, not always. The commercial side of pharmacy has been entirely ignored. To bring the Society into touch with the full ranks of pharmacy, to utilise the Pharmacy Act as well for the trade as in the interests of the public, and to throw all the weight of an organised trade into the scale when commercial interests are in question, is, in my opinion, the duty of the Council at all times. In working for such ends there is no need to neglect the education of pharmacists or to lower the standard of examinations. I would guard very jealously the traditions and practice of the Society in that respect. It is possible that even a fairly strong infusion of new blood will be unable to effect an immediate change in the policy of the Council. But if I am elected it will always be my aim to make its action subserve the interests of the whole trade.

Bolton, April 7, 1900.

JOHN TAYLOR.

I desire to have in the election now pending what in my experience I find most difficult to get—viz., a straight issue. Perhaps, therefore, it is desirable for me to give my idea of what the issue is. It is this: The making operative of the Pharmacy Act of 1868. I am striving to get a declaration from the electorate that this ought to be the policy of the Council. This demand is so moderate, so reasonable, so much in the interest of the public, as well as really less than justice to registered chemists, that if we force the claim by every means—and we have powerful means—at our command we are likely to be successful, because by this means we place the community, *i.e.*, the Government, into the position of either enforcing most apparent right, justice, and expediency, or the actual deliberate committing of flagrant injustice and confiscation. It is said that we must knuckle under, because, forsooth, we are but 15,000 in some 40,000,000. That statement I will not have at any price; it insults me as an Englishman; it insults Great Britain! The straight issue I mean is that the examinations so ably conducted by the Pharmaceutical Council shall have the corollary which alone can justify them. At present these examinations have not their necessary consequence, because they do not give exclusive right to the title and the exclusive responsibility of distributing scheduled poisons.

I have an abiding faith in pharmacy, because there is such scope, in my opinion, for natural development in a pharmacy resting on the foundation set in 1868. Common sense says it intended and should insist that the qualified person shall be distinguished, that he shall be associated with the handling of scheduled poisons, and that handling is more than the mechanical operation. In my view "pharmacy" is the drug trade not as it is, but as we all know it should be—the dispensing of medicine and the distribution of medicinal substances. Dispensing is by no means the principal factor in a rational pharmacy. Thousands of chemists understand me when I say that often more judgment, more trained intelligence, more power for good or ill can be brought into play by a three-penny sale than could be displayed in a good deal of dispensing. Let not this be taken to mean that I dream of confining the distribution of drugs, etc., to qualified people. I do nothing of the sort, first, because it is not desirable, and, second, because of its being contrary to English tradition; but what would be the effect of a proper footing? What would have been the effect of holding tight the principles of the 1868 Act, so that the legitimate person could be (1) distinguished and (2) associated with qualification and responsibility? The effect without doubt, in the light of all experience, would be that the practice of pharmacy would crystallise round the qualified chemist. My trade interests are my own affair and do not concern the members of the Pharmaceutical Society. If the Pharmaceutical Council became to any extent a trade union, the propriety of its administering the Pharmacy Acts would rightly be called in question. Here, then, we have a simple issue, and if any member of the Society sees difficulties which he cannot overcome, I shall be ready to address myself to them.

Blackburn, April 8, 1900.

R. LORD GIFFORD.

As one of the candidates for the approaching Council Election, perhaps it may not be out of place to ask your insertion of this communication, as showing my views—shortly, but I hope clearly—on current pharmaceutical topics. That which bulks most largely before pharmacists at the present time is Clause 2 of the Companies Bill, now before the House of Commons. I may say straight away, that I oppose that Clause as it stands for two reasons—1st. It proposes to do away with rights and privileges conferred by the 1868 Pharmacy Act—this being a distinct breach of faith which even the Legislature must not be allowed to perpetrate. 2nd. The Companies Bill is not the place to insert a clause bearing on pharmaceutical legislation. We want legislation badly enough, but we want something that will go a long way further than such a clause can give. We require an amended Pharmacy Act, what we should have had twenty years ago.

There is much in the present state of affairs which calls for improvement. I have long been of opinion that the Society, through its Council, has been too limited in its endeavours to cement the rank and file in one common bond. There has been a great want of unity among its members. The Society should be more than merely an examining and administrative body. It should look after those who pass its examinations representing and conserving trade interests, which it at present ignores. I am quite in favour of some suitable division of the qualifying examination. I am of opinion that chemists should be exempt from jury service, as the safety of the public can only be assured by the constant attendance of qualified men at their places of business. I think the financial affairs of the Society require careful looking into. In conclusion, I would just say that I do not put myself forward as a Scotch pharmacist, but as representing British pharmacists, and can lay claim to having a fairly wide knowledge of pharmaceutical affairs.

Glasgow, April 9, 1900.

WILLIAM L. CURRIE.

The issue of the coming election for the seven vacant seats in the Council is of such great importance to the whole body of chemists that it is to be hoped each member will weigh carefully the evidence

and decide whether he should vote for or against a change in the present Council. According to this week's Journal, ten new candidates offer themselves for the seven seats, and I think there should be no difficulty in making a judicious selection of at least four or five new members, who will be able to throw in their lot with the few progressive men we have at present on that body, and thereby bring about a welcome change in its administration and régime. It is not necessary to make a more than casual study of past work done by the Council to see that it would be decidedly beneficial for future legislation to all concerned if the present majority could in future act as a progressive minority. I hope that some concerted action will be taken to bring this about, as proposed in my letter of March 24, so that success may attend the efforts of those who, like myself, are impressed with its absolute necessity.

I used the words "apathy of the Council" in my last letter, which innocent remark brought down upon me an attack of a purely personal nature from a writer in the *Pharmaceutical Journal* who styles himself "An Ordinary Pharmacist," and although that attack is really unworthy of notice, I will for his edification presume to justify that remark by giving one instance. Twelve months ago a prominent member of the Council, speaking at our annual dinner at Burnley, said that the scheduling of carbolic acid was practically an accomplished fact, but to-day we know that it is as far off as ever. If the Council has wished to bring about this desirable end, its duty was to elicit the support and sympathy of the coroners and the medical profession. Its duty also was to agitate members of Parliament to persistently raise the question in the House and post such members on all cases of poisoning by carbolic acid, and especially where the sale was made by grocers and unqualified men. Had this course been adopted, I have no hesitation whatever in saying that carbolic acid would have been on the schedule years ago and scores of valuable lives would have been saved. But this progressive body contents itself with the manly effort of formally bringing the matter under the notice of the authorities every four or five years. This is one of the many sins of omission that are rousing members of the Society to action, and it is very evident, from the number of nominations this week and the numerous outspoken letters that appear regularly in the journals week after week, that this state of things, which has passively existed for the last twenty years, ought to be ended once and for all.

Burnley, April 9, 1900.

J. A. HEATON.

The Council and the Companies Bill.

Mr. Heaton's charge against the Council of "apathy, indifference and, perhaps, incapacity," has been well earned by the Council, and if there was no foundation for such a remark it is quite evident there would have been no occasion to refute it. One of the objects for which the Society was founded was to safeguard the interests of the trade. Had that been done in the manner it should have been done, unqualified company pharmacy would never have been allowed to exist. It is all very well for the Council to say that because it is not supported so well as it should be by the trade it cannot develop a better policy and stop the scandalous condition that competition in "pharmacy" has come to. It has been the Society's duty for the last twenty years or more to remedy the flaw in the Act that is powerless in this matter at present, and it is the duty that has been, invariably, year after year, put off for "want of support." It is absurd to suppose for a moment that the Government—which has imposed a standard of qualification, by dint of hard mental effort in securing the necessary diploma before a man can style himself a pharmacist or chemist and druggist, or practise as such—would not, if approached in the proper manner, defend such position, originated for the protection of the public. As worked at present, the Act is inoperative, as it allows a company of persons to sell and conduct the sale of medicines and poisons, whilst each separate member of such company under the same Act is debarred from so doing.

Where is the safety of the public safeguarded under such ridiculous conditions as this? As soon as this anomaly was found to exist, it

was, and still is, the paramount duty of the Society entrusted with the carrying out of the provisions of such Act to take the most energetic, persistent steps to remedy the matter. Yet it has been allowed to exist for so many years that the very persons who have filched the privileges of others now actually have the audacity to talk about their vested interests in the business. Can anything be conceived more barefaced in pharmacy than such effrontery as this? Why, the burglar who has had possession of stolen property for twenty years might as soon be expected to claim his vested interests. The sooner the Society wipes this slur off the annals of pharmacy the sooner will it have a claim to be supported as it should be by the whole trade. Until then, how can it expect the guineas and support from those who see their trade going to company pharmacy, and their interests not only not protected as they should be, but the pirates of pharmacy allowed to go on, year in and year out, defrauding them of their just rights? If the Council has not been apathetic and indifferent in this very definite issue, it has at all events shown itself completely incapable—else this grievance would never have been permitted to last as long as it has. The time, however, is coming when the anomaly must end. If members will only vote at each election for those candidates who will pledge themselves to do their utmost to make it illegal for persons to do what it is illegal for one to do, then, and not until then, will the public be protected properly and the proper status of the pharmacist be assured.

London, April 3, 1900.

C. E. PICKERING.

The Society's Library.

Would it not simplify the late hour Library question if masters would set their assistants free for an hour or so as occasion might require when literary work is in hand involving research? I am certain they would do this gladly. Masters themselves are in a position to consult their own convenience. Writers in general, including those whose studies lie in the direction of pharmacy, learn the management of time and accommodate themselves to circumstances. All arrangements are inconvenient to some. But surely it would be hard to condemn our small staff to prolonged and almost useless attendance in order to meet exceptional cases, or for the sake of the supposed visitor from the country who may be expected once or twice a year to consult the Library at the Square. Were I to narrate my own "after six" Library experience, the recital would verge upon the comic. I have constantly enjoyed the sole companionship of our admirable Librarian, whose patient courtesy is equal to his literary knowledge. To be correct, once or twice the porter made a third in the select circle when he brought up a fresh supply of coals. I was then lecturing to a night class at a college in Queen's Square. I venture to express the hope that the new Council will not allow the Library to drift once more into long hours and needless expenditure in the matter of gas and firing.

Acton, W., April 9, 1900.

JOSEPH INCE.

The Society and the Trade.

It has struck me as being rather singular that the Pharmaceutical Society has never issued a voting paper to all chemists on the Register, with the different suggestions that have been put forward in regard to limited companies. By so doing they would, I think, get to know the feelings of the trade in general. The list of members, unfortunately, is too small, and even if they all went for one thing, anyone could say that they did not represent the feelings of the trade in general, as out of over 15,000 registered men there are only between 5,000 and 6,000 members.

Rochdale, April 7, 1900.

H. WOODWARD.

Reflections and Questions.

Some time ago the formation of a Chemists' Club was suggested in your columns. The idea was certainly an excellent one, but, like many other schemes calculated to bring members of our profession into closer touch and to facilitate the opportunities of discussing

the many grievances of which we may justly complain, it seems to have died from the usual disease—apathy. When chemists will realise the necessity of asserting their rights and professional privileges by supporting the Society to a man, heaven only knows! It is a melancholy fact that less than fifty per cent. of qualified chemists and druggists associate themselves with the Pharmaceutical Society, and so long as these men are so dead to their sense of duty and so blind to the dignity of their responsible profession, so long shall interested persons be able to resist reforms by insidiously throwing dust into the eyes of the public, and so preventing them seeing the nature of that philanthropy that pays by selling "patent and proprietary articles" at cost price! This in some cases can be done after the interesting fact has been extensively advertised!

I have often heard the questions asked, "What becomes of all the drugs of lower grade sold by our brokers?" What proportion of sales is up to the B. P. standard? Can any one of your readers acquainted with the wholesale trade enlighten us? Another question I should like to ask is, "Do wholesale houses (or does any wholesale house, soliciting the patronage of chemists) prepare concentrated mixtures and supply dispensing doctors with the same?" I hope it is not possible that such a practice exists, but I would consider it a great obligation as a chemist in business, on behalf of all retail chemists, if the wholesale houses would answer this question in the columns of the *Pharmaceutical Journal*.

April 9, 1900.

M. P. S. (27/30).

Glaucium Luteum.

With regard to the letters by Messrs. Ashton and Johnson concerning the occurrence of *Glaucium luteum* in the south-east of England, I have found it in abundance between Dover and Folkestone, and also, but less frequently, at St. Margaret's Bay, about five miles to the eastward of Dover. It may be of interest to note that in neither of these situations is the soil in the least sandy, being in the first blue gault, a clay belonging to the lower division of the upper cretaceous rocks, and in the second chalk. It would therefore seem that Bentham and Hooker and John are somewhat misleading when they give sandy seashores as the habitat of the plant. On the other hand, I am bound to admit that the fugacious beauty under discussion finds herself more at home on the sandy erosions from the lower limestones than on the cold and clayey gault; but even this she prefers to the austere and meagre diet provided by the chalk.

Bridgnorth, April 7, 1900.

W. J. BROWN.

The Assay of Official Antimony Compounds.

My own experience confirms that of Mr. Allen with regard to the determination of the official antimonious compounds, and it has been my practice for some time to emphasise to my students the importance of having the solution cold before adding the sodium bicarbonate. Mr. Alcock's suggestion to use Rochelle salt is a distinct advance upon the present method in the case of the oxide, and it is to be hoped that the Editor of the B.P. will incorporate both improvements into the next edition.

Newcastle-on-Tyne, April 7, 1900.

FRANK R. DUDDERIDGE.

Gelatinisation of Tincture of Kino.

In the Research List of the British Pharmaceutical Conference (*Pharm. Journ.*, December 30, 1899, p. 628), kino is one of the subjects recommended for investigation. I am anxious to obtain some specimens of gelatinised tincture of kino, in order to hand them for examination to the gentleman who has consented to take up this subject. Will you kindly make known, through the medium of your valuable Journal, that any specimens forwarded to me will be gratefully accepted for this purpose.

17, Bloomsbury Square, W.C., April 6, 1900. E. M. HOLMES.

The Sale of Photographic Chemicals.

I was recently induced to take up photography as a profitable side-line. If it is to be one, I sincerely hope that the retail prices

for chemicals used by photographers quoted in last week's Photographic Supplement of the Journal are not universal. In going through the list I find that no less than fourteen are below London wholesale list prices, while nine are the same, and some others leave only a bare margin. I should like to learn, through the Journal, what are the usual charges made for chemicals used by amateur photographers.

April 9, 1900.

PHOTOGRAPHIC CHEMIST (27/29).

Kachin Developer.

We note in your last issue (Photographic Supplement, page 5) that you publish our formula for kachin developer, and in connection therewith state that this is nothing more or less than pyrocatechin. We must tell you that this is absolutely untrue, and likely to cause serious disturbance in our business. Will you be good enough, therefore, to withdraw this statement in your next issue? It is possible that you have made this mistake on account of the fact that we are the sole agents for Messrs. Ellon's developers, and sell pyrocatechin as well as kachin. The latter, however, is a distinct patent developer, and is not sold under any other name or by any other house. We would also state that kachin possesses all the good characteristics of pyrocatechin without its drawbacks.

London, April 9, 1900. JOHN J. GRIFFIN AND SONS, LIMITED.

* * * The statement in the Photographic Supplement was that pyrocatechin has lately been introduced on the market as "Kachin." According to Messrs. Griffin and Sons, however, that is incorrect, and we regret that the error should have appeared in the *Journal*.—[Ed., P.J.]

The Preliminary Examination.

I notice in last week's *Journal* that a resolution has been passed by the Forfarshire and District Chemists' Association "To memorialise the Pharmaceutical Council to consider the propriety of suspending the operations of the new regulations for the preliminary examination for a period, say, of five years, until the standard of secondary education has so advanced that youths may be more able to pass the higher examinations now proposed. Otherwise, chemists in country districts especially will have great difficulty in getting apprentices." I am quite prepared to admit there is at present a difficulty in obtaining apprentices, but I should like to ask our Forfarshire friends if they are quite sure—supposing the new regulations for the preliminary examination were suspended—the difficulty would be overcome? I think not. The average youth at fifteen years of age ought, with any middle-class education, to be quite able to pass such examinations as "Second College of Preceptors" or "Cambridge Junior" without very much exertion; and those who cannot, it is much better for them, and for the whole pharmaceutical fraternity, not to attempt to take up pharmacy at all. I quite believe it is such fellows as these—and these are the only ones that the new regulations will affect, who get through the whole or greater part of their apprenticeship before passing their "Preliminary," instead of getting thoroughly initiated with the "Minor" work—that cause our percentage in the "Minor" to be so low.

Leeds, April 9, 1900.

BEN. M. PRESTON.

EPICARIN.—This is a condensation product of creosotic acid and β -naphthol, claimed to possess all the medicinal value of β -naphthol, with the advantage of being easily soluble and relatively non-poisonous. It is an acid, and forms neutral soluble salts, whereas β -naphthol only forms alkaline salts. Epicarin occurs as reddish yellow powder, which dissolves easily in alcohol, in ether, and vaseline, and has a slight odour of acetic acid. In place of the free acid, the easily soluble sodium salt may be used. For treatment of scabies, prurigo, acute and chronic, eczema, Kaposi recommends a 10 to 20 per cent. ointment, or a 10 to 15 per cent. solution of epicarin. —*Oesterr. Zeits. für Pharm.*, 44, 125.

ANSWERS TO QUERIES.

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

PHARMACIST (S. H.—41/1).—The use of the title "pharmacist" is legally restricted to registered pharmaceutical chemists.

PRELIMINARY EXAMINATION (S. H. P.—41/7).—The certificate will not be accepted after August unless it covers the extra subjects. Why not register at once, and be done with it?

ARTICLES ON INCOMPATIBILITY (E. H. J.—41/5).—They have been reprinted by the author (see *ante*, p. 348), but we do not know whether copies of the pamphlet can be purchased. Apply to Dr. Walter Smith, 25, Merrion Square, Dublin.

SELF-GLAZING STARCH (G. and K.—40/24).—It is probably a mixture of borax and starch, say 1 part to 7, but you can easily determine that by analysis. An American formula for a similar preparation is: Stearic acid, 5; absolute alcohol, 5; wheat starch, 95. Melt the acid, add the alcohol, and triturate the mixture with the starch.

PHOTOGRAPHIC (J. S. W.—41/2).—We cannot afford space to describe the processes you mention. You can easily look the subjects up in an encyclopædia or other standard work of reference. The *Photographic Dealer* is published at 15, Harp Alley, London, E.C., monthly, price 2s. 6d.

FOREIGN PRESCRIPTION (W. E.—40/32).—The first ingredient in the prescription is "Saturatio Citrat. e Citro uno, 180.0," which, being put into English, means "The juice of one lemon neutralised (with sodium bicarbonate), and made up (with distilled water) to 180 grammes." A reference to Braithwaite's 'Pharmaceutical Formulary' would have given you the clue, a formula for a similar preparation—made with citric acid—appearing in that book.

PRINTERS' ROLLERS (F. J.—41/3).—Best glue, 11 lbs.; glucose syrup, 2½ gallons; glycerin, 12 fl. oz.; Venice turpentine, 2 oz.; water, *q.s.* Let the glue swell, with just sufficient water to cover it; melt with a gentle heat, add the glucose with constant stirring, then the glycerin and the Venice turpentine; evaporate with constant stirring until a little, when cold, sets to a firm, pliable, non-sticky mass.

MARKING INK (A. M. W.—40/33).—Silver nitrate, 1 ounce, sodium carbonate, 1½ ounce; dissolve separately in sufficient water, mix and collect the precipitate, wash it free from nitrate and rub while still moist with powdered tartaric acid, 90 grains. When effervescence ceases, rub the pasty mass with solution of ammonia, 6 fluid ounces; then add mucilage of acacia, 2½ ounces, simple syrup, 1½ ounce, liquid archil, ½ ounce. Mix thoroughly, and keep in well closed bottles, free from exposure to light. Of course, the writing with this ink requires to be developed by heating after the characters have been traced.

LIQUID CEMENT FOR CHINA (A.W.—40/34).—The ingredients you name would no doubt make a very indifferent cement, but it would not last. The "violet powder" is only used for the starch it contains, and is certainly not an ingredient in any of the pro-

prietary cements put up for sale. A better article is made by dissolving sheet gelatin or glue in strong (80 per cent.) acetic acid. Break up the gelatin into small pieces and cover it with the acid in a wide mouth stone jar; stand the jar in warm water and stir occasionally; when the gelatin has all dissolved, add just sufficient extra acid to give a thick pourable liquid while warm.

Information Wanted.

**The Editor will be obliged to any readers who can supply the information asked for by correspondents.

ACME BRAND CAMPHOR OIL.—Address of proprietors required?—(A. B.—41/6.)

PINOLENE.—Address of makers?—(R. D.—40/16.)

SULPHOCALCINE.—Particulars regarding liquid, supposed to be used as a vaginal injection?—(F. W. H.—40/8.)

EXTRACTS FROM CONSULAR REPORTS.

THE PRACTICE OF PHOTOGRAPHY is reported to be making headway among amateurs in the Bilbao district of Spain. Photographic goods were at first supplied by French houses, who were subsequently largely supplanted by the exertions of German agents who offered cheaper articles. British houses are stated to confine themselves to sending catalogues of their goods; there also appears to be an impression abroad that British photographic materials would be more expensive than German, and that cameras and plates would be made to measures different from those in current use.

FOREIGN OPIUM is rapidly ceasing to hold the important place which it formerly occupied among the imports of China. That fact is clearly shown by the appended comparative table of foreign opium imports at Wuhu during the years 1885-1898 which has been compiled by Consul Clennell. What is true of Wuhu is also the case in other parts of China, the present importation being, both in bulk and value, only about one-third of the usual average of not many years ago.

Year.	Quantity.	Value.
	Lbs.	£
1885	649,906	484,475
1886	779,728	652,223
1887	592,990	485,594
1888	464,668	388,836
1889	333,066	314,481
1890	342,279	279,869
1891	347,764	299,235
1892	349,395	274,944
1893	339,120	243,187
1894	385,746	225,617
1895	336,533	240,030
1896	280,733	221,575
1897	207,627	152,978
1898	226,747	162,289

Consul Clennell remarks that it would appear from the tabulated returns that the small increase in the import of the foreign drug in 1898 was more than covered twice over by a diminution of the import of native opium to about one-half of the figures for 1897, *i.e.*, to 50,301 lbs., valued at £18,448, instead of 104,548 lbs., valued at £37,847. But if the increase in foreign opium is no index of a real revival of that trade, neither is the diminished import of the native drug a sure indication of a lessening in the prevalence of the opium habit in the district. He regards it rather as a sign that opium grown locally, and consequently not passed through the Customs, is supplanting that brought from other and distant provinces, such as Szechuen.

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LONDON: SATURDAY, APRIL 14, 1900.

"LYING INNUENDO."

LANGUAGE less pungent than that used by Mr. R. LORD GIFFORD would be inadequate to characterise the tissue of unfounded insinuations against the Council of the Pharmaceutical Society, by which a trade journal seeks to foster various mischievous untruths, some relics of which may still float in the minds, or the vacua, of the uninformed and the misinformed. Such venomous explosions have become so habitual that reformation is probably as hopeless in that quarter as it is there thought to be necessary for the Council. But without attempting the superfluous task of defending the Council or any of its members, against either direct charges or veiled suggestions of neglect of duty, it will not be out of place to call attention to two facts which do not appear to have received consideration by those who are prominent in unmeaning denunciations which have not even the merit of being reasonably critical.

In regard to the attempted revival of the ancient fiction as to incompatibility of town and country chemists, the fact that thirteen members of the Council are engaged in business in various parts of the country should be a sufficient guarantee of proper consideration for the needs of the provinces. If that is not the case, and if, as is suggested, those country members have failed to carry out the original determination to serve the trade, which they are credited with, then the electors—whose anticipations are assumed to have been disappointed, owing to an alleged malignant influence of "Bloomsbury tradition"—are to blame that they have not availed themselves of constitutional means, at their disposal, to express their dissatisfaction and give effect to their desires.

The disingenuous complaint that the Council has not led in regard to the Companies Bill unfairly conceals the fact that the directly opposite views held by members of the Council have represented equal disagreement throughout the country. That circumstance has prevented any other representative action by the Council than the decision to oppose Clause 2, which has now been agreed upon, though it will most probably be

supported by some, for reasons that are different from, and to a great extent antagonistic to, the reasons actuating other opponents of the Clause. What possibility is there under such conditions for the Council, in its representative capacity, to take the lead or to indicate in detail a line of action? Is there any more probability that in regard to a Pharmacy Bill there would be greater agreement? Have not the "suggestions" been scouted by many chemists as well as by Mr. Boot, as representative of companies?

RICHARD REYNOLDS.

ON Thursday evening last week the close of an active and beneficent life, which had reached the normal limit, took place somewhat unexpectedly. Though such occurrences seldom cause disturbance of the general course of events, as is sometimes imagined must be a necessary consequence of the decease of anyone holding a prominent position, or who has been an influential actor in any phase of the great drama of life, those who have already become acquainted with the fact that RICHARD REYNOLDS is dead, as well as those who will first hear of it from this notice, will at least recognise, with profound regret, that a factor which has been potent, for the past fifty years, in the world of pharmacy has passed out of existence.

The first notification that Mr. REYNOLDS was suffering rather acutely from his old bronchial trouble reached the Journal office by post on Friday morning, about the time last week's issue was in course of delivery. It reported that at 5 p.m. on Thursday evening he was just a trifle better than he had been in the morning. But the delivery of that letter had been preceded by a telegram dispatched from Leeds at 8.24 p.m., by Mr. FRED REYNOLDS, stating that "My father passed away to-day."

It is proper in this place to speak of RICHARD REYNOLDS chiefly in connection with pharmacy. In that relation the important and useful influence he has exercised should be sufficiently within the knowledge of all members of the Pharmaceutical Society, if not of all persons engaged in business as chemists and druggists; not to require elaborate description on the present occasion. As a student in the Society's School he was distinguished in 1851 by outstripping his contemporaries and taking the first prizes in chemistry, pharmacy, materia medica, and botany. Entering business soon after as assistant to THOMAS HARVEY, of Leeds, the successor of WILLIAM WEST, F.R.S., he afterwards became a partner in the business, carried on under the style of HARVEY and REYNOLDS, until after the death of Mr. HARVEY, and when Mr. F. W. BRANSON became a partner; the firm known as REYNOLDS AND BRANSON has since been converted into a limited liability company within the last few years. At an early period Mr. REYNOLDS began to take an active part in pharmaceutical affairs; in 1863 he was elected a member of the Council of the Pharmaceutical Society, and continued to serve in that office until 1872. About the same period, in conjunction with BRADY, SCHACHT, and others, some of whom are still living, he directed attention to the necessity for systematic scientific enquiry in connection with the occupation of

pharmacy, by publishing in the *Pharmaceutical Journal* [2], iv., 504, a letter which led a few months later to the formation of the British Pharmaceutical Conference, of which REYNOLDS was for some years one of the Honorary Secretaries and, in 1881, President at the meeting in York. Another sphere of action connected with the business of chemists and druggists, in which Mr. REYNOLDS was a prominent participator, was the formation of the Chemists and Druggists' Trade Association at a trade conference held in Birmingham in 1876.

But important and influential as the work of RICHARD REYNOLDS has been in connection with the occupation in which he was chiefly engaged, there are various other relations in which he has been an active worker. He was an active participator in the promotion of scientific progress in Leeds, officiating as co-lecturer on chemistry with Mr. SCATTERGOOD at the Medical School, from 1861 to 1865. He also took part in the work which led to the foundation of the Yorkshire College at Leeds. In the early days he acted as honorary secretary of that institution; later he was a life governor, and for several years he had a seat on its Council. He was also for some time honorary secretary of the Leeds Philosophical and Literary Society, and, afterwards, one of its most prominent officers.

The funeral, which took place last Monday afternoon at the Friends' Burial Ground, Adel, was very numerously attended by representatives of many public bodies with which the deceased had been associated, and by many public men, as well as by the members of the family, and by about sixty employees of the firm. The coffin bore the simple inscription—RICHARD REYNOLDS, died 5th of 4th month, 1900. Aged 76.

THAT BLESSED WORD "UNANIMITY."

It has for years been a standing grievance with certain opponents of the Pharmaceutical Society and irresponsible critics of its Council that the executive body has been unanimous on so many subjects, and particularly in most matters of any serious importance. To-day, however, the cry of the same critics is different and, unanimity being non-existent on the most important subject that has presented itself for consideration during the past twenty years, the electors are being urged to thrust from the Council men who have served them well for many years, and to replace them with believers in the efficacy of a "wonderful panacea."

That is to say, because certain members of the Council are not disposed to trust in the efficacy of the qualified directorship proposal as a remedy for all the ills that pharmacy is heir to, they are to be compelled to make way for individuals possessing greater faith in the virtues of the supposed panacea. The members of the Society may or may not see matters in the same light as the supporters of the qualified directorship proposal. It may not be unprofitable, however, to direct their attention to the fact that, in certain quarters, what was regarded as a vice a few short months ago is now considered a virtue, the unanimity which was formerly so strongly denounced being now in extremely great demand in the same quarters; so much so, in fact, that it is to be secured by force if necessary—and if feasible.

ANNOTATIONS.

EVENING MEETING IN EDINBURGH.—A meeting of the Society will be held at 36, York Place, Edinburgh, on Wednesday next, April 18, at 8.30 p.m., when Mr. Archibald Currie will contribute some dispensing notes on (a) Solution of Arsenic and Iron Wine, and (b) Glycerin of Codeine. The Assistant Secretary will deal with a dispensing query relative to copper in a mixture. Mr. Peter Boa will take the chair punctually at the hour named.

SUPPLEMENTING A FURTHER COMMUNICATION on the "feeler" for opinion that necessity exists for "securing the return of at least three or four new members to the Council," Mr. Heaton laments as "very unfortunate that letters of this kind should be held up in pious horror by the *Pharmaceutical Journal*, and he complains "that members who are endeavouring to assist useful work by honest criticism should be subjected to virulent attacks of a purely personal nature." Perhaps Mr. Heaton must be understood to consider the project referred to in his first letter as "useful work," and his remarks at page 317, the "honest criticism" suitable to assist such work; but he appears to have overlooked the possibility that both may be regarded in a very different light by others who have, at least, as much right to express their views and to exercise criticism. When, therefore, he finds himself almost driven, as he puts it, on serious reflection to ask the question, Does the *Pharmaceutical Journal* exist for the Society or is the Society run in the interests of the Journal? some consolation still remains in the probability that there may be opinions different from those of Mr. Heaton, although he volunteers his own assurance that "our boasted *Pharmaceutical Journal*" as a "result of a too zealous attachment to outworn and discredited creeds," has "fallen from its former high estate," both "as a medium for useful work and benefit to the members of the Society, and as a representative journal."

THE CONFERENCE ARRANGEMENTS for the 1900 meeting have now assumed definite shape, a report presented by the Executive Committee at a meeting held on Tuesday last (see p. 404) supplying sufficient details to enable readers to form a fairly clear idea of the programme for the last week in July. One of the most satisfactory points in the report is the announcement that the Whitehall Rooms, Hôtel Métropole, London, have been secured for the presidential reception, and for the concert and dance which it is proposed to hold at the close of the sessions of Conference. There is also to be an afternoon reception at the Botanic Gardens, Regent's Park, and the whole-day excursion will take the form of a river trip from Henley to Maidenhead. The business meetings will be held in the Pharmaceutical Society's House, 17, Bloomsbury Square, luncheon being served each day at the Holborn Restaurant, and Mr. Richard Bremridge has kindly offered to place his residence in Great Russell Street at the service of ladies attending the meetings. The Entertainment Fund at present amounts to nearly three hundred and fifty pounds, but the Hon. Secretary intimates that more will be required. Chemists in the London District who have not yet sent in their names as subscribers are, therefore, requested to do so. No individual may contribute more than two guineas to the Fund, and firms are limited to a maximum of five guineas. All communications should be addressed to Mr. William Warren, 24, Russell Street, Covent Garden, W.C.

THE BRISTOL PHARMACEUTICAL ASSOCIATION is issuing a circular to the registered chemists of neighbouring towns, directing attention to the urgent need that exists for all retail chemists to become associated with some local organisation. It is pointed out that, as individuals, chemists can do less in their own defence than as members of an organised body, especially in the direction of

influencing members of Parliament. It is suggested, therefore, that the chemists residing in Bath, Clevedon, and Weston-super-Mare should join the Bristol Association, and that the name of the united body should be changed so as to include the whole district. Further, it is proposed that the newly-constituted association should be somewhat peripatetic in character, meetings of all members being held in each town represented not less than once a year. At Bristol, as elsewhere, it has been found highly advantageous to have occasional social and business meetings, and it is thought that still greater benefit might accrue if other chemists in the wider district referred to could sometimes meet each other and their Bristol friends to discuss matters of general interest. The subject will probably be considered at the annual dinner of the Bristol Pharmaceutical Association, which is to be held on Wednesday, April 25.

SIR ANDREW DOUGLAS MACLAGAN, whose death occurred on Thursday, April 5, at Edinburgh, was the senior Honorary Member of the Pharmaceutical Society, having been elected as far back as 1852. He was born at Ayr in 1812, his father being Dr. David MacLagan, who had served with distinction in the Peninsula War under Wellington, and was subsequently Physician to the Forces and Surgeon-in-Ordinary to the Queen. Young MacLagan was educated at the Royal High School, Edinburgh, and at the University of that City, taking his diploma as a licentiate of the Royal College of Surgeons, Edinburgh, at the early age of nineteen years, whilst a year later he became a Fellow of the College and took his M.D. degree. Subsequently, he studied medicine in Berlin, London, and Paris, devoting special attention, such as is now rare amongst medical men, to the subject of *materia medica*. He was appointed lecturer on that subject to the Royal College of Surgeons, a position which he occupied for fourteen years. He was also a Fellow of the Royal College of Physicians, Edinburgh, and at one time President of that body, as well as of the Royal College of Surgeons.

A FINE SERIES OF SPECIMENS of *materia medica*, collected by Sir Douglas MacLagan, is now in the Pharmaceutical Society's Museum at Edinburgh, having been purchased from the widow of one of his successors in the post of lecturer on that subject. Many other specimens, presented to the Museum by Sir Douglas, serve to show the great interest he took in the Pharmaceutical Society. He read papers at its Evening Meetings, was nominated by the Executive of the North British Branch as a member of the Edinburgh Committee for preparing the first British Pharmacopœia, and acted as Government Visitor to the Society's Examinations in Edinburgh for a number of years, retiring in 1897. He was an ardent advocate of a compulsory curriculum for pharmaceutical students, and of the use of the microscope in the practical part of the Minor and Major examinations. He was an accomplished botanist, for many years held the office of Hon. Secretary to the Botanical Society of Edinburgh, was an Hon. Member of the Royal Medical Society, Edinburgh, and Emeritus Professor of Medical Jurisprudence and Public Health in the University. He held the honorary degree of LL.D. of both the Universities of Glasgow and Edinburgh, and received the honour of knighthood in 1886. At the funeral, on Monday last, the Pharmaceutical Society was represented by Mr. Peter Boa, Chairman of the Executive of the North British Branch.

THE COUNCIL ELECTION this year appears likely to be memorable because of an attempt to bring trade influences to bear in the contest, upon somewhat novel and yet very old lines. Such, at least, is what may be gathered from the facts supplied by "An Ordinary Pharmacist" in this week's issue. The information he

gives, which seems to be well authenticated, is to the effect that a private meeting has been convened by Mr. Glyn-Jones with the express object of selecting candidates to replace certain of his colleagues on the Council of the Pharmaceutical Society. Apparently the meeting has been held, but particulars of what took place there, beyond the fact that four candidates were selected, had not been received at the time of going to press—earlier than usual, as it happens, this week. Neither was any confirmation forthcoming of the suggestion that trade journals and a purely trade organisation might be expected to take a more or less active part in the coming struggle. If such should prove to be the case, it may be taken for granted that the action will be strongly resented by a considerable section of the Pharmaceutical Society, as was the interference of the Anti-Vivisection Society, and of the Chemists and Druggists' Trade Association many years ago. In connection with the last-named organisation it is interesting to refer to the vigorously worded letter in which the late Richard Reynolds responded to a summons to a meeting of a sub-committee "appointed to consider the advisability of the Association taking official action in the next election of the Pharmaceutical Council." Not only did he decline to act on the sub-committee, but he pointed out so clearly what mischief might result from the interference of another association in the Council elections of the Pharmaceutical Society, that the idea was promptly dropped, and the suggestion never renewed.

DISPENSERS IN NAVAL HOSPITALS are affected by a recent Treasury letter which provides that the age of dispensers on entry shall not be less than twenty-one or more than twenty-eight years. Candidates must hold the Major or Minor qualification of the Pharmaceutical Society of Great Britain or the licence of the Pharmaceutical Society of Ireland. Entry into the service will be by limited competition, conducted by the Civil Service Commissioners, but all applications should be addressed to the Director-General of the Medical Department of the Navy, Northumberland Avenue, W.C., who will select the candidates for examination. Dispensers will be required to serve in any naval hospital to which they may be appointed, either at home or abroad. The pay is £110 per annum on entry, rising by £5 biennially to £130, and thence by £10 biennially to £230. Free quarters will also be provided, and dispensers will be entitled to pensions. If in charge of stores, they will be granted additional allowances of £20 to £40 per annum, and if serving abroad, further allowances will be made to meet the increased cost of living. Dispensers are granted twenty-eight days' annual leave, exclusive of Sundays, those serving abroad being allowed to reserve it from year to year, so as to obtain a lengthened period of absence, but the reserved leave shall not in any case exceed six calendar months. Sick leave may be granted for six months on full pay, but subsequently half-pay only will be allowed. Three months' notice must be given if a dispenser desires to resign his appointment. The establishment at home and abroad includes sixteen dispensers, including one each at Haulbowline, Chatham, Cape of Good Hope, Jamaica, Bermuda, and Hong Kong, two at Malta, three at Plymouth, four and a supernumerary at Haslar. The conditions of service are considerably improved under the new arrangements, as will be seen by comparing the foregoing particulars with those given in the Calendar of the Pharmaceutical Society for the present year, and credit for that improvement is due to Mr. Walter Hills for the action taken by him during his term of office as President of the Society.

AN INTERESTING CASE has been before the Courts, in which Messrs. Boots, the self-styled "cash chemists," Lancashire, Limited, proceeded against Messrs. Grundy and others, the point raised being whether the plaintiffs' statement of claim, in which they asked for an injunction restraining the defendants from en-

deavouring to induce others to boycott them, disclosed any ground of action. It was alleged that a circular had been sent out by the defendants, addressed to print-sellers throughout the country, directing attention to the fact that Messrs. Boots, as well as stores, drapers, and others, were being supplied with prints at half price. That was considered to be unfair to the print-selling trade, in view of the fact that those buyers sold the prints to the public at twenty-five per cent. off the published prices, and advertised that fact. The alleged circular suggested that print-sellers should abstain from doing business with publishers who sold their prints to the persons referred to, so that by their combined action underselling might be mitigated, if not entirely prevented. Judgment was reserved, and will be looked forward to with interest by chemists as well as other traders.

THREE CANDIDATES FOR THE COUNCIL have sent what are virtually election addresses for publication in this week's Journal—Messrs. Taylor, Gifford, and Currie. Mr. Taylor approves of out-and-out opposition to Clause 2 of the Companies Bill, since he thinks there is little chance to amend it satisfactorily. And though he recognises that it may be long before there is another opportunity of legislating on the subject, he thinks that the possible interval need not necessarily be wasted. He is naturally of opinion that he has something better to offer than those candidates who are standing for re-election. To quote his own words, his policy is "to bring the Society into touch with the full ranks of pharmacy, to utilise the Pharmacy Act as well for the trade as in the interests of the public, and to throw all the weight of an organised trade into the scale when commercial interests are in question." Mr. Gifford very sensibly asserts that his trade interests are his own affair, and do not concern the members of the Pharmaceutical Society. His policy is "the making operative of the Pharmacy Act of 1868," a thing which many pharmacists had innocently, but perhaps mistakenly, assumed to be already done. Mr. Currie would also oppose Clause 2 of the Companies Bill as it stands, and his policy is to attempt to secure "an amended Pharmacy Act" which should, in his opinion, go a long way further than any clause in a Companies Bill.

ANOTHER CANDIDATE has communicated a letter which serves as a good example of the necessity that may exist for gaining sound information on a subject concerning which one proposes to write. Mr. Pickering is unfortunate in his advocacy of Mr. Heaton and hardly justified in assuming that "if members will only vote at each election for those candidates who will pledge themselves to do their utmost to make it illegal for persons to do what it is illegal for one to do, then, and not until then, will the public be protected properly and the proper status of the pharmacist be assured." How the election of only such candidates as will give that pledge could produce so great an effect is not explained, though the explanation is sadly needed. Possibly, however, that may be forthcoming when Mr. Pickering issues his election address, which, he intimates, is now in course of preparation. It would be interesting also if he would explain in what respect the Pharmaceutical Society has failed to safeguard the interests of the trade, how such failure has enabled company pharmacy to exist, and in what manner he would propose to deal with the Government if it declined to defend the position he refers to.

WE REGRET that an article on "Student Life in the Latin Quarter," which appeared in the *Pharmaceutical Journal*, of February 24 last, should not have been duly acknowledged as copied from the *English and American Gazette*, in which paper it was published originally. The article was sent in as an original communication, by a regular contributor in whom the Editor had been accustomed to repose full confidence. Unfortunately, that confidence has been abused and an apology is hereby tendered to the editor of the *English and American Gazette* for the apparent discourtesy.

ENGLISH NEWS.

BRITISH PHARMACEUTICAL CONFERENCE (EXECUTIVE COMMITTEE)—A meeting was held at 16, Bloomsbury Square, on Wednesday, April 4. Present:—Mr. E. M. Holmes (President) in the chair; Professor Atfield, Messrs. Atkins, Symes, Hills, and Harrington (Vice-President), Professor Greenish, Messrs. Bird, White, Atkinson; Messrs. Warren and Cracknell (Hon. Local Secretaries), Mr. J. C. Umney (Treasurer), Messrs. Naylor and Ransom (Hon. General Secretaries), and Mr. Nightingale (Assistant Secretary). Letters expressing regret at their inability to be present were read from Messrs. Moss, Bowen, and Collier. The minutes of the previous meeting were read and confirmed. The President introduced the question of a proposed Conference Scholarship for the promotion of pharmaceutical research. After considerable discussion it was decided to postpone the consideration of the subject until the next meeting of the Executive. The President also announced that he had, on behalf of the Committee, caused to be sent to all members of the Society of Public Analysts, a circular note inviting them to join the Conference. On the recommendation of the Local Committee, the date of the commencement of the London meeting of the Conference was definitely fixed for Monday, July 23. The following thirty-nine gentlemen, having been duly nominated, were elected to membership:—

Bell, Peter, Newcastle-on-Tyne;	Peters, G. H., London;
Bevan, E. J., London;	Phillips, J., Ashton-under-Lyne;
Birkbeck, J. T., Lincoln;	Pollard, H. H., Ryde;
Boardman, F. J., Leigh (Lancs);	Power, Dr. F. B., London;
Candy, Hugh, London;	Priest, Martin, London;
Chambers, J. W. P., West Bridgford;	Riddell, J. H., Glasgow;
Collen, W. C., London;	Rogers, F. A., London;
Cresswell, F., London;	Sargeant, F. Pilkington, Leeds;
Dampney, R. S., London;	Sargent, G. A., London;
Edmunds, J. M. D.	Selley, J., London;
Gilmour, J. P., Glasgow;	Smith, J. H., London;
Hartridge, J. Hills, Hendon;	Stamp, F. A., London;
Hodgkinson, G. A., London;	Storey, E. H., London;
Jeans, A., Manchester;	Turner, J. W. J., Sheffield;
Knott, P., Bolton;	Walmsley, G., Kingston;
Muter, A. H. M., London;	Wigginton, A., London;
Muter, Dr. John, London;	Williamson, F. A., Preston;
Naysmith, A., Arbroath;	Woodward, H., Mellor, Reigate;
Oxen, D. H., Newcastle (Staffs);	Wootton, H., London.
Parsons, W., Blackheath;	

BRITISH PHARMACEUTICAL CONFERENCE (LONDON COMMITTEE).—The General Committee appointed to make arrangements for the London meeting of the British Pharmaceutical Conference, to be held in July next, met at 16, Bloomsbury Square, W.C., on Tuesday, April 10, to receive the report of the Local Executive Committee. Mr. Michael Carteighe, Chairman of the Committee, presided, and there was a representative attendance. The Hon. Secretary, Mr. Wm. Warren, having read the minutes of the previous meeting, which were confirmed, communicated the Executive's report, which was to the effect that having failed to come to a satisfactory arrangement with the proprietors of the Hotel Russell, in regard to accommodation for the headquarters of the Conference, the Secretary, accompanied by Mr. R. Bremridge, had interviewed the managers of the Hôtel Métropole, and, subject to the approval of the Committee, had secured the Whitehall suite of rooms there. The proposed programme was as follows:—Monday evening, July 23, a reception in the Hôtel Métropole; Tuesday, July 24, President's address and the usual business, followed in the afternoon by a reception in the Botanic Gardens, Regent's Park; the evening to be devoted to private hospitality and in visiting various places of amusement; Wednesday, July 25, Reading of Papers, and in the evening a high-class concert at the Hôtel Métropole, followed by a "smoker" and dance; Thursday, July 26, Party to assemble at Paddington, whence by special train to Henley for a day on the river—Henley to Maidenhead—a light lunch to be provided en route, and an evening meal at "Skindles," Maidenhead Bridge, party returning to Paddington by special train from Taplow.

It was also mentioned that arrangements had been made for luncheon on Tuesday and Wednesday in the King's Hall, Holborn Restaurant. With regard to a Ladies' Committee, it was proposed to leave that to be appointed later, in the meantime it might be mentioned that Mr. Bremridge had kindly placed his house at the service of lady visitors to the Sessions of Conference, and his daughters would be prepared to receive them.—Mr. W. A. H. Naylor said he was particularly pleased with one part of the report. That was the proposed concert on the Wednesday evening. He had long felt that the smoking concerts usually held had not been of the dignified character that members of the Conference could have desired, hence he was extremely glad that the Local Committee had seen its way to that departure, which he believed would be a great success. He had pleasure in proposing the adoption of the report.—Mr. Peter MacEwan, in seconding the motion, asked what time was to be allowed for luncheon? He thought the time usually allowed was rather too short.—Mr. Carteighe: About an hour.—Mr. MacEwan then suggested that tea should be provided for the ladies on the Wednesday afternoon at the Society's House.—This was approved, and the report and recommendations were then unanimously adopted.—In reply to a question with regard to the river excursion, Mr. Carteighe said it was not proposed to engage steam launches, as it was thought to be much more enjoyable to drift quietly down that most beautiful part of the river in large well-fitted barges—such as were used by the Oxford Universities—without the noise, bustle, and smoke of the steam launch. He also stated that arrangements would be made to have conveyances for the ladies from the train to the river and *vice versa*.—The Secretary mentioned that they had now £330 towards expenses generally; while the Committee was not pressing urgently for funds, more would be needed, and they would be very glad to receive further subscriptions.—The meeting then adjourned.

CHEMISTS' ASSISTANTS' ASSOCIATION.—The last meeting before the Easter vacation was of a musical and social character, held at 73, Newman Street, on Thursday, April 5. There was a fair gathering of members, but not nearly so large as had been expected by the committee, who provided a programme of unusual excellence. The chair was taken by Mr. William Warren, member of the Council of the Pharmaceutical Society, and a very hearty vote of thanks was conveyed to him on the motion of the President. Mr. Warren, in replying, touched on the existing difficulties in the political situation and expressed his great pleasure at being present. The following gentlemen took part in the programme: Songs by Messrs. C. J. Strother, C. Morley, Marcus, Victor Blin, J. S. Barker, H. A. Martin, and A. Latreille; violin solos by Mr. H. Hymans; pianoforte selections by Mr. W. Neale Ellis; recitations by Mr. T. Morley Taylor. The duties of accompanist were efficiently performed by Mr. Ellis.

ROYAL INSTITUTION.—The following are the lecture arrangements at the Royal Institution, after Easter:—Dr. Hugh Robert Mill, three lectures on Studies in British Geography; Dr. Alexander Hill, two lectures on "Brain Tissue considered as the Apparatus of Thought"; Mr. R. Warwick Bond, two lectures on (1) "Ruskin, Man and Prophet," (2) "Ruskin, the Servant of Art"; Professor Dewar, four lectures on "A Century of Chemistry in the Royal Institution"; The Rev. Canon Ainger, three lectures on "Chaucer"; Professor Stanley Lane-Poole, two lectures on "Egypt in the Middle Ages"; Dr. Alfred Hillier, two lectures on "South Africa, Past and Future"; Sir Frederick Bridge, three lectures on "The Growth of Chamber Music from Allegri's Symphonia (1580-1652) to Haydn's First Quartet" (with musical illustrations). The Friday evening meetings will be resumed on April 27, when a discourse will be given by the Right Hon. Lord Kelvin on "Nineteenth Century Clouds over the Dynamical Theory of Heat and Light."

THE SACCHARIN PATENTS.—On March 27 the case of the Saccharin Corporation, Limited, *v.* The Anglo-Continental Chemical Works, Limited, and Robert Reitmeyer, was commenced before Mr. Justice Buckley in the Chancery Division of the High Court. This was an action for an injunction to restrain alleged infringement of Monet's patent for the manufacture of saccharin, which was owned by the plaintiff company. The defendants denied infringement, and alleged the patent was invalid by reason of anticipation. Mr. Fletcher Moulton, Q.C., M.P., Mr. Cripps, Q.C., M.P., and Mr. Graham and Mr. Colefax appeared for the plaintiffs; Mr. R. Neville, Q.C., Mr. Roger Wallace, Q.C., Lord Robert Cecil, Q.C., Mr. A. J. Walter and Mr. Bucknill for the defendants.—Mr. Moulton explained that the Saccharin Corporation possessed substantially the whole of the letters patent by which saccharin was manufactured, but by arrangement this case proceeded only on Monet's patent. That patent had already been under judicial decision before Mr. Justice North in an action by the Saccharin Corporation against the Chemical and Drugs Company. Infringers of these patents had found it wiser to create bogus companies for that purpose than to take individual responsibility. The Chemical and Drugs Company which fought a spirited action in a spirited manner had, he believed, only a paid-up capital of seven shares of £10 each. The person who was the active agent there was Mr. Robert Reitmeyer, who was managing director of the defendants, and was also a defendant in the action. After the former action had gone a certain distance against the Chemical and Drugs Company that company liquidated, and sold all its business to the Anglo-Continental Chemical Works, Limited, the present defendants. It was not denied that there had been infringement, but the validity of plaintiffs' patent was contested. The action resulted in establishing validity, and no funds being available to pay plaintiffs' damages, Mr. Reitmeyer went on as usual; this time under the name of the Anglo-Continental Chemical Works, Limited, which had, he believed, a nominal capital of about £4,000. As the defendants had been importing saccharin without any indication or mark as to its source of origin, the onus was on plaintiffs to prove that its manufacture was an infringement of plaintiffs' patent, and he would call evidence to that effect.—Next day a number of professional witnesses were called to prove plaintiffs' case. For the defence it was admitted the saccharin imported by defendants was manufactured at the Basle Chemical Works, but they said there was no infringement of Monet's patent; the process was different.—Mr. Mark Romer, for the defendant, Robert Reitmeyer, submitted his client could not be held personally liable for the alleged infringement, because he only acted as manager. There was not a word of truth in the suggestions made by Mr. Moulton that his client was the active agent in the Chemical and Drugs Company action. He had no connection or interest in that matter, as the company was merely one of his customers, and he took no part in the litigation.—The hearing of the evidence and arguments was concluded on Friday, March 30, and his lordship reserved judgment.—On April 6 Mr. Justice Buckley gave judgment. He said when the question of the validity of Monet's patent was before Mr. Justice North in December last, it was decided that the process described in that patent was sufficient subject matter for a patent, and Mr. Justice North granted an injunction to restrain infringement, and certified the validity of the patent. He had simply to follow up Justice North's decision in that respect. It remained for him to determine novelty, as far as it was open, after Justice North's decision and anticipation. As to the question of novelty and anticipation he held that the defendants had not made out their case. With reference to infringement it appeared to him both the company and Mr. Reitmeyer were responsible for that, and that the saccharin manufactured by the Continental Company were infringements of Monet's patent. Therefore, plaintiffs were entitled to an injunction against defendants, and an inquiry as to damages, with costs.—Execution stayed, pending an appeal.

IRISH NEWS.

DEATH OF MR. R. J. DOWNES.—At a meeting of the Council of the Pharmaceutical Society of Ireland, held on Wednesday, April 4 (reported in this week's issue), a letter was received from Mr. R. J. Downes, ex-President of the Society, resigning, on account of ill-health, one of the positions held by him as a member of the Council. Since then Mr. Downes has died, and on Monday last, April 9, his remains were laid to rest at Mount Jerome. The large and representative *cortège* testified to the great respect entertained for the deceased. Amongst those present were Rev. R. W. Landey, Rev. T. P. Landey, brothers-in-law; T. Bible, Esq., J.P., Cork; Rev. J. Stuart Long, Rev. C. B. Dowse, A.M., Rev. H. E. Patton, A.M., Alderman Ireland, J.P.; Wm. Spence, C.E., Goods Superintendent, G.S. and W.R.; Messrs. C. Ashenurst, L. Murphy, W. arey, R. S. Webster, D. P. Curtis, C. B. Carey, H. Bowden, John Gardiner, J. H. Bowden, H. J. Owgan, J. Hall, J. R. Middleton, W. Dawson, and G. Collins (of Messrs. Casey and Clay). The following represented the Pharmaceutical Society:—Messrs. G. D. Beggs, P.P.S.I.; J. I. Bernard, V.P.P.S.I.; Chas. Evans, Dr. Tichborne, and W. F. Wells, Ex-Presidents; W. D. Porter, P. Kelly, R. Simpson, and James Michie, members of the Council; Messrs. Henry O'Connor, W. V. Johnston, J. S. Ashe, J. Smith, H. Conyngham, H. S. Misstear, members of the Society; Mr. A. T. Ferrall, Registrar. The following represented Royal Arch Chapter, 245:—Messrs. R. Marchbanks, K.; Justin McCarthy, P.K., Registrar; J. Gibson, P.K., Treasurer; J. Gardiner, P.K.; Alderman Ireland, J.P., D. P. Curtis, W. Spence, P.K., C.E. The Revs. C. B. Dowse and H. E. Patton officiated. Messrs. Gerty and Rorke had charge of the funeral arrangements.

PHARMACEUTICAL SOCIETY OF IRELAND.—The monthly meeting of the Council was held on Wednesday, April 4, at the Society's House, 67, Lower Mount Street, Dublin, the President, Mr. George D. Beggs, in the Chair.—A draft address to the Queen on the occasion of Her Majesty's visit to Dublin was approved. A letter was then read from the Under Secretary, Dublin Castle, stating that the Lord Lieutenant having considered the memorial of James White, of Castleblancy, for the remission of a penalty of £5, which had been imposed on him for an illegal sale of a poison, and also the observations from the Council thereon, had decided that the law should take its course. A letter has also been received from Mr. R. J. Downes, ex-President, stating that he felt obliged, on account of his health, to relinquish his position as representative of the Council at the Conference of the British Pharmacopœia Committee of the General Medical Council.—Mr. Tate moved that Mr. Downes be requested to reconsider his decision.—Mr. Kelly seconded the motion, which passed unanimously.—A letter from the Lancaster and Morecambe Chemists' Association relating to the Companies Bill at present before Parliament was referred to the Law Committee.—Dr. Ninian Falkiner sent a letter resigning his position as Lecturer for the Society in Materia Medica and Botany. He mentioned that he had been appointed Medical Superintendent in the office of the Registrar-General, and expressed his thanks to the Council for the courtesy and support they had extended to him in connection with the discharge of his duties.—The resignation was received with regret, and it was agreed that Mr. Henry O'Connor be continued as Lecturer in Materia Medica and Botany until the end of the current session, and that advertisements be published for a successor to Dr. Falkiner.—The resignation of Dr. M. A. Whitla as Examiner in Pharmacy was also accepted, and it was ordered that advertisements be inserted for a successor to him. A donation had been received from the Pharmacy Board of Victoria of a copy of their Register for 1899, and on the motion of Mr. Jameson thanks were voted to the donors.—Other business having been disposed of the Council adjourned.

BRADFORD CHEMISTS' ASSOCIATION.

The annual dinner of this Association was held at the County Restaurant, Bradford, on Tuesday, April 9, Mr. R. W. SILSON in the chair. There was a good attendance of members and friends. After dinner, the toast of

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was proposed by Mr. WORFOLK, who said he had been told that the less a man knew about the subject the better he was equipped to propose the toast. If that were so, he was hardly the man for the purpose, because he had taken a great interest in the Society, and had followed its proceedings carefully. When they were disposed to criticise the Society, they should remember that the Council was elected by them, and that it was their duty to send men who would represent their views. Although the Society might not have done all that they could have wished, that might to some extent be their own fault. He was glad to see that Clause 2 of the Companies Bill would be dropped, and hoped that the Society would push on with a new Pharmacy Bill for the protection of the interests of chemists and for guaranteeing the safety of the public.

Mr. PICKARD responded. He said the Society might have shortcomings, but it had acted according to the intentions with which it had been formed. People who knew the history of the Society could only say that it had done a great deal of useful work. It had been greatly abused in the past, but he hoped that they had reached a new era in respect of that matter, and that most chemists now recognised that the more they knew about the Society the better. Its policy with regard to examinations he thought was decidedly designed to do good to the chemists. At the time when the Bradford Association was formed little was known of the Pharmaceutical Society, but since then they had received great assistance in the putting down of a great deal of illegal trading, and now they knew a great deal more about it and had a good deal more appreciation of it. He thought that the action of the Society had taught the Lord Chancellor a considerable lesson in regard to the Companies Bill. He wished that more members of the Society would put their shoulders to the wheel and help to make the Society stronger instead of doing nothing but grumbling. Clause 2 of the Companies Bill was an iniquitous clause which would never have been put into the Bill if chemists had been stronger and more combined years ago. The sole cause of all the controversy which was now taking place with regard to the Pharmaceutical Society was the indifference of members. In a good many instances those who criticised the Society most would be found to be those who were least qualified to criticise because of their own ignorance of pharmacy. Out of 15,000 chemists registered at the present time there were only about 6,000 who supported the Society, despite the great efforts which it was continually making on behalf of the trade. If chemists would only be united, they could not only get their rights under the 1868 Act, but could go a step further and demand a new Pharmacy Acts Amendment Act.

Mr. EDWARD EVANS, jun., proposed

THE BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.

Speaking as the son of one who was one of the founders of the Pharmaceutical Society, and was to-day the senior member of that body, he quite agreed with the views expressed by Mr. Pickard. They were all the better in many ways for association, and he felt that, as a certain amount of qualification was demanded from them, they were entitled to such protection as the Pharmaceutical Society suggested. At the same time they should be careful to ask for legislation from the point of view of its need in the interests of the public rather than from the trade point of view. They would be aware that in certain directions great advantage was being taken at the present moment of the observations which fell from speakers at such trade gatherings as that, and those were being used to the disadvantage not only of the qualified chemist, but also of the

public. He was of the opinion that every trade in every city or town ought to have such an association as that of which those before him were members, if only for the sake of the development of that feeling of brotherhood which did so much to diminish the friction which might otherwise exist. He believed that, in spite of all that was said about the irregular competition of the time, there would always be in the case of a competent chemist an individuality which would be considered by the public and would enable him to earn a very respectable living. He heartily wished success to the Association and to chemists throughout the country, if only because it was by them that he lived and moved and had his being.

The CHAIRMAN having responded to the toast, and other toasts having been honoured, the speech-making ended. The speeches were interspersed with songs rendered by members.

BURNLEY AND DISTRICT CHEMISTS' ASSOCIATION.

On Tuesday, April 10, the annual meeting of this Association was held at the Bull Hotel, Burnley, Mr. J. A. HEATON, President, in the chair.

Mr. BROWN submitted his report as Secretary. This was
THE FIRST ANNUAL REPORT,

the Society only being one year old. He remarked that the meetings, except the general meetings, had been fairly well attended. The work they had taken in hand had been well carried through. Their first work was the opposition to the Companies Bill of last session. Then there had been meetings in Liverpool and Blackburn, from which reports had been given. Unfortunately, as he had said, the general meetings had not been largely attended. He was sorry to see that there was this indifference, which he hoped would be overcome in the future. The numerical strength of the Society was twenty-nine.

Mr. U. A. COATES moved thanks to the Secretary for his arduous labours on behalf of the Association, and that was carried.

Mr. BROWN said he appreciated the resolution of confidence. The greatest reward would be a stronger Association, and no one would be prouder to see it a success.

Mr. Dodsley's report as Treasurer showed that the balance in hand was £2 4s. 9d., the President waiving his expenses in regard to his visit to Plymouth.—For this he was heartily thanked.

Mr. Dodsley was thanked for his services.

The PRESIDENT remarked that the Association had got through a good amount of work. He passed a high compliment on the Committee, who had been very earnest in all matters.—Mr. Heaton was thanked for his services as President, on the proposition of Mr. BROWN, who eulogised Mr. Heaton's business-like conduct and urbanity of manner.

Mr. COATES, in seconding, urged the necessity of keeping united. During next year there would be one of the most exhilarating times in the interests of pharmacy. What they needed to do was to stir up interest, and there was nothing like activity to ensure success.

Mr. Heaton was re-elected President, and Mr. Hitchin was appointed the Vice-president. The Secretary (Mr. Brown) was re-chosen amidst applause, and Mr. Dodsley was also appointed Treasurer. A committee was also chosen.

The CHAIRMAN said that in regard to the Pharmaceutical Council it was felt that there ought to be some change. They ought to endeavour to get four new members in order to support the progressive members, and so endeavour to bring about more active legislation.—The matter was left over, the meeting agreeing with the Chairman's suggestion.

In regard to the Companies Bill, the SECRETARY read several items of correspondence, remarking that the M.P. for Burnley (Hon. P. Stanhope) had promised to use his influence against the objectionable clauses.—It was decided to have a meeting in the future to decide the action of the Association.

GRIMSBY AND DISTRICT CHEMISTS' ASSOCIATION.

The sixth annual dinner of this Association was held at the Oberon Hotel on Thursday, April 5, Mr. ROBERT COOK, J.P. (President) in the chair, supported by Mr. Cor. Willson in the vice-chair, Mr. T. D. Sneath (Secretary), Mr. C. Dewing (Assistant Secretary), Messrs. H. W. Colley, T. J. North, H. Colley, T. C. Palmer, J.P., J. Wharton, Geo. R. Cook, R. H. Hearne, A. H. Swift, and others. —After an excellent dinner, and the usual loyal toasts, Mr. COR WILLSON proposed the toast of the

GRIMSBY AND DISTRICT CHEMISTS' ASSOCIATION.

He referred to the death of the late President of the Association, Mr. Alderman Palmer, expressing the regret of the members, and extending their sympathy to his family. He then went on to speak of the importance of the Association both to chemists and the public. In regard to company pharmacy, he pointed out the injustice to chemists and danger to the public in allowing an unqualified person to carry on the business of a chemist and druggist simply by forming a limited liability company. The importance of local Associations lay in the fact that they gave chemists an opportunity of meeting together to discuss various matters affecting their interests. In this connection he mentioned the "cruel law" which extracted a quarter-of-a-million sterling per annum from the sick poor in the form of revenue by means of the stamp duty on medicines. He thought it would be wise if the Chancellor of the Exchequer would accept a hint from the Grimsby Chemists' Association and alter that form of taxation. He coupled with the toast the names of the Secretaries.

Mr. SNEATH, in replying, referred to the work of the Association and its relations with the Federation of Local Pharmaceutical Associations, giving a brief summary of the subjects which had been brought under notice and discussed. With respect to the Storage of Poisons Regulations adopted by the Pharmaceutical Society last year, he was pleased to know that the measures recommended had already been adopted by the chemists of Grimsby.

Mr. DEWING also responded. He regretted that all the chemists of the district did not belong to the Association. If it did nothing else but promote sociability it was worthy of support, and he cordially invited all who were not members to join the Association. Speaking in reference to the Pharmaceutical Society, he urged that, instead of making complaints, chemists should unite and send men to the Council who would represent their views. He thanked the company for the cordial way in which the toast had been received.

Mr. WHARTON then gave the toast of the "Officers of the Association."

The PRESIDENT, in responding, said he felt proud that he had been selected to preside over the affairs of the Association, and to know that in that capacity he had the goodwill of the whole of the pharmacutists in Grimsby. It was, however, also with regret that he occupied the chair that evening, because he felt sincerely the loss of the late President, Alderman Palmer. But, whatever he could do to help forward pharmacy in Grimsby he would do to the utmost of his ability.

Mr. WILLSON and Mr. COLLEY also responded.

Other toasts were "The Town and Trade of Grimsby," proposed by Mr. HAWDON, and responded to by Mr. T. PALMER; "The Pharmaceutical Society," proposed by Councillor WHITE, and responded to by the PRESIDENT; and "The Ladies."

During the evening Mr. Cook recited "The Absent-minded Beggar," a collection being made on behalf of the Widows' and Orphans' Fund.

NORTH STAFFORDSHIRE CHEMISTS AND DRUGGISTS' ASSOCIATION.

The annual meeting of this Association was held at the Grand Hotel, Hanley, on Thursday, April 5, Mr. T. C. CORNWELL in the chair.

Mr. EDMUND JONES, the Hon. Secretary, read a letter from the President, Mr. Averill, who was unable to attend through illness, and he then gave a *résumé* of the work done by the Association during the past session. The average attendance during the year had been about thirteen—a decided falling-off when compared with the attendance during previous sessions. He thought an association of forty odd members should have a better average attendance. He would be glad if the members would take a more active interest in the affairs of the Association and pharmaceutical politics generally.

Mr. WESTON POOLE, Treasurer, next read the annual balance-sheet, which showed an increased and satisfactory balance in hand, after which the report and balance-sheet were adopted, and a vote of thanks passed to the officers for their services, on the motion of Mr. OLDHAM.

The election of officers was then proceeded with, and Mr. J. Averill was unanimously re-elected President. Mr. Cornwell and Mr. Oldham were elected Vice-Presidents. Mr. Weston Poole was re-elected Treasurer and Mr. Edmund Jones Secretary.

THE COMPANIES BILL.

Mr. W. GOWEN CROSS, of Shrewsbury, at the invitation of the Chairman, afterwards made a few remarks for the private information of the members with respect to the attitude of the Pharmaceutical Council towards the Companies Bill at present before Parliament; at the conclusion,

Mr. CORNWELL said he was quite of the opinion that they ought to support the Society. It was very gratifying to find that the Pharmaceutical Council had arrived at a unanimous decision as to a course of action. He proposed the following resolution:—

That this meeting, having heard Mr. Cross's exposition of the position, is gratified to find that the Pharmaceutical Council has arrived at a unanimous decision to oppose Clauses 2 and 3 of the Bill, and we beg to support the present attitude of the Society towards the Bill now before Parliament.

Mr. E. JONES, seconding the resolution, which was carried with acclamation, said he was glad that the Council had at last decided to do something in regard to Clauses 2 and 3 in the Companies Bill. He was of the opinion, together with Mr. Averill, that the attitude of the Council of late was most unsatisfactory and very disheartening and discouraging. The passive and apparently inactive policy of the Council was becoming intolerable, and unless the Council roused themselves, he feared the Society would be somewhat weakened and seriously damaged in the esteem and consideration of its most heretofore loyal supporters. He sincerely hoped that before long the Council would mobilise its forces for an active campaign in the interests of its members and the craft generally.

Mr. POOLE said that what Mr. Cross had told them had put fresh ideas into their heads. It was all very well for them, with their limited knowledge, to say certain things, but when they were told things from behind the scenes their opinions were very much altered. Personally, he (Mr. Poole) had always been of the opinion that it would be a very bad thing indeed to attempt to regulate companies in the way that had been suggested. He did not think they had anything to do with that. What they had got to do was to carry out the Pharmacy Act, and to base all their efforts upon that. It seemed to him that it was contrary to British justice that any man, or any set of men, should be allowed to take the privileges attaching to individual qualification, and he did not think it was at all fair that a professional qualification should be exploited by capitalists. Here it was said years ago that if they did certain things they should have certain privileges, and now, forsooth, because it had been laid down by one of the lower Lords that a company, being not an individual, could not be qualified, therefore a company did not come within the Pharmacy law. He did not see

the logic of that at all. Proceeding, Mr. Poole said he thought they ought to bear in mind also that if they once climbed down from their position, and said they would regulate companies to this extent, that if they have a qualified man actually on the premises to conduct the business, then we will allow them to practise as chemists, he did not see where they were going to stop, because there might be any number of capitalists who would say, "Well, I have plenty of money; why should not I start a chemist's business, and get a qualified man to look after it?" If the British public did not think it necessary that the man who sold them poisons should be qualified, let them have free trade by all means. In conclusion, he hoped all the local associations throughout the country would pass resolutions similar to the one they had passed that afternoon, supporting the Pharmaceutical Society in its opposition to Clauses 2 and 3.

The Annual Dinner.

Subsequently, the annual dinner of the Association was held, some twenty-five persons being present, and at the conclusion Mr. WESTON POOLE gave the toast of

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Mr. W. G. CROSS, who responded, said he could assure Mr. Poole that not only in that room, but throughout the length and breadth of the country, the Pharmaceutical Society was looked upon as one of the grandest institutions in the land. For the chemists of this country it had done more than anyone could possibly point out. It had raised a mere heterogeneous occupation into a high professional calling, and whatever standing the chemists and druggists to-day had, was due to the work of the Pharmaceutical Society. The Society had a working income of £20,000, a sum which meant no small item in the financial affairs of this country. The Benevolent Fund, he was pleased to see by the balance-sheet, had distributed over £2,000 to those who had fallen by the way, and over £700 had been paid during last year in casual grants to pick up those who had been temporarily distressed. It was a grand institution, of which they might all be proud. But, though they might be very proud of their Society, their unanimity might come to a sudden stop when they thought about those who administered their affairs, but he was glad to say that there was not much to find fault with the *personnel* of the Pharmaceutical Council. There were one or two misapprehensions as to the scope of the functions of the Pharmaceutical Society, which obtained about the country, one of which was that the Pharmaceutical Council was above all law and order, and could direct the doings of pharmacy in this country just as it pleased. He was afraid they were gradually coming to that belief all over the country, and it was well they should grasp the fact at once that the Pharmaceutical Society was not the dictator of the law. It could not put down what they called illegal practices to anything like the extent that some members believed it could, or ought to do; and then, again, there was an idea, likewise a fallacy, that the members of the Pharmaceutical Council did nothing whatever, but were simply ornamental heads of the Society, who sat in their armchairs, and knew nothing about the business of the country. He had had the pleasure of belonging to the Council for fifteen years, and during the whole of that time there was not a pharmaceutical interest but what had received most earnest and careful attention at the hands of the Pharmaceutical Council. Illegal trading, as they knew, had been put a stop to to a very large extent, and though they could not stop some very notorious sinners, they did all that was possible. With regard to the state of trade throughout the country, the Pharmaceutical Society was very fortunate in having amongst its members representatives of the trade from all parts of the country, and if members of the Pharmaceutical Council were not made aware of the grievances that existed in the various localities, it was not the fault of the Pharmaceutical Council. The Pharmaceutical Society was a most democratic institution. The members elected their own officers, and if they did not like them they could very easily discharge them. He felt sure that the whole of

the gentlemen present would agree with him when he said that the present Council of the Pharmaceutical Society was as anxious to-day as it ever had been to promote the welfare of pharmacy throughout the country. The methods of the Society may not have been right. Some said the members of the Council were all of one mind, and that when once a man got to 17, Bloomsbury Square, he had no opinions of his own. He had heard from the North Staffordshire Association an actual complaint that the Pharmaceutical Council was not unanimous enough. The members of the Council were sometimes very hard to one who wanted to play a little off his own bat, but that was natural enough. He thought that during the fifteen years he had been a member of the Council he had learnt a little wisdom. Proceeding, Mr. Cross said that looking into the future, they had a chance of a very considerable sensation next May in the election of the Council. No less than twenty-six gentlemen had been nominated, the most healthy sign he had seen for a long time, and there were now seventeen candidates for seven seats. He was beginning to feel that having had a long innings on the Council, it was time for him to retire, and give place to a younger man, but he would say to that younger man that he would find there twenty other gentlemen besides himself who were quite ready and willing to receive him, and to hear what he had to say, to receive him as a brother, and if he could do any good for the pharmaceutical calling they would be very quick to recognise him. But if, on the other hand, he did not do more than air his own particular grievances, he would sink into that oblivion which, he was sure, they would all agree he would righteously deserve.

Mr. GLYN-JONES, who also responded, said he agreed very largely with what Mr. Cross had said as to the usefulness of the Pharmaceutical Society, and as to its democratic constitution; but he for one could not but feel sorry that there had not been more differences amongst the body which they called so democratic in constitution. He, personally, was sorry that the individual members of the Society had not taken that interest year by year that they should have done in the government of the Pharmaceutical Society, and that was not a matter of opinion, it was a matter of evidence. It was a sorry fact that in the election half the papers had year by year been returned. He thought that that showed a lack of healthy interest in the Society. There could be no two opinions amongst chemists with regard to the company trading question. He did not think they should waste time in discussing and trying to satisfy each other as to what they wanted and what were their just rights, he thought they should rather consider what had they the best possible chance of getting. He really thought that they had in the near future a chance of getting their titles. He did not for a moment think there was any chance of the Government doing anything with companies, with the exception of regulating them. He was convinced of this, that they had got in the Pharmacy Act as it at present stands all the protection they wanted. They had in their Pharmacy Act powers which, if enforced, would soon work out their salvation. Referring again to the Pharmaceutical Council, he said he thought there was something wrong in a body which was always unanimous, and personally he thought the more healthy expression of opinion they got the better, provided that the gentlemen in the minority would ultimately give in to the majority. Speaking of the coming election, Mr. Glyn-Jones said he did personally think that, much as the Council had done for them, it would have done more if they had always had seventeen candidates for seven places. It stood to reason that if they had the same governing body year after year they were liable to get into one road of reasoning always, and never progress.

Mr. E. JONES having proposed the toast of "The Visitors,"

Mr. GIFFORD (Blackburn) responded. He said he must protest against the idea which seemed to permeate a great many pharmaceutical minds, that it was a disgraceful thing for chemists to expect to have any rights whatever. The chemist had been so used to going to the wall that he would apologise for looking

after himself. His strong opinion at the present time was that they wanted, and it was time they had, a clean issue in the Pharmaceutical Council election that was coming on. They wished the electors of the Pharmaceutical Society to take the responsibility of voting deliberately and making themselves acquainted with the reasons why they were voting. The issue they thought amounted to this:—Chemists thought they earned something in the examination room, and they not only earned something, but ought to have it. That was their sheet anchor, which they must stick to, and if it was worked for all it could be worked, chemists believed that it could be made effective. The qualification at the present time was reduced to an absurdity, so much so that the Lord Chancellor had stepped in and said: "You must alter the absurdity; if not, I shall do it for you."

Mr. W. G. CROSS proposed the toast of the North Staffordshire Association. He said he looked upon the Association as an ideal one. It had not a very large membership, it was true, but its members were of a most genuine character. He hoped the Association would continue on the lines it had so successfully pursued in the past, and continue to prosper and flourish.

Mr. CORNWELL and Mr. OXEN suitably responded, and spoke of the great help the Association had been to them and to the district in every way.

The remaining toasts were "The President" and "The Chairman." During the evening songs, etc., were given by members of the company, and the singing of "Auld Lang Syne" concluded a most enjoyable evening.

Obituary.

ALLEN.—On April 6, Augustine Allen, Chemist and Druggist, Wombwell. Aged 81.

BAXTER.—On April 8, at Mason Hill, Bromley, Kent, William Walmisley Baxter, Pharmaceutical Chemist. Aged 70. Mr. Baxter had been a member of the Pharmaceutical Society since 1855, and was one of the oldest tradesmen in Bromley. The business was established by his father in 1818, and, after the latter's death, was carried on by him until, owing to impaired health, he relinquished the business in September, 1897, in favour of his son, Mr. William Baxter, Ph.C. It is interesting to note that the founder of the business was for many years assistant to the celebrated Dr. Scott, of Bromley, and that the late Mr. Frederick Barron (Barron, Squire, and Co.) was apprenticed to him. The deceased gentleman was a Freemason, being a founder of the Crystal Palace and Hervey Lodge; he was also a constant subscriber to the Pharmaceutical Society's Benevolent Fund.

BURFORD.—On April 2, George Burford, Chemist and Druggist, Leicester. Aged 80.

FOSTER.—On March 21, at St. Mary's Pharmacy, Carlisle, Sarah Jane, wife of James Foster, Chemist and Druggist, who has been a member of the Pharmaceutical Society since 1875.

HURST.—On April 4, John Hurst, Pharmaceutical Chemist, Louth. Aged 84. Mr. Hurst, who had been a member of the Pharmaceutical Society since 1842, was one of the oldest tradesmen in the town, having succeeded his brother, Mr. Thomas Hurst, in business about the time he joined the Society. He took an active part in local affairs, being elected to the Louth Town Council over half-a-century ago. In 1871 he was elected a member of the committee of management of the Louth Hospital and Dispensary, being the oldest person connected with the institution. He was also the oldest trustee of the Fotherby Almshouses. For many years he was a director of the Louth Gas Company, and a Commissioner of the Louth Navigation, and for upwards of twenty years was on the Commission of the Peace for the Borough. He was greatly interested in education, being the Honorary Treasurer of the Louth National Schools. Nearly fifty years ago he was appointed auditor to the Louth Savings Bank, and on tendering his resignation in December, 1898, the trustees and managers, in order to show their appreciation of his services, elected him a Vice-President of the

Bank, and placed on record a resolution expressing regret at having to accept his resignation, at the same time recording their appreciation of the fidelity and efficiency with which he had discharged his duties during the period of forty-nine years.

LESLIE.—On April 8, Joseph Leslie, Chemist and Druggist, late of Carlisle. Aged 79.

MACLAGAN.—On April 5, at Edinburgh, Sir Andrew Douglas MacLagan, M.D., LL.D. Aged 88. Sir A. D. MacLagan was an honorary member of the Pharmaceutical Society, and formerly acted as Government Visitor to the Society's examinations in Edinburgh.

REYNOLDS.—On April 5, Richard Reynolds, Pharmaceutical Chemist, Leeds. Aged 76. Mr. Reynolds had been a member of the Pharmaceutical Society since 1854.

ROWNTREE.—On April 6, Thomas Rowntree, Pharmaceutical Chemist, Barnsbury, London, N. Mr. Rowntree had been a member of the Pharmaceutical Society since 1857.

TILSON.—On March 6, James Tilson, Chemist and Druggist, Long Sutton. Aged 75. Mr. Tilson had been connected with the Pharmaceutical Society for many years, as an Associate, and latterly as a Member. He was the father of Miss Annie E. Tilson, who was a "Square" student, and gained the Society's silver medal in 1893.

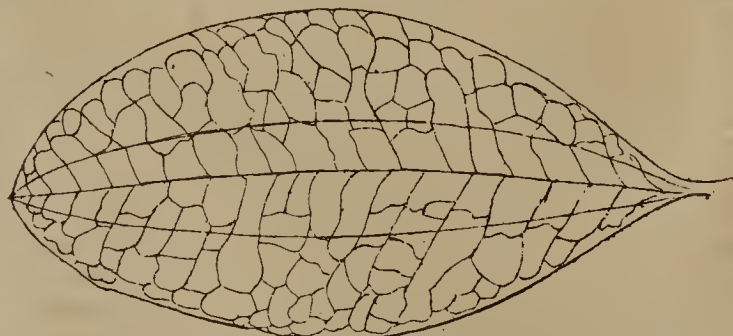
WARDE.—On March 29, Richard Smith Warde, Chemist and Druggist, East Retford. Aged 63. Mr. Warde was a member of the Pharmaceutical Society.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Cocæ Folia.

COCA LEAVES are obtained from *Erythroxylum coca*, Lam. (N.O. Linacæ), and varieties of that species. The leaves are picked twice a year, or oftener, and dried. The plants are cultivated in Bolivia and Peru, the dried leaves imported from those two countries constituting well-marked varieties and being known commercially as Huanuco (Bolivian) and Truxillo (Peruvian) coca leaves. Those two varieties are alone official, other kinds—such as Java and Ceylon coca—being less constant in the quantity of cocaine present, and apt to contain other alkaloids of a toxic nature. The drug is a nervine and muscular tonic, possessing stimulant and restorative properties; it is used in the preparation of Cocaine, Cocaine Hydrochloride, and Extractum Cocæ Liquidum.



COCA.—Leaf of *Erythroxylum coca*, Lam., var. *bolivianum*, Burck.

CHARACTERS.—Coca leaves from *E. coca*, Lam., are not obtainable in commerce. Bolivian (Huanuco) coca leaves, from *E. coca*, var. *bolivianum*, Burck, vary usually from 3.5 to 7 Cm. in length, and from 25 to 35 Mm. in breadth, but much smaller leaves may be found. They have a characteristic brownish-green colour, oval outline, and entire margin; both surfaces are glabrous, the upper surface bearing a distinct ridge above the midrib, and the under surface showing two curved lines near the midrib, running from the base to the acute apex of the leaf. The blade tapers in both directions, the midrib projecting at the apex in the form of a minute

horny apiculus or point, which, however, is frequently broken off. In a transverse section of the leaf, examined under the microscope, most of the epidermal cells of the under surface are seen to project in the form of small papillæ. The odour of the drug is faint but characteristic, and its slightly bitter taste is succeeded



COCA.—Large leaf of *Erythroxylum coca*, var. *novo-granatense*, Morris.

by a sensation of numbness in the mouth, owing to the local anæsthetic action of the cocaine present. The leaves should be free from mildew, because their alkaloidal content diminishes rapidly when they are not carefully preserved. Peruvian (Truxillo) coca consists of leaves from *E. coca*, var. *novo-granatense*, Morris; they are somewhat smaller, narrower, and more fragile than those imported from Bolivia, pale green in colour, without the prominent ridge above the midrib on the upper surface, and with less distinct curved lines near the midrib on the under surface.

NOTES.—The distinctive characters of coca leaves are the curved lines on the under surface, the minute horny apiculus, and the characteristic odour and taste. The midrib in Huanuco coca lies in a slight depression, as is usually apparent when the upper surface of a leaf is examined with a lens. The two curved lines are much less distinct on the under surface of Truxillo coca, there is no ridge above the midrib on the upper surface, and the network of small veins is less close and less prominent. The flowers of a species of *Inga* are frequently found in Truxillo coca, being apparently



COCA.—Leaf of *Erythroxylum coca*, var. *spruceanum*, Burck, natural size.

added with the view of improving the drug; they are about an inch long, with a yellowish-brown, tubular, hairy calyx and numerous deep red filaments forming a plume. The most important constituent of coca leaves is cocaine, or methyl-benzoyl-ecgonine, of which the quantity is usually less than 1 per cent., Bolivian coca containing more than Peruvian. The total alkaloids present, of which about two-thirds may be cocaine, do not usually exceed 1.5 per cent., and the average amount is 0.5 per cent. Other alkaloids found, in addition to cocaine, are cinnamyl-cocaine and isatropyl-cocaine (truxilline or cocamine), which are frequently present in Truxillo coca in larger quantity than cocaine. Benzoyl-ecgonine



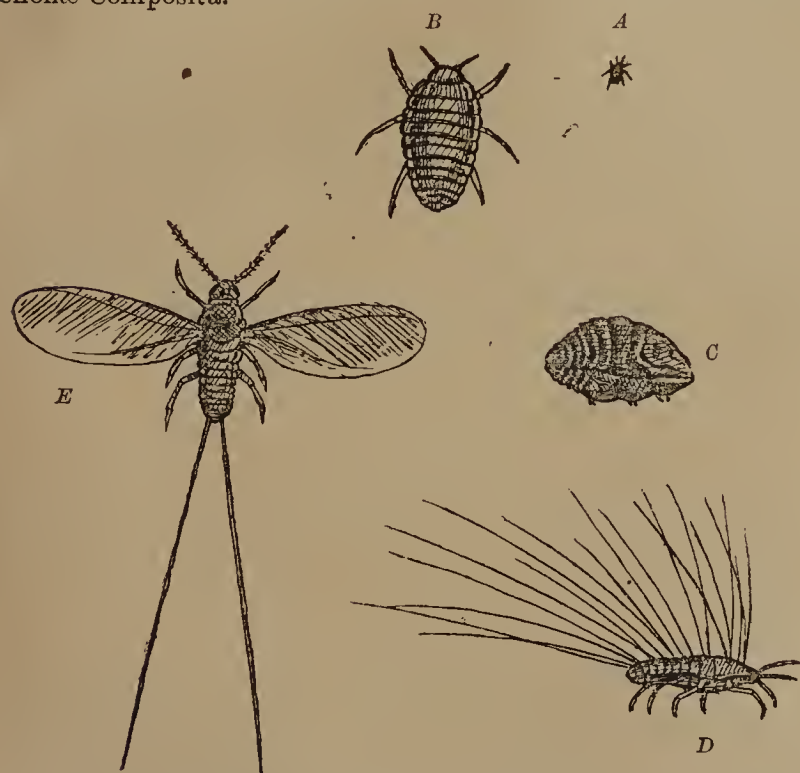
COCÆ FOLIA.—*Erythroxylum coca*. Under epidermis in transverse section, enlarged, showing papillæ. (After Moeller.)

and hygrine (?) are also found, as well as cocatannic acid, methyl salicylate, and wax. When hydrolysed by heating to 100° C. with hydrochloric acid, cocaine yields methyl alcohol, benzoic acid, and a crystalline alkaloid—ecgonine, which is very closely allied to tropine. See *P.J.*, November 5, 1898, p. 492. In the case of cinnamyl-cocaine

the result is similar, except that cinnamic acid is formed in place of benzoic acid. Isatropyl-cocaine, in like manner, yields isotropic (truxillie or cocaic) acid. Benzoyl-ecgonine is an intermediate product of the complete hydrolysis of cocaine. It can be split into benzoic acid and ecgonine; by methylation it can be converted into cocaine. Java coca, from *E. coca*, var. *spruceanum*, Burck, contains cocamine and benzoyl pseudo-tropeine which, when hydrolysed, yields benzoic acid and pseudo-tropine—an isomer of tropine. Ceylon coca leaves correspond in physical characters to the Huanuco variety. Like the Java leaves, they are not so rich in cocaine as Bolivian and Peruvian coca, although sometimes richer in total alkaloid. For the microscopic characters of coca leaves, see *P. J.*, May 27, 1899, pp. 484-5.

Coccus.

COCHINEAL is the dried fecundated female insect, *Coccus cacti*, Linn. (order Hemiptera), a native of Central America and Mexico, but also bred in the Canary Islands. The insects are reared upon the fleshy branches of *Nopalea coccinellifera*, Salm-Dyck (N. O. Cactaceæ), and are normally of a bluish-red colour, and about 1.25 Mm. in length, the males alone being provided with wings. After fecundation the females increase in size rapidly, and develop an abundance of red colouring matter, though a waxy secretion with which their bodies are covered gives them a whitish appearance. At this stage they are brushed off the plants, killed, and dried, being thereby reduced to one-third their original size or less. If the insects are killed by the fumes of burning sulphur or charcoal and dried in the sun, the waxy secretion remains unaffected, and "silver-grain" cochineal is the result; but if killed by hot water or in an oven and dried by artificial heat "black-grain" cochineal is obtained, the waxy secretion being removed and the colour of the insects changing to a reddish or purplish black. Cochineal is of value as a colouring agent only; it is used in the preparation of *Tinctura Cardamomi Composita*, *Tinctura Cocci*, and *Tinctura Cinchonæ Composita*.



COCHINEAL.—A, Adult female, nat. size; B, ditto, magnified; C, Impregnated female, nat. size; D, Male, larval form; E, ditto, winged form.

CHARACTERS.—Cochineal insects, when dried, are about 5 Mm. long, oval in outline, flattish or slightly concave on one side, convex or arched on the other. In colour they are purplish-grey or purplish-black and, if properly dried, they can easily be reduced to a puce-coloured or dark-red powder. The dried insects are transversely wrinkled and swell considerably when macerated in water, three pairs of legs being then rendered visible in each case.

TESTS.—Cochineal may be faced, in the case of the "silver-grain" variety, with barium or lead carbonate or sulphate; "black-grain" cochineal may be faced with black lead, ivory black, or manganese dioxide. All such additions can be detected by macerating the cochineal in water, as the insoluble powders then separate. Inorganic impurities also increase the amount of ash—not exceeding 6 per cent.—which should be left on incineration with free access of air.

NOTES.—The chief characteristics of cochineal are the shape and general appearance of the dried insects. They contain about 10 per cent. of a red colouring matter—carminic acid—which is obtainable in small red prismatic crystals, and is soluble in water, alcohol, and alkaline solutions. Other constituents of cochineal are about 10 per cent. of fat (myristin, etc.) and 2 per cent. of wax (coccerin), together with albuminoids, inorganic matter, etc. Carmine is obtained by precipitating a decoction of cochineal with alum, potassium bitartrate, etc., and contains about 50 per cent. of carminic acid.

Colchici Cormus.

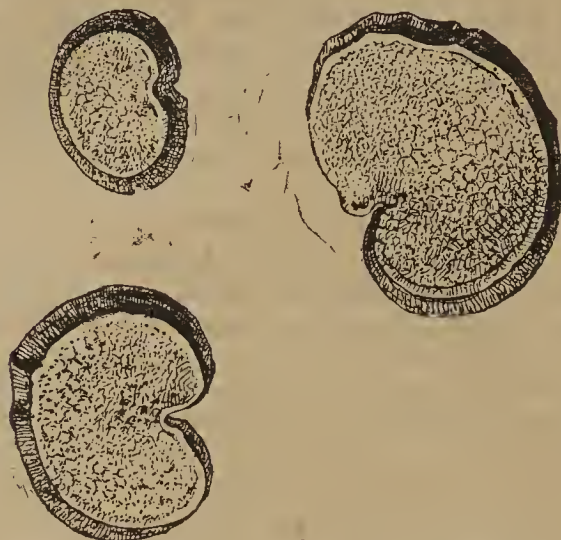
COLCHICUM CORM is the short, fleshy, bulb-shaped, underground stem of *Colchicum autumnale*, Linn. (N. O. Liliaceæ), the meadow saffron, a plant which is widely distributed over Central and Southern Europe, and abundant in moist meadows and pastures in many parts of England and Ireland. To insure the drug being in the best condition, it is directed that the corms should be collected in early summer. They are then filled with the reserve material stored up in them by the aid of the leaves, which is gradually used up as the flowers develop, the corms shrivelling, and ultimately decaying until the only trace of the existence of the original corm is a rounded cicatrix upon the new corm, marking the point of attachment to its predecessor. The corms are, therefore, dug up between the decay of the foliage and the appearance of the flower, or, as the plant is then less difficult to find, soon after the flower has appeared. The fresh corms are stripped of their membranous coats and cut into transverse slices; these are dried at a temperature not exceeding 65°-5 C., to avoid causing gelatinisation of the starch present, and then constitute the drug as usually seen in commerce. *Colchicum* relieves the pain and inflammation of gout and kindred affections; the fresh corms are used in the preparation of *Extractum Colchici* and the dried slices in preparing *Vinum Colchici*. The dose of the dried corm is 2 to 5 grains.

CHARACTERS.—*Colchicum* corm, when fresh, is about 35 Mm. long and 25 Mm. broad, bluntly conical in shape, rounded on one side and flattened or hollowed on the other, where a new corm is in process of development. The outer thin brown membranous coat and inner reddish-yellow one are derived from the leaves of the plant, which have decayed prior to the collection of the corm. Internally the corm is firm, white, and solid. The juice which exudes when it is cut has a bitter taste due to the poisonous alkaloid colchicine, and is milky owing to the presence of numerous starch grains. The disagreeable odour of the juice is apparently due to a volatile body which disappears from the corm on drying. The dried slices, which are cut while



COLCHICUM CORM.
Natural size.

the corms are fresh and freed from the remains of the membranous coats by winnowing, are reniform or kidney-shaped in outline, from 2 to 3 Mm. thick, and their shortest diameter is from 1 to 2 Cm.; they break readily with a short fracture. When the surface is smoothed numerous fibro-vascular bundles reveal themselves as scattered darker points. The margin of each slice is slightly raised—owing to the greater shrinkage of the firm, whitish, starchy, central portion in drying—and presents on its outer surface a yellowish or dull pale brown epidermis. The slices have the same bitter taste as the fresh corm or juice, but they are free from the disagreeable odour.

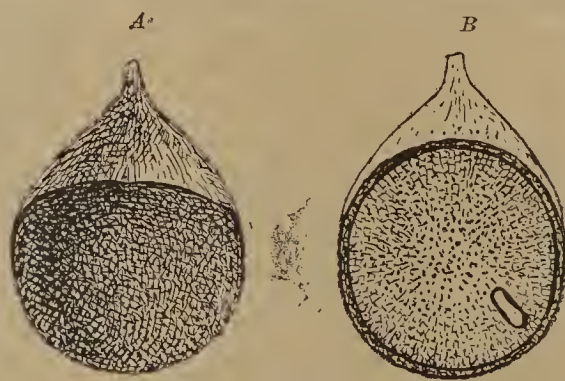


COLCHICUM CORM.—Transverse slices, natural size.

NOTES.—The distinctive characters of fresh colchicum corm are its peculiar shape, bitter taste, disagreeable odour, and milky juice. When sliced and dried it loses the volatile body to which the odour appears to be due, and about 70 per cent. of water; the dried slices are characterised by their kidney-shaped outline, short starchy fracture, and bitter taste. The active principle of the drug is the poisonous alkaloid colchicine, of which it contains 0.5 to 0.6 per cent. when dried. It has been isolated as a pale yellow amorphous substance, possessing weak basic properties. Other constituents are starch, gum, sugar, resin, tannin, and fat. The corm is considered to be most active about July, but it is questionable whether the alkaloidal content varies to any appreciable extent with the time of collection; it is said to decrease, however, if the drug is kept for a long time before use.

Colchici Semina.

COLCHICUM SEEDS are the product of *Colchicum autumnale*, Linn. (N. O. Liliaceæ), collected in the autumn and dried. The reddish-purple flower which springs from the side of the corm has superior ovary, and that is raised to the surface of the ground as

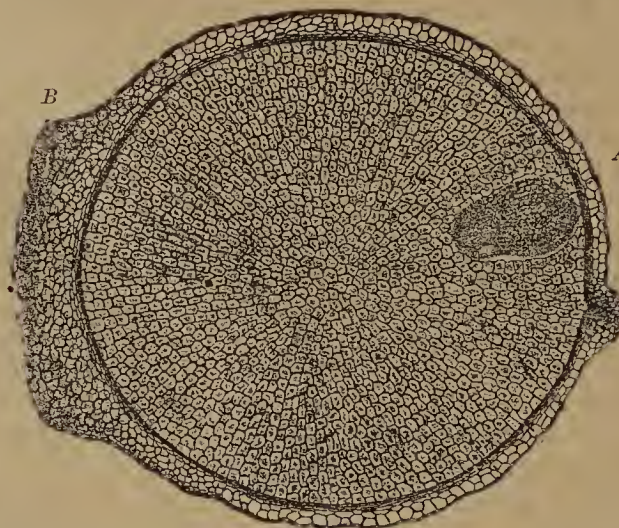


COLCHICUM SEEDS.—A, Seed, enlarged; B, ditto, section, showing embryo.

development of the flower proceeds, by elongation of the peduncle. After fertilisation the fruit forms as a three-celled capsule, which ripens during the summer, dehisces septicidally, and discloses numerous pale seeds which darken as they dry. The medicinal

properties of the seeds are similar to those of the corm, but they have been considered to be more certain in effect and milder in operation; they are used in the preparation of *Tinctura Colchici Seminum*.

CHARACTERS.—Colchicum seeds are about 2.5 Mm. in diameter, nearly spherical in shape, but slightly pointed at the hilum, where occur the remains of a thick funiculus or stalk with which the seed has been attached to the placenta, in the fruit. The presence of minute pits on the surface makes the dull reddish-brown seeds rough. They are also very hard and tough, and must be soaked in water to enable them to be cut easily. A transverse section shows a yellowish oily endosperm, consisting of cells with thickened walls and large pits, the minute embryo being situated near the margin opposite the hilum. The seeds have no odour, but a bitter acrid taste.



COLCHICUM SEED.—Section, greatly enlarged. A, Embryo; B, Funiculus. (After Berg.)

NOTES.—The distinctive characters of colchicum seeds are the rough surface, hard horny endosperm, and the remains of the thick funiculus. Black mustard seeds are much smaller and softer; henbane seeds are kidney-shaped; grains of paradise are larger and paler, with a soft white endosperm and pungent taste. The chief constituent of colchicum seeds is the poisonous alkaloid colchicine, of which they contain from 0.6 to 1 per cent.; other substances present are colchicein, a white crystalline body—trimethyl-acetyl-colchicine acid—of which colchicine is stated to be the methyl ether, colchicoresin, β -colchicoresin, 6 to 8 per cent. of fixed oil, gum, starch, sugar, etc.

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LECTURES ON THE PRACTICE OF MEDICINE, addressed chiefly to the Students of St. Mary's Medical School, to which are appended the Harveian Lectures on the Rheumatism of Childhood, revised and corrected up to date. By W. B. CHEADLE, M.D., F.R.C.P. (Illustrated.) Pp. xv.+324. Price 7s. 6d. London: Smith, Elder and Co., 15, Waterloo Place, W. 1900. From the Publishers.

BERICHT VON SCHIMMEL AND Co. (Inhaber Gebr. Fritzsche) in Leipzig. Fabrik äther, Oele, Essenzen and Chemischer Präparate. Pp. 70. April, 1900. Leipzig: Schimmel and Co. From the Publishers.

MERCK'S (Darmstadt) ANNUAL REPORT ON THE YEAR 1899. Vol. vii. (complete German edition, vol. xii.). Pp. 177. March, 1900. London: E. Merck, 16, Jewry Street, E.C. From the Publisher.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

ARROW POISONS.

According to Schellman the arrow poison of the Wagogo is derived from the juice of the bark of two Euphorbiaceous trees by continued boiling. Brieger has isolated therefrom a crystalline body which corresponds chemically and physiologically with the Wakamba arrow poison. This body has the same action as the amorphous ouabain, and similar to the amorphous strophanthin, obtained from *Strophanthus hispidus*, by Thoms, but does not give a glucosidal reaction. The Euphorbia juice appears to act as progressive poison.—*Chem. Zeit. Repert.*, **24**, 41.

LARGIN IN OPHTHALMIC CASES.

As a substitute for silver nitrate, Sidney Stevenson finds that largin is very efficient in most superficial diseases of the eye in any of the conjunctival inflammations associated with the Koch-Weeks' bacillus, such as acute infectious ophthalmia, and acute, or sub-acute trachoma. It is, however, distinctly inferior to the nitrate and to protargol in gonorrhœal ophthalmia, and in diplo-bacillary conjunctivitis it does not always succeed as well as zinc sulphate. It has the advantage that the application of even strong solutions is almost painless, and it is of great service as an antiseptic after trachoma operations.—*Brit. Med. Journ.*, 2046, 622.

PRESERVING URINARY SEDIMENTS.

The following process is due to Martin Cohn. The sediment is drawn off with a pipette and dried on a microscopic cover-glass by exposure to the air, fixed by immersion for ten minutes in 10 per cent. formalin solution, washed with water for a short time and stained by immersion in concentrated solution of Soudan dye in alcohol (70 per cent.), and after washing with alcohol (70 per cent.) again stained with hæmatoxylin or alum cochineal, and finally, after treatment with water, mounted in glycerin.—*Chem. Zeit. Repert.*, **24**, 335, after *Zeits. Klin. Med.*

SOME EXTINCT VASCULAR CRYPTOGAMS.

Dr. D. H. Scott has read a paper "On *Sphenophyllum* and its Allies, an Extinct Division of the Vascular Cryptogams," before the Linnean Society. He pointed out that the study of the Palæozoic Flora not only greatly widens our conception of the three existing classes of Pteridophyta, but adds a fourth—that of the Sphenophyllales—to their number. In describing the external characters of certain species of *Sphenophyllum* and *Trizygia*, he directed attention to the slender ribbed and jointed stems, the whorled and superposed leaves, and the great variation in the form of the leaf. The common hypothesis, based on the dimorphism of the leaf, that *Sphenophyllum* is an aquatic genus, was said to be inconsistent with other facts, Mr. Seward's suggestion of a climbing habit appearing preferable. In external morphology the resemblance is closest with the Equisetales. The chief points noted in connection with the anatomy of *Sphenophyllum* were the centripetal, triarch or hexarch primary wood, and the successive addition of secondary tissues by means of a normal cambium, the formation of a regular scale-bark being another remarkable feature. The cones of *Sphenophyllum dawsoni* were explained in detail. The presence of pedicellate sporangia, of peculiar structure, appear to be general in the genus, and there are reasons for regarding the pedicel as comparable to a ventral lobe of the subtending bract. *Bowmanites roemeri* and *Sphenophyllum majus* were cited as examples of somewhat more complex examples of Sphenophyllaceous fructification.

The latter was compared with the fructification of *Tmesipteris*, and the points of agreement between Psilotæ and Sphenophyllales indicated. In *Cheirostrobos peltzemensis*, a cone discovered some years ago in the Lower Carboniferous strata of Burntisland, the agreement anatomically with the Lycopods and morphologically with the Equisetales was found to be even more striking than in the Sphenophyllales proper, and Dr. Scott has been led to place the genus in the class Sphenophyllales. The supposed relation of the Sphenophyllales to Hydropteridæ he rejects as baseless, and as inconsistent with the manifest Filicinean affinities of that family. He has come to the conclusion that the Sphenophyllales are most naturally regarded as the derivatives of a synthetic group, combining the characters of Lycopods and Equisetales, and indicating the common origin of those two classes.

FRUIT OF SAMBUCUS EBULUS.

Dr. P. Radulescu has investigated the nature of the colouring matter of the berries of the danewort, largely used for colouring red wines in Roumania. Its chemical and spectroscopic properties are given in detail. It possesses no injurious properties.—*Bull. Soc. Sci. Bucharest*, 1899, 636.

STAINING WITH SAFRANIN.

Ssobolew recommends first immersing sections for two to five minutes in diluted Fleming's solution (10 to 15 drops to water 5 C.c.), washing with water, and then staining in a saturated aqueous solution of safranin, finally mounting in the usual manner. The colour is extremely distinct. Treatment of the sections with dilute osmic acid solution gives poor results and a colour of a violet tint.—*Chem. Zeit. Repert.*, **24**, 335, after *Wratseh*.

BELLADONNA POISONING.

A case is recorded by G. Scott in which six stable lads, employed in a racing stable near Twyford, were recently poisoned by taking horse medicine, an electuary, consisting of belladonna and liquorice. When medical aid arrived, two of them were wildly delirious, another, who had fortunately vomited after taking a considerable quantity of the poison, was comatose; the other three were less severely affected, and were able to swallow an emetic; the three first, however, had to have emetics forcibly administered. All subsequently recovered under treatment with emetics and purgatives, with a stimulant mixture to the comatose patient. The electuary contained fifteen grains of extract of belladonna in each drachm, and was taken by the boys on account of its sweet taste; two admitting taking half a teaspoonful and one as much as a teaspoonful.—*Brit. Med. Journ.*, 2046, 633.

PLUMIERIDE.

The bitter principle of *Plumiera lancifolia* has been investigated by Franchimont, who states that the substances derived from that source by Boorsma and E. Merck are identical, the difference in their melting points—that obtained by Merck melting at 158° C., while that by Boorsma does not melt at all—being due to their differing in water of crystallisation. Plumieride crystallises well, is optically active $[\alpha]_D = -106.4$, the melting point after crystallisation from water is 153° C. It is obtained completely anhydrous by treatment with acetic ether free from water. By heating with five per cent. hydrochloric acid an amorphous brown mass separates, and the solution contains dextrose which can be identified by means of its osazone. By continued treatment with ten per cent. caustic soda solution there separates, after acidifying, a crystalline acid, which is quite insoluble in hot water and in methylic alcohol. This acid deviates polarised light more powerfully than plumieride, has no bitter taste, and yet must be a glucoside, as the aqueous solution heated with diluted hydrochloric acid sets free dextrose. This body closely resembles agoniadin, but its precise nature has not yet been established.—*Chem. Z. it. Repert.*, **23**, 334.

THE OFFICIAL PROCESSES FOR THE ASSAY OF IPECACUANHA, BELLADONNA, AND NUX YOMICA.*

BY F. C. J. BIRD.

I.—Ipecacuanha (Concluded).

Ipecacuanha Wine.—Farr and Wright (*P.J.* [4], 9, 85) state that in the application of their process to the assay of this preparation the alkaloids are yielded in an almost perfectly pure condition, attributable to the fact that the impurity present in the crude alkaloids from the liquid extract is filtered out in the process of conversion into wine. If this is true of all samples, then wine made from extracts of B.P. strength, in which the proportion of titratable alkaloid is low, might be expected to exhibit an apparent deficiency of alkaloid which would unjustly condemn them as being below the official standard. The following results, however, show that the B.P. analytical method (see below) applied to ipecacuanha wine gives figures in fair correspondence with those yielded by the liquid extract from which the wine has been prepared:—

	Taken for Assay.	Percentage of Alkaloid.	
		Weight.	Titration.
Liquid extract (pale residue), modified B.P. process	10 C.c.	1.95	1.79
Calculated for wine	—	0.097	0.089
Found by modified B.P. method	100 C.c.	0.101	0.089
Found by Farr and Wright's process † ..	50 C.c.	0.10	0.089
Liquid extract (intense orange-brown residue), modified B.P. process	C.c.	1.96	1.50
Calculated for wine	—	0.098	0.075
Found by modified B.P. process	100 C.c.	0.100	0.073
Found by Farr and Wright's process † ..	50 C.c.	0.102	0.074

Both samples were prepared with detannated sherry. The results of the analyses come out slightly above the gravimetric figures calculated from the respective liquid extracts, but below the figures from the same extracts assayed by Alcock's process.

Process.—Wine, 100 C.c.; add solution of subacetate of lead, 2.5 C.c., and a few grains of washed asbestos powder. Heat for a minute or two on the water bath until a distinct separation of the precipitate is observed, then transfer to a Buchner's filter and continue the process as on page 176, using one-fourth the quantities there given. The weight of the residue in grammes is the percentage of alkaloid in the wine.

Loss of Alkaloid on keeping Liquid Preparations of Ipecacuanha.—A sample of wine and a sample of liquid extract, both filtered bright, were tested by the B.P. process on January 3, 1900, and set aside until March 30. When examined on the latter date the wine was found to be bright, with an almost imperceptible sediment and acid reaction, whilst the liquid extract had deposited a very thin brown film on the sides of the bottle, and was neutral or faintly acid to test paper. Evidently no change of any importance had taken place, for the alkaloidal value of both preparations, when assayed by the same process, was practically unaltered, thus proving that some samples of these galenicals can be kept for at least three months without deterioration. The pronounced reduction in strength pointed out by Guyer (*P.J.* [4], 9, 622) still awaits explanation, but it will probably be found to depend on the presence of much free alkaloid in alkaline or insufficiently acid solution.

	January 3, 1900.		March 30, 1900.	
	Alkaloid per cent.		Alkaloid per cent.	
	Weight.	Weight.	Titration.	
Wine	0.098	0.097	0.079	..
Liquid extract	2.08	2.09	1.76	..

* Continued from page 335.

† Four extractions with chloroform.

Vinegar of Ipecacuanha.—Nearly neutralise 100 C.c. of vinegar of ipecacuanha with solution of potash and proceed according to the assay process given for the wine, using four quantities of chloroform in the final extraction. A sample of this preparation made from a liquid extract testing 1.95 per cent. (1.78 per cent. titration), by B.P. process, gave the following figures:—

	Per cent.	Per cent.
Calculated from the extract..alkaloid, weight	0.097	titration 0.089
Found in the vinegar	0.096	0.0885

ASSAY OF IPECACUANHA PREPARATIONS.—SUMMARY.

(1) The B.P. analytical method for ipecacuanha preparations is both easy and expeditious when carried out in the manner described on page 176. The advantages of the process are that the actual analytical operations can be performed in about an hour; there is no emulsification, and being official, its general employment should ensure uniformity of results. Its one disadvantage is the loss of alkaloid, which, however, only averages 0.05 per cent. by titration.

(2) Prolonged washing of the precipitate may be avoided by preliminary acidification of the liquid extract. The results are practically identical.

(3) The presence of alcohol in a sufficiently diluted condition does not diminish the yield of alkaloids; on the contrary it appears to facilitate extraction.

(4) The average loss of alkaloidal residue in the lead precipitate when the foregoing process is employed averages about 0.08 per cent. by weight. A small quantity of alkaloid also remains in the mother liquor after extraction with chloroform and a small part of the deficiency by titration may be set down to decomposition of the alkaloid during evaporation and drying at 80° C.

(5) A possible explanation of the great difference between the results obtained by titration and by weight with dark coloured residues may be found in the probable presence in such residues of alkaloid which has undergone some decomposition or molecular change under the influences of the heat and alkali employed in the preparation of the extract.

(6) The alkaloidal value of highly coloured residues which are incapable of accurate titration with cochineal in the usual way can be determined with great exactitude by the use of ether amyl alcohol, brine and methyl orange (or other indicator).

THE ASSAY OF IPECACUANHA ROOT.

Although no definite percentage of alkaloid is required by the British Pharmacopœia to be present in the crude powdered drug, such information is nevertheless often of considerable importance, both from a commercial point of view and as a guarantee of the good quality of the article. The absence of an official method of assay is also unfortunate on account of the very varying results obtained with different processes, even when worked by the same operator, and this fact lends force to the argument that an official analytical process, even if a little faulty, is distinctly advantageous in tending to secure uniformity in certain drugs and pharmaceutical preparations.

Rapidity in working and accuracy of result have hitherto been two seemingly incompatible conditions, for those processes which were quickly carried out have left much to be desired in point of accuracy, and those which gave figures nearer the truth required much more time for their performance than the busy pharmacist could conveniently devote to them. At one time continuous hot extraction of the powdered drug was considered a good method, but it is now generally agreed that the application of heat to the free alkaloid during the analysis should be avoided. Rejecting therefore those processes dependent on hot extraction the others resolve themselves into two classes, the one in which the drug is agitated and macerated with the solvent, an aliquot being taken for the assay, and the other in which the powder is exhausted by percolation with the solvent. The first of these has the advantage in point

of speed, but is liable to error in several directions, such as the possible want in uniformity of the liquid poured off with that absorbed by the drug, the increase in volume of the solvent by substances dissolved, the alteration in volume by water added to cause aggregation of the powder and the loss of volatile solvent during transference of the "aliquot part" taken. The latter source of error would mean concentration of the alkaloidal solution and higher results, and when the whole operation has been performed on a balanced scale-pan the loss of ether (which in warm weather would probably be still greater) has in Keller's and Lyon's processes amounted to from 1.7 to 4.0 Gm. during the transference of 100 C.c. of liquid.

The points aimed at in the following process for the determination of total alkaloid in the root have been (1) rapidity, and (2) the isolation of the alkaloids in such a pure condition that the gravimetric and volumetric results should be almost identical. Its chief features are extraction in the cold by an application of the well-known maceration-pressure process so successfully employed in the exhaustion of drugs on the large scale, the use of a special solvent for the alkaloids, the avoidance of contact of the liberated alkaloid with caustic alkali and the purification of the final alkaloidal solution in chloroform by means of brine.

The drug should be in very fine powder, preferably No. 100. If a sample of the root itself is under assay it is sufficient to pass the cortical portion through a No. 100 sieve, the remaining woody part being mixed in as a coarse powder. Extraction can be accomplished in about four hours if necessary, but it is advisable to start an analysis overnight whenever possible. The alkaloids of ipecacuanha are very easily removed by a small volume of dilute acid from a large volume of immiscible solvent; it is much more difficult to wash them out with chloroform from an alkaline aqueous solution, concentration should therefore be effected during the acid extraction, so that in the final extraction the volume of the immiscible solvent may be large relative to that of the aqueous liquid.

Both Keller's and Lyon's processes give results which are too high. This, neglecting minor sources of error, appears to be due both to loss of solvent during transference of the "aliquot part" and to impurities in the alkaloidal residue. The alkaloidal residues from Keller's process contain from 6.7 to 11 per cent. impurity, and from Lyon's ammoniated ether method from 5 to 7.5 per cent. Cripp's figures (*P.J.* [4], 1, 161) show with Lyon's process (calculated to the equivalent 0.0244) 3.5 and 7 per cent., and with Keller's from 15 to 17 per cent. impurity in the alkaloidal residue. Keller's own figures (*Y.B.*, 1894, 127) are much nearer, but they are calculated on an equivalent of 0.0254, now known to be too high, and when reduced to a 0.0244 equivalent they exhibit discrepancies up to 8 per cent. Paul and Cownley* have shown the total alkaloid in Rio ipecacuanha to consist of about three parts of emetine with one of cephaeline, which, neglecting the third alkaloid, fixes the equivalent for this variety of the root at 0.0244. In the attempt to purify the alkaloids by eliminating the foreign substances which the figures quoted above prove to be present, it was found that immiscible solvents removed practically nothing from the acid aqueous solution. From the chloroformic solution water extracted alkaloid as well as non-alkaloidal bodies, but brine proved quite effective in removing impurities without dissolving alkaloid. Details will be found in the notes accompanying the process given on this page.

Throughout the process the predominant colour of the solutions is a pale greenish yellow, in marked contrast to the deep brownish yellow noticeable when caustic ammonia is employed.

The addition of a little ether is advantageous in causing the chloroform to separate in a clear condition. It is unnecessary if a little longer time for the separation be allowed.

PROCESS No. 1.

Rio ipecacuanha in fine powder 10 Gm.
Sodium bicarbonate..... 2 Gm.
Water 5 C.c.

Mix about half the soda with the powdered ipecacuanha, shake the remainder with the water and rub the whole in a small mortar to a uniform moist granular powder.

Amyl alcohol 1 volume }
Chloroform 1 volume } *g.s.*
Ether..... 3 volumes }

Add the moistened powder to 20 C.c. of the above solvent, previously placed in D (plugged with cotton wool, as shown at page 176), and macerate for half-an-hour, with occasional shaking. Force out the liquid by compressing H, and cover the powder with 10 C.c. more menstruum. Agitate vigorously, let stand fifteen minutes and again force out the liquid. Repeat this at intervals of a quarter of an hour until ten or twelve quantities of menstruum have been used or the powder is exhausted.

(If time is of no importance, percolation in the ordinary way may be substituted for the above procedure.)

Agitate the mixed ethereal extracts successively with.....

Normal sulphuric acid 4 C.c. }
Water..... 6 C.c. }

Water..... 5 C.c. (2)
Water..... 5 C.c. (3)
Water..... 5 C.c. (4)

To the mixed acid solutions add carefully ammonium bicarbonate..... 0.5 Gm.

Shake out the alkaloid with chloroform containing about one-sixth its volume of ether.

Chloroform 20 C.c. (1)
Chloroform 10 C.c. (2)
Chloroform 10 C.c. (3)

Chloroform 10 C.c. }
Strong solution of ammonia .. 1 drop. }
Agitate the mixed chloroforms with—

Saturated solution of sodium chloride..... 30 C.c. }
Strong solution of ammonia.... 1 drop. }

Run off the perfectly clear chloroform by forcing it with air pressure (see page 176) through a very small plug of cotton wool previously saturated with chloroform and placed in the neck of the separator; rotate the brine with a few C.c.'s more chloroform; mix with the first portion and either (1) evaporate, dry below 80° C. and weigh, or (2) dilute with chloroform to 100 C.c. and divide into two equal volumes. Evaporate, dry, and weigh the one as usual, but remove the chloroform from the other by a current of air and titrate the residue, using the equivalent 0.0244. The titration figure should come within 2 or 3 per cent. of the weight.

PROCESS No. 2.

The "aliquot part" principle can be usefully applied in the assay of ipecacuanha root whenever approximate or comparative results only are required. By attention to the following details of manipulation, etc., the errors usually accompanying this method may be so minimised that they become almost a negligible quantity, and in working the process there is a considerable saving of time and trouble.

Ipecacuanha root in fine powder, 12 Gm.; sodium bicarbonate, 2.4 Gm.; water, 6 C.c.; solvent (as above), 120 C.c. Introduce the solvent by means of a pipette into the stoppered separator D (page 176), the neck of which has been previously plugged with cotton wool; add the powder moistened uniformly with the bicarbonate and water, as in process No. 1, and shake occasionally during two or three hours; then add brine, 5 C.c.; agitate, and when aggregation of the powder has taken place force out 100 C.c. of the clear liquid into a graduated 100 C.c. flask by air pressure applied through H. If the stem of the separator passes well down into the

NOTES.

Marc. Extracted for two days with Lyon's solvent (ammonia, ether, alcohol) yielded—
Residue by weight 0.027 p.c.
Alkaloid by titration 0.019 p.c.

Colour full greenish yellow.

(1) Colour full brownish yellow, slightly darker than the ethereal layer.

(2) Colourless—trace of alkaloid.

(3) Alkaloid completely extracted.

From the pale yellow mixed acid solutions.

Residue. Alkaloid.

Petroleum ether extracts 0.005 p.c. none.

Ether extracts .. 0.005 p.c. none.

Chloroform ,, 0.030 p.c. none.

(1) (2) (3) Mother liquor still contains very heavy traces of alkaloid.

(4) Alkaloid completely removed.

This treatment removes a yellow substance which dissolves in acids to a yellow solution, but gives no precipitate with alkaloidal reagents. By comparison between two assays, in one of which the washing with brine was omitted, the amount of non-alkaloidal substance removed was found to be 0.15 per cent.

Water also purifies the final chloroformic solution, but it removes a notable quantity of alkaloid as well, so that its use for the purpose is inadmissible. In a duplicate assay treatment with small quantities of water extracted—

Residue by weight..... 0.28 p.c.
Alkaloid by titration.... 0.10 p.c.

* *Pharmaceutical Journal* [4], 2, 321.

neck of the flask there is practically no evaporation, several test experiments having shown a loss of only 0.2 Gm. during transference. Consider the 100 C.c. as representing 10 Gm. ipecacuanha and continue the extraction with acid, etc., exactly as in process No. 1.

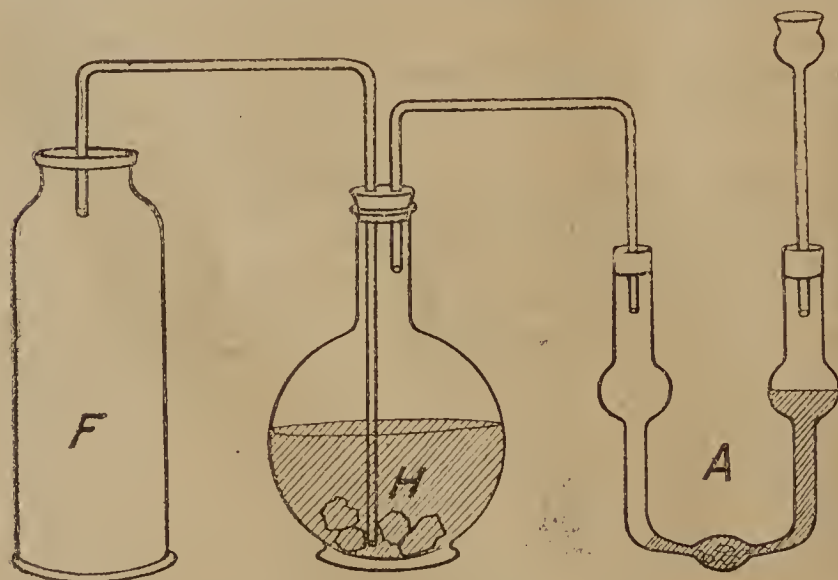
ANALYSES OF RIO IPECACUANHA.

Equivalent. 1 C.c. N/10 acid = 0.0244.	Sample No. 1.			Sample No. 2.		
	Alkaloid. Wt.	p.c. Titn.	Difference betw'n Wt. and Titn.	Alkaloid. Wt.	p.c. Titn.	Difference betw'n Wt. and Titn.
Process No. 1.—Treatment with brine omitted	2.43	2.26	p.c. 7.0	2.28	2.095	p.c. 8.1
Process No. 1	2.30	2.27	1.3	2.13	2.09	1.3
Process No. 2.—“Aliquot part.”	2.24	2.21	1.3	2.05	2.02	1.9

AN EXPERIMENTAL APPARATUS FOR MAKING POTASSIUM BICARBONATE.

BY F. H. ALCOCK.

The following represents a method and apparatus for making potassium bicarbonate, in place of the plan recommended by Professor Atfield in his 'Manual of Chemistry.' The one there suggested takes a very long time to get a crop of crystals from such quantities as half a fluid ounce or so of saturated aqueous solution of potassium carbonate. The proposed plan takes a very short time; in fact, the crystals can be seen forming, or, rather, falling as they form, at A in a few minutes after the operation has started. The globe H is an old bichromate battery glass, now used as an aspirator vessel, but the left-hand elbow tube could be replaced by a



thistle funnel, or, better, by a tube bent slightly, as shown in figure, under which a bottle F could be placed to catch the liquid which would be expelled from the generator H if by accident a stoppage by crystals occurred in A. The stoppers are of india-rubber; the thistle funnel to the right is only used as a safeguard against projection of fluid from A if attention is not paid to the details. The U tube is useful, for, from time to time, the progress of the chemical change can be tested by removal of a few drops of the liquid, by a tube, to a watch-glass containing a little mercuric chloride solution or other suitable test reagent. With the apparatus, as shown, two ounces of marble (four pieces) placed in the generator with fifteen ounces of water and one fluid ounce of B.P. hydrochloric acid, gave bubbles of gas at the rate of five per minute, and yielded in a few hours, from a solution of 100 grains of potassium car-

bonate and two fluid drachms of water, a mass of good-sized crystals, weighing, after well draining and drying, fifty grains. Evolution of gas practically ceased after six hours, and a quarter of an ounce of marble had been consumed.

NOTE ON QUININE ACETATE.*

BY J. RUTHERFORD HILL.

In connection with a recent paper on quinine solutions and ammonium acetate, by Mr. D. B. Kidd (*P.J.* [4] 10, 94), some discussion took place as to the solubility of acetate of quinine. On this point the 'Art of Dispensing' says: "The greater number of difficulties with quinine mixtures are caused by the formation of less soluble salts, owing to double decomposition—for example, in the case of Mindererus spirit and sulphate of quinine. It so happens that acetate of quinine is one of its least soluble salts, although it dissolves readily on heating, and in certain proportions it is possible to get a mixture of an alkaline acetate and quinine sulphate perfectly solid owing to the formation of quinine acetate."

Mr. Kidd suggested, and apparently correctly, that the above-mentioned precipitate is not acetate but hydrate of quinine, which separates, owing to dilution of the acetic acid ions by the alkaline acetate solution.

That any alkaloidal acetate should be exceptionally insoluble was considered improbable, and it seemed desirable that acetate of quinine should be further examined. Mr. Kidd obtained a sample from Howards, which he kindly handed to me. Howards say they have not much information about the salt, which is very little used and not quoted commercially. Its solubility in cold water is said to be slight, and in hot water it is said to be fairly freely soluble. I have been unable to find any published reference to the salt, and Howards can give none.

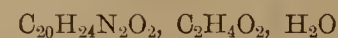
It is in light filiform silky white crystals, rather smaller and duller in appearance than those of quinine sulphate. The crystals are permanent in air at the ordinary temperature. The aqueous solution is almost neutral, or very faintly alkaline, and, like the sulphate, has a bluish fluorescence which is greatly intensified on adding excess of acetic acid, and is still very evident when the solution is largely diluted.

0.52 Gm. of the salt was dissolved in water, excess of ammonia added, and the alkaloid washed out with chloroform. 0.52 Gm. gave 0.389 Gm. of quinine = 74.8 per cent.

0.222 Gm. of the salt was dissolved in water and titrated with N/10 sodium hydroxide solution and phenolphthalein. 0.222 Gm. required 7.3 C.c. of the N/10 solution = 0.0435 Gm. acetic acid, or 19.6 per cent. The salt contained a slight trace of sulphate, and hence the foregoing result is lower than it would otherwise have been.

An attempt to determine water of crystallisation by drying at 100° C. failed, because at that temperature the whole of the acetic acid, as well as the water, is driven off. This is confirmed by Howards. The presence of water of crystallisation is easily proved by heating a little of the salt in a dry test tube, and the amount, indirectly determined by difference, is 5.6 per cent.

A salt having the formula—



requires—

	Calculated.	Found.
Quinine	74.37	74.8
Acetic acid	19.97	19.6
Water	5.66	5.6

The foregoing therefore represents the correct formula.

Excess of the salt was shaken up with water, allowed to stand for 24 hours, with frequent agitation, at 15° C., and filtered. It was found that 20.8 Gm. of water dissolved 0.4 Gm. of quinine acetate.

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh. April 18, 1900 (see page 430).

The solubility in cold water is therefore 1 in 52. It was freely soluble in hot water.

Excess of the salt was similarly shaken up with alcohol (90 per cent.), and it was found that 8.87 Gm. had dissolved 1.25 Gm. The solubility in alcohol (90 per cent.) is therefore nearly 1 in 7 (1 in 8.5 by vol.).

The salt dissolves in chloroform about 1 in 12 (1 in 8 by vol.), less readily in ordinary ether, about 1 in 130 (1 in 172 by vol.), and in absolute ether about 1 in 390 (1 in 542 by vol.). Howards say: "We are not aware of any salt of quinine which is soluble to any extent in ether." Quinine acetate seems to be an instance.

When excess of ammonium acetate solution is added to a saturated aqueous solution of quinine acetate, the liquid in a short time becomes solid, owing to formation of the bulky quinine hydrate. The same result happens even when considerable excess of acetic acid is present. This tends to substantiate the accuracy of Mr. Kidd's suggestion as to the cause of precipitation in such mixtures as Mindererus spirit and sulphate of quinine. There are many other dispensing occurrences in the elucidation of which a knowledge of the new dualism in chemistry would doubtless be useful.

I have to thank the Messrs. Howards for their prompt and courteous reply to my inquiry.

NOTE ON GELATINISED TINCTURE OF KINO.*

BY J. RUTHERFORD HILL.

Much has been written on the subject of the gelatinising of this tincture, but my experience is that many pharmacists have never seen a sample, and I thought members might be interested to see this one, which occurred under my own observation. In 1885 glycerin was introduced into the formula as a means of preventing gelatinisation. In 1886 Mr. Duncan and I did some work on the subject, which proved that glycerin did not prevent gelatinisation. This sample was made by the 1885 formula, and its present condition corroborates our work, because, as you see, it is completely gelatinised. It has been standing in this glass-stoppered bottle in an ordinary laboratory for more than three years, and though periodically handled during that time, it was only recently observed to have become solid. The curious thing is, that a sample of the same make, kept for the same period in a similar bottle in the same place, remained liquid, and with no sign of gelatinisation. It has been said that some samples of kino yield tinctures which gelatinise, and others do not, and inquiry has been directed to the discovery of some difference in the kinos used. This sample rather suggests that the cause of gelatinisation does not lie in any difference in the kino. On the same shelf with the tincture of kino bottles is a similar bottle containing collodion, which also, you will see, has become quite solid. It has, in fact, gelatinised. In this case there is not the slightest doubt that the collodion has become solid owing to slow evaporation of the ether and alcohol escaping between the glass stopper and the neck of the bottle.

May not a similar loss of menstruum account for the gelatinisation of the tincture of kino? An examination of the bottle will show that the stopper is not quite tight owing to a slight caking of the kino inside the neck. In the other bottle in which the tincture remained liquid, the stopper was tight.

May not the efficacy of glycerin as a preventive of gelatinisation be due to the fact that it lubricates the stopper and prevents evaporation, as it does, for instance, when added as a preservative to spiritus ætheris nitrosi?

A bottle of similar make containing flexible collodion stood beside the collodion, and it remains unchanged, because the castor oil lubricates the stopper and makes it tight.

If there is any foundation for my surmise, the true remedy for gelatinisation would be a slight reduction in the strength of the

tincture, say, $1\frac{1}{2}$ ounces, instead of 2 ounces, in each pint. Keeping in carefully-stoppered bottles would also be desirable. Since the foregoing was written I observe that Mr. E. M. Holmes asks for any samples of gelatinised tincture to be sent to him for investigation, and I shall have pleasure in forwarding this one. What I have said is merely a suggestion which may be worthy of further investigation.

COPPER IN NUX VOMICA.*

BY J. RUTHERFORD HILL.

Recently one of our members consulted me as to the following mixture:—

R	Tinct. Nucis Vom.	ʒii.
	Sp. Ammon. Aromat.....	ʒiv.
	Sp. Chloroformi	ʒii.
	Aq. Ment. Pip.	ad ʒvi.

This, by the way, is an incompatible mixture similar to that dealt with by me at a former meeting (*P. J.* [3], 23, 799), but that was not the question raised. When dispensed, the mixture has a slightly yellowish white milky appearance, which, on standing, slowly changes to a greenish blue colour, somewhat resembling commercial ferrous phosphate in tint. This change of colour in the hands of the patient raised suspicion, amounting to a complaint that the medicine was wrong, and although dispensed again with a similar result, the patient refused to be satisfied, and demanded the return of her money. The question was why did the mixture change colour?

A few experiments showed that the change of colour was due to a reaction between the tincture of nux vomica and the aromatic spirit of ammonia. The mixture was dispensed with eight samples of tincture of nux vomica from different makers, and in every instance the same change of colour took place, though in varying degree. Some of the tincture was evaporated to dryness and ignited and the residue tested for copper, of which a minute, almost doubtful trace was found to be present. One fluid ounce of liquid extract of nux vomica was evaporated to dryness, ignited, and tested for copper, which was easily proved to be present, and obtained on a polished steel wire in the metallic state. It was quite evident, therefore, that this copper in the nux vomica was the cause of the colour.

In a paper read at the Brighton meeting of the British Pharmaceutical Conference ('Year-Book,' 1884, p. 586), I drew attention to the presence of copper in several extracts, infusions, and decoctions, and its presence was attributed to the use of copper evaporating pans.

I obtained a sample of fluid extract, guaranteed never to have been in contact with copper during the process of manufacture. On dispensing the mixture with a tincture made from this, I found evidence of copper even more than in some of the other tinctures. I prepared myself some tincture direct from the powdered seeds, entirely in glass vessels, and this also gave the same evidence of copper when used to dispense the mixture. I was kindly supplied by the maker with some of the same ground seeds as those from which the guaranteed fluid extract had been made. 19.16 grammes of these powdered nux vomica seeds were incinerated, and yielded 0.613 gramme of ash, equal to 3.2 per cent. The ash was treated with hot sulphuric acid, water added, filtered into a Nessler tube, excess of ammonia added, and water up to 200 C.c. By comparison with a standard solution of ammonio-sulphate of copper the blue tint indicated that the 0.613 gramme of ash contained 0.045 gramme of copper, which is equal to 7.34 per cent. in the ash, or 0.24 per cent. in the powdered seeds. The ash also contained iron and manganese. Unfortunately I could obtain none of the whole seeds from which the ground sample was made, and the question as to whether the

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, April 18, 1900. (See page 430.)

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh, April 18, 1900. (See page 430.)

copper arose partly from contamination in the process of grinding could not be absolutely settled. I examined several commercial samples of powdered nux vomica and in every instance found copper present, though in less amount than in the sample above referred to. I also examined two commercial specimens of the whole seeds, one grey coloured and the other greenish, and in both instances found distinct evidence of copper, though in less amount than in the first sample. I fancied the amount was slightly greater in the green than the grey, but this is not definitely ascertained.

It was evident, therefore, that the copper in the fluid extract was not necessarily due either to the grinding or manufacturing process, though some might come from the latter source, as I found in several instances that copper pans were used. But the copper was evidently present in the seeds themselves. Whether this is what is known as "normal copper," naturally present in the seeds, could only be determined by a further research. 35.28 grammes of the guaranteed fluid extract were evaporated to dryness, and incinerated, yielding 0.054 gramme of ash, equal to 0.16 per cent. The ash was dissolved in hot sulphuric acid, water added, filtered into a Nessler tube, excess of ammonia added, and water up to 50 C.c. Compared with standard solution of ammonio-sulphate of copper the ash contained 0.002 gramme of copper, which is equal to 3.76 per cent. in the ash, or 0.006 per cent. in the fluid extract, or 0.001 per cent. in the tincture made from the fluid extract. The 6 oz. mixture would, therefore, contain rather less than one-thousandth part of a grain of copper. Many of the tinctures with even less than this gave distinct evidence of its presence. The quantity is so small as to be entirely harmless. Lehman ('Year-Book,' 1897, page 204) says the ordinary daily diet of an adult contains about 0.002 gramme of copper, and that only when the daily amount reaches 0.012 gramme is it harmful.

The presence of copper in plants is well-known. Bloxam says, "copper is not at all frequently found in animals or vegetables." This is not correct; Walchuer says it is as widely distributed in nature as iron, and occurs in all soils and ferruginous natural waters and ores. It occurs in seaweed, straw, hay, eggs, cheese, meat, and other food-stuffs, and in human blood. Gmelin says it occurs in many moulds, and in plants growing therein. Dieufalait says it occurs in all plants growing on primary rocks, or on soil derived from these rocks. More to the point is the statement of Pereira (Materia Medica, page 867), "Copper has been discovered in the ashes of most plants, as of stavesacre, rhatany, flax, nux vomica, and hemlock." Later on, however (page 1,483), he says, "Meissner detected copper in the ashes of nux vomica; but I have several times repeated his experiment without recognising this metal." Meissner, nevertheless, seems to have been correct.

The curious thing is that it should not apparently before now have revealed itself in an unexpected way at the dispensing counter. One is almost inclined to think the quantity present in this case is so distinct as to be more than the mere trace I had always considered to be the limit of normal copper in any plant. It could hardly have escaped so careful an observer as Pereira. So far as I know, the only descriptions of the collecting of the seeds are those given by Watt ('Dictionary of Economic Products of India,' vol. vi., part 3, p. 380): "The seeds are collected either together with the fruit, or from the ground, where they have been thrown by birds while eating the pulp. They are then washed to free them from fragments of pulp, dried, and exported to Europe"; and by Dymock ('Pharmacographia Indica,' vol. ii., p. 501): "The best seed is obtained by collecting the fruits, washing out the seeds and drying in the sun." Whether the seeds are ever treated with a salt of copper in preparing them for the market is a point I would like to know about, but it must remain for enquiry. This must be settled before it can be absolutely stated that the copper which gave rise to this enquiry is to be regarded as normal copper.

Incidentally it may be mentioned that no two of the eight samples of tincture of nux vomica are alike in colour. They range from a light brownish-green to a deep dark brown. One of the samples is distinctly darker in colour than the guaranteed fluid extract before referred to. The reason why the blue copper tint only slowly develops in the mixture is possibly the fact that the metal does not occur as an ordinary copper salt, but as a complex organic compound, probably of an albuminoid nature.

SOLUTION OF ARSENIC AND IRON WINE.*

BY ARCHIBALD CURRIE.

My attention was directed to the following prescription by dispensing it on two occasions with different results:—

R Liq. Arsenicalis	ʒii.
Syr. Simplicis	ʒii.
Vin. Ferri	ʒi.

On the first occasion the mixture was clear, while on the second occasion a green turbidity was observed, which settled out as a green precipitate. They were dispensed with two different wines. Fortunately I had some of the first wine left. The first I call No. 1, and the second No. 2. On testing No. 1 wine for iron I found merely a trace in the ferric condition. No. 2 contained 0.47 per cent. in the ferrous state, with a trace of ferric. No. 1 was faintly acid and No. 2 was neutral. No. 1 was a rich, full-bodied, rather sweet sherry. No. 2 was dry and faintly acidulous. Both wines conformed to the official B.P. tests.

My experiments entirely bear out the general opinion that the proportion of iron dissolved depends on the acidity of the wine. The state of the iron and acidity of No. 1 were, doubtless, due to age, it having been in stock over a year, whereas No. 2 was freshly prepared.

On examining the mixture made with No. 2, I found that practically all the arsenic had been precipitated as ferrous arsenite, the precipitate consisting of a mixture of this and ferrous hydrate. Whatever value ferrous arsenite may have as a therapeutic agent, the form it takes in No. 2 is certainly both inelegant and dangerous; and in No. 1 the prescriber might as well order arsenic and sherry wine.

If No. 2 is dispensed with the hydrochloric solution of arsenic the mixture remains clear, the ferrous arsenite being held in solution by the hydrochloric acid.

The inference is that the proportion of iron in iron wine is very indefinite, and if prescribed with arsenic the hydrochloric solution of the latter should always be ordered.

A much better preparation, and one which may be prescribed with either of the arsenic solutions, is the vinum ferri citratis.

GLYCERIN OF CODEINE.*

BY ARCHIBALD CURRIE.

I had occasion some time ago to make a glycerin of codeine containing 2 grains in each ounce. At first the codeine was dissolved in alcohol, but it was found that unless an excessive amount (ʒii.) was used, the codeine crystallised out on being added to the glycerin. Codeine combining readily to form soluble salts with most acids, the solution was made as follows, using heat to hasten solution:—

R Codeine	gr.ii.
Acid. hydrochlor. dil.	ʒii.
Aquæ	ʒxxx.
Glycerin	ad ʒi.

I was surprised to find that this solution developed a yellowish tinge and a most disgusting odour. The same result happened, only more slowly, when the glycerin was added cold. Dilute sulphuric and phosphoric acids gave a solution which kept clear and

* Read at an Evening Meeting of the Pharmaceutical Society in Edinburgh April 18, 1900. (See page 430.)

odourless. Codcine alone heated with water and hydrochloric acid gave no odour. Glycerin and hydrochloric acid developed the same disgusting odour and yellow tinge. Price's glycerin gave the same reaction in a less degree. Both glycerins conformed to the official B.P. tests.

COMMERCIAL GLYCEROPHOSPHATES.*

BY J. H. HOSEASON.

The examination of a number of samples of glycerophosphates collected during the past few years yielded the following results:—

No.	Salt Examined.	Percentage of Pure Salt.†	Remarks.
	p. c.		
1	Sodium glycerophos. 75 paste	74.8	Colour, pale straw
2	Do. do. 75 liquid.....	72.2	Do. dark brown
3	Do. do. 75 paste.....	75.5	Do. do.
4	Do. do. 50 liquid.....	48.9	Do. do.
5	Potassium do. 75 thick liquid..	74.9	Do. pale straw
6	Do. do. 50 liquid.....	52.3	Do. dark, contains 4 per cent. K ₂ HPO ₄
7	Calcium do. white powder ..	99.2	H ₂ O 8.2 per cent.
8	Do. do. do.	98.1	H ₂ O 9.34 per cent.
9	Do. do. yellowish powder	97.8	H ₂ O 9.72 per cent.
10	Iron do. scales	92.6	79.8 Fe (ous)
11	Do. do. yellow powder..	91.4	50.2 Fe (ous)
12	Quinine do. grey crys.mas ..	93.3	Excessive moisture
13	Do. do. do.	92.6	Do. do.

† Calculated from H₃PO₄ content, excepting 12 and 13, from alkaloid.

Samples of the potassium and sodium salts by different makers had varying physical characters, some being in the form of a thick syrup, others existing as a stiff paste, manufacturers evidently working to a percentage of phosphoric acid. A possible explanation of this is the fact that glycerin and phosphoric acid may combine in various ratios giving rise to different glycerophosphoric acids. A great improvement has been effected recently in the manufacture of these salts, the charring usually occurring during the combination of glycerin and phosphoric acid being avoided to a great extent, so that the salts are less highly charged with colouring matter than formerly.

EXTRACTS FROM CONSULAR REPORTS.

BRITISH SOAP MANUFACTURERS formerly supplied Java with the cheaper qualities of soap on a large scale, but the trade is now said to have been almost entirely supplanted by the product of local industry, which turns out an article suitable to the native requirements at a figure considerably below that required by British manufacturers.

THE TOTAL EXPORTS OF CINCHONA BARK from Java during the years 1893-1898 amounted to 54,827,400 Amsterdam lbs., the yearly exports being as follows:—

Year.	Quantity.	Average Price per Unit.
	Amsterdam Lbs.	Cents.
1893	7,342,000	4.28
1894	8,917,700	3.95
1895	8,827,700	2.79
1896	10,079,000	2.67
1897	8,511,000	4.70
1898	11,150,000	4.78

The large quantity exported in 1898 was attributed to a number of the cinchona estates having taken advantage of the rise in home prices to harvest their bark on an unprecedentedly large scale; it should also be remembered that 500,000 ounces of quinine sulphate, manufactured in Java in 1898, represented in bark nearly another 350,000 Amst. lbs. According to Acting-Consul A. F. McLachlan, such large exports of bark are not likely to prove permanent.

*Abstract of a paper read before the Manchester Pharmaceutical Association March 14, 1900.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Sale of Photographic Chemicals.

I note that a correspondent of the *P.J.* takes exception, in last week's issue, to the retail prices quoted for chemicals used by photographers, since he finds that a number of them are below London wholesale list prices. That is not at all surprising, as London wholesale list prices are usually arranged with a view to a discount of five per cent. or more being allowed to the retailer, and carriage being paid on all orders above a certain value. If "Photographic Chemist" wishes to do a trade in photographic chemicals, on the best possible lines, he should write to such a firm as Messrs. Harrington Brothers for their wholesale price list of chemicals for photography and he will probably find, on referring to it, that the prices he alludes to in his letter are not so extravagantly low as he seems to imagine. It is necessary to recognise that photographers, as a class—both amateurs and professionals—are accustomed to purchase the chemicals they require on the best terms available, and that, if one desires to secure a share of the photographic business, it must be by selling goods at prices which may sometimes appear of a cut-rate character, though they leave a fair margin of profit if sufficient business be done, and if the photographic "side-line" be developed on proper lines, so that the retailer does not depend upon the sale of chemicals alone.

Of Matters Microscopical.

There is never any end to improvements in microscopes and accessories, but it may be doubted whether any time has been so prolific as the present with regard to the introduction of new instruments for use in the examination of the infinitely little. I was particularly struck with that fact on looking through the 'Illustrated Annual of Microscopy' for the current year—a volume which is full of useful information on the subject of which it treats. In the section devoted to new instruments and apparatus are particulars of some of the most practical microscopes that have yet been produced—microscopes, that is to say, which combine the chief advantages of the large and most expensive instruments with the undoubted convenience of the smaller students' stands. Watson and Sons' new "Royal" microscope is an excellent type of that class of instrument. It takes eye-pieces of the English size, has a fine adjustment to the sub-stage as well as to the body, a rackwork draw-tube which permits of the use of objectives adjusted for various tube-lengths, and a capital mechanical stage with stationary milled heads, rotating top plate, etc. Other instruments on similar lines are Baker's "D P H" microscope, No. 1, and Swift's "New" microscope, which are equally suitable for good, all-round work, and fit for use in the most delicate investigations. Then, a new series of instruments is about to be introduced by Messrs. Ross, Limited. Messrs. Watson and Sons, I notice, have formed a circulating series of microscopical slides, two hundred and forty slides being sent on loan for an annual subscription of one guinea. The details differ somewhat from those of Baker's scheme, but an excellent guinea's worth is offered in either case. Space will not permit me to deal at length with other novelties that have struck me, but I must just direct attention to Watson's new "Holoscopic" eye-pieces and objectives, and to their oil immersion and dry condensers of high aperture. All those novelties are offered at prices which are almost fabulously low, compared with what microscopists have been accustomed to pay for many years past, and the only trouble is to decide which among so many admirable accessories will best serve one's purpose.

New R.M.S. Universal Sizes.

The incalculable benefit that has resulted from the general adoption of the Royal Microscopical Society's standard screw for objectives has, at last, encouraged the Council of that body to go

beyond what was done in 1882 in the matter of recommending standard sizes for the diameters of eye-pieces. It has now been decided that the following four sizes should be adopted as standards:—

R.M.S.	No. 1	0.9173 inch =	23.300 Mm.
„	No. 2	1.04 „ =	26.416 „
„	No. 3	1.27 „ =	32.258 „
„	No. 4	1.41 „ =	35.814 „

No. 1 is the Continental gauge, No. 2 is the mean of the sizes used by English makers of students' microscopes, No. 3 is the mean of the sizes used for medium-sized instruments, and No. 4 is the maximum size for long-tube microscopes. I should advise pharmacists to specify No. 2 or No. 3 size when ordering new microscopes, and to decline to purchase any instrument with a draw-tube of lesser or intermediate diameter. The present senseless variation in sizes is frequently the cause of much annoyance and needless expense, and I hope there will be such unanimity amongst users of the microscope as will compel manufacturers to co-operate with the Council of the Royal Microscopical Society in this matter. A standard size—1.527 inch = 38.786 Mm.—has also been adopted for the inside diameter of the substage fitting, and in that respect, as well as with regard to standard sizes for objectives and eye-pieces, it should not be long before there is general agreement—in England, on the Continent, and in America.

The Council Election, 1900.

My information about the Glyn-Jones caucus meeting has been fully confirmed, but, thus far, not supplemented by anything which has appeared on the subject in the trade journals. One point upon which it would be interesting to have further information is whether the four selected candidates approve of the manner in which their claims are to be brought before the electors. In particular, I, in common with many other pharmacists, would like to know what is the relation of Messrs. Gibbons and Taylor to the caucus; it may almost be taken for granted that Messrs. Cooper and Wootton have acquiesced in what is being done on their behalf. Again, are the voters to be asked to plump for the curiously assorted four, or are three of the old members of Council to be added to the selected list, and, if so, which three? Messrs. Hills, Storrar, and Symes, are, in my opinion, more likely to commend themselves to the caucus than Messrs. Bateson, Cross, Grose, or Warren. I find, however, that there is a strong determination on the part of the seven old members to stick together and share the responsibility of whatever portion of the Council's proceedings may not be approved by any section of the electors. In those circumstances, therefore, it will probably be in vain that Mr. Glyn-Jones and his associates may endeavour to sow dissension amongst the supporters of the policy of the Council as at present constituted.

Unsatisfactory Compressed Tablets.

No better example is afforded of the tendency to work an idea to death than in the case of compressed tablets—a form of presenting medicaments, etc., which is nowadays resorted to indiscriminately and without sufficient regard to its fitness. One could almost imagine that manufacturers of tablets would have the world believe that there is a special virtue in the form in which they prepare drugs and chemicals, over and above that of the substances compressed, but though that may occasionally be true, it is more frequently the reverse of fact. I have been particularly struck with the unsatisfactory nature of different makes of so-called effervescent tablets which have passed through my hands of late. Almost without exception, they are utterly useless for the preparation of effervescent draughts, as disintegration proceeds so slowly that nearly all the gas has been dissipated before solution is complete. On dropping the tablets into water, effervescence proceeds very slowly from the surface only, and at any given stage in the process of disintegration the solution is flat and insipid. The only thing to be done is to crush the tablets before adding them to the water, and they are so unnecessarily hard that it requires considerable force to reduce

them even to coarse powder. I am afraid the manufacturers think too much of producing well-finished tablets and too little about making them good. There may, possibly, be some properly made effervescent compressed tablets on the market, but so far I have not handled them, and I am rather inclined to doubt the existence of such articles.

The Conference Programme.

There is, it seems to me, one great fault in the proposed arrangements for the Conference week in July next, inasmuch as they have not been arranged with a view to showing what London is capable of. The reception on Monday night, concert on Wednesday night, and river excursion on Thursday, are items which might have occurred to anyone, even if called upon to make the arrangements at a week's notice, but no genius has been displayed in suggesting such an ordinary, matter-of-fact programme for a meeting in the greatest city of the world, during the closing year of a most famous century. We ought to have had something quite out of the ordinary this year, beginning with a reception at the Mansion House by the Lord Mayor of London. The garden party at the Botanic Gardens on the Tuesday afternoon is well enough in its way, if the Executive Committee proposes to engage the Gardens for the purpose, but I sincerely hope it is not again intended to allow any individual to entertain the members of the B.P.C. on that occasion. For the following day the stereotyped concert might well have been dispensed with for once; a dinner at the Hôtel Métropole, followed by a general move to some theatre previously engaged, would have been much more to the point. Leading actors, literary men, scientists, etc., might have been invited to the dinner and pharmacy permitted for once to feel itself the power in the world it really is. But no, we must adhere to precedent and save the wear and tear of brain tissue on the part of those responsible for making the arrangements, by agreeing to the usual tea-and-muffin sort of programme, on a somewhat more elaborate scale than usual, five hundred pounds being spent by the local committee instead of the modest fifty expended in smaller places. It is pitiable to reflect, however, what a golden opportunity is being missed by those whose united efforts do not enable them to rise above the idea of spending the whole day of a large company assembled in London in going out of town by an excursion train, then drifting down the river in barges, and finally returning again to the world's centre by rail. The whole affair is ridiculous in the extreme, and more likely to make angels laugh than weep, though the latter ought to be the correct thing to do.

Closing Time at No. 17.

The brisk correspondence on the subject of the time at which the Pharmaceutical Society's Library and Museum close has drawn a veteran into the field in defence of the existing position, but I fail to see that Mr. Ince has proved his case. He knows well enough that masters will not set their assistants free as suggested, and he ought also to know that freedom from duty for "an hour or so" will not suffice in cases where serious literary research is involved. Several hours' quiet and continuous work are not uncommonly needed for the purpose, and it is hardly fair to expect masters to spare their assistants for so long a time during the day. Is it quite fair, too, for one who has enjoyed the advantage of late hours in the Library, as Mr. Ince has done, to deny a similar privilege to others, now that he is resting in his well-earned retirement? The expenditure on illuminating and heating arrangements is altogether too trivial a matter for consideration, and I trust that will not be permitted to affect the matter. It is a serious question for students, young and old, that admission to the Library and Museum should be inconveniently restricted, and not one to be answered in an off-hand manner. As regards the attendance of the Librarian and Curator, Mr. Ince will probably find both absent from their posts during the whole of the present week and on many other occasions, yet the Library and Museum are open and can be used for reference purposes.

LETTERS TO THE EDITOR.

A Pharmaceutical Caucus.

In the comments made by "An Ordinary Pharmacist," which appear in your issue of April 14, upon the formation of a pharmaceutical caucus, there is abundant matter for the serious consideration of every member of the Pharmaceutical Society. If future elections are to be preceded by meetings of the extraordinary character reported, I have no hesitation in saying that such action would rapidly result in the destruction of independence. Future candidates would be at the mercy of a self-constituted secret committee of selection: they would, in all likelihood, be expected to represent its policy, and in the majority of cases become delegates rather than independent Councillors.

The candidature of a much larger number of gentlemen than is usually the case should be regarded as extremely satisfactory evidence of greater interest in the work of the Society's Council: for whether it amounts to an appreciation or a condemnation of its policy, the net result must be in the direction of renewed vigour. The fighting instinct is strong in the breast of every British subject—in this case even the pharmaceutical Councillor affords no exception to the general rule—but no candidate can be proud of an election, which, from the first, appears to be an almost foregone conclusion. Another instinct, equally British, is for a fair field and no favour; but in the circumstances which surround the creation of this new caucus, I consider that all candidates, except the four who have accepted its patronage, have cause for complaint, and more particularly my seven colleagues who are retiring from the Council and—submitting themselves for re-election—are denied the fair field. They may not thank me for endeavouring to champion their cause, for every one of them is well able to take care of himself; but I am compelled, through the force of my conviction, to protest with all my strength against the elements of disintegration which would surely follow upon the undercurrent of this latest pharmaceutical caucus if such proceedings should become a precedent for future interference.

I admit that it is both right and judicious for members of our Society, whether as associations, or in meetings convened for the purpose, to gather together and discuss the claims of rival candidates;—whether singly or in group—and to recommend them to their brother electors as desirable representatives, pushing the candidature by every influence they can bring to bear. That has been done before, on many occasions, and probably will be again. In concerted action of this kind, however, it should be borne in mind that no individual can dissociate himself from the office he holds. Indeed, his position amongst his fellow members marks the sphere of his influence and, from my point of view, it is a deplorable fact that a member of Council, whose own seat therein is not imperilled for two years, has expressed his desire to oust at least four of his colleagues from their position and has initiated a movement with the express object of so doing. It is for the members of the Society at large to determine whether the action taken by Mr. Glyn-Jones is conducive to the interests of the Pharmaceutical Society, and to assess the importance of its example in the constitution of future councils; for in my opinion such a procedure is likely to render the honourable position of Councillor intolerable, and to deter many otherwise suitable candidates from accepting nomination. I write in no unfriendly feeling towards my colleague Mr. Glyn-Jones, but since he has boldly declared himself on one side, I am no longer inclined to keep silence on the other. In the interest of all the gentlemen whose candidature is subjected to an attack of a nature altogether unprecedented, I venture to reiterate the supplication of "An Ordinary Pharmacist," viz.:—That voters "would do well to ask why they should act on the recommendation of the Glyn-Jones caucus?" and that they should consider

"in what respect the new men are better than those they may reasonably expect to displace?"

Kilburn, N.W., April 16, 1900.

CHARLES B. ALLEN.

Candidates for the Council.

It would appear from the unusual number of candidates for the Council this year that considerably more interest is taken in the event than on other occasions. While looking over the respective views and claims of the candidates one cannot but reflect upon surrounding circumstances and observe the very unsatisfactory muddle consequent upon the various irreconcilable opinions so tenaciously held. There is one extreme section that will listen to no proposal which will not give us the Pharmacy Act of 1868—as interpreted by the adherents of that section—and appear to ignore the House of Lord's interpretation. Then there are the supporters of another extreme section, the pessimistic party, who, broadly speaking, would accept the Lord Chancellor's solution, excepting so far as the use of chemists' titles is concerned.

I take the liberty of reminding the former section that during the last twenty years pharmacy companies have not been breaking the law, and that fact is a serious obstacle to the accomplishment of our wishes. I do not say that length of tenure is an argument for continuing that which is contrary to public policy; but I do say that some consideration will have to be shown because of it. To the latter section I venture to offer my opinion that, irrespective of any merit their scheme may have, it cannot be carried to our satisfaction, because it has practically no supporters, except in Scotland and London. In any case, we can get that result by simply doing nothing, or by maintaining present disunity. There is also a third party who think a solution is to be found in making a qualified directorate compulsory. I have much sympathy with that section, because they see that while the demands of the uncompromising party are unattainable, the qualified manager supporters concede too much, and they have endeavoured to find a middle course which would be acceptable.

There is reason for disquietude in the fact that prominent men who advocate one view or another, will do their level best to bring the Council to adopt the scheme which is the particular pet of the individual. There is strong indication of this being the case in some instances. If all approach the subject in this frame of mind we must be content to remain helpless and incapable. It is nothing to us that some men should be able to say in the future, "I told you so; I was the true prophet." What we want is that men of ability and knowledge should be sent to the Council, who would contribute intelligent assistance in the effort to solve a problem and be broad-minded enough to appreciate the value of contra-arguments. It has been correctly stated that the diverse opinions in the Council reflect the opinions of the constituents; but I have good reason for the belief that if the Council would adopt a definite policy, not unreasonable on the one hand, nor too submissive on the other, the support of practically the whole of the pharmaceutical community would be forthcoming.

It must be admitted that neither of the three proposals before us meets the case, for the following reasons:—

(1) The objects of the no-compromise section are now unattainable, however greatly to be desired.

(2) The qualified manager scheme concedes far too much and secures too little in return.

(3) The qualified director plan would be prohibitive if practicable, otherwise it would be useless; therefore must go with (1). Further, in the event of failure, with this policy we should have made admissions on points of principle which would be used against us.

With the rejection of these suggested policies, are our resources exhausted? I think not. The Council has decided upon the only course open in the circumstances, that is, to oppose Clause 2, but let the opposition be successful so far, the first step only will have

been gained, the problem will still remain for solution. I would welcome the return of men to the Council who would enter upon the consideration of the subject with open minds, realising their responsibility, men who would feel that the solution of a riddle must be found, and that they have got to find it. Circumstances change, and opinions must change or be modified accordingly. Success, or anything near it, will never be reached if the administration of the affairs of the Society is in the hands of men who are unable to divest themselves of bias or prejudice and will have nothing more nor less than the adoption of the one particular scheme they favour.

I am not impressed with the selection of Mr. Glyn-Jones's meeting; the information we have upon which that selection has been made scarcely justifies it; probably the recommended candidates will further enlighten us as to their views.

Liverpool, April 16, 1900.

JOHN SMITH.

"Constructive Criticism."

May I ask your Annotator to introduce me to some pharmacist who assumes either "mistakenly" or "innocently that the Pharmacy Act of 1868 is operative"? I submit that a statement such as the one on page 404, second paragraph, is calculated to confuse the electorate; I am further justified in thinking it of first importance that a clear issue ought to be placed before the members of the Society, in order that all doubt as to their opinions may be avoided. I would point out also, that it is repeatedly asserted that the division of opinion amongst members of the Council merely reflects the views of the electorate. This I have persistently denied, and claimed that practical unanimity existed, that the apparent disunity is not real, and is caused by the simple problem being confused. In support of this you say, *e.g.*, in an editorial, page 611, December 23, 1899, "The opinions of the registered chemists of Great Britain, as voiced by their representative organisations, are—generally speaking—that none but individuals registered under the Pharmacy Acts should be permitted to assume or use the titles protected by those Acts, or to retail, dispense, or compound poisons." You continue: "The vast majority of registered chemists are in favour of an attempt being made to enforce those views by legislative action." This is admittedly a fair deduction from the evidence obtained by the Federation as to the state of public opinion existing; for what did they find? The "vicarious" qualification, *i.e.*, the qualified managership proposition, utterly discredited, and ought never again to have been heard of. Next, the character and amount of support which the "qualified directorate" solution received only gave evidence that some confusion existed in chemists' minds which, if dispelled, would leave a practically unanimous opinion in favour of "No compromise." On these grounds, I am justified in saying that due importance has not been attached to the policy of active aggressiveness to "make operative" the Pharmacy Act of 1868—the policy supported by a large majority of opinion. Members of the Council ought not to be degraded to the position of delegates; but due regard has not, in my opinion, been attached to such an important expression of opinion.

Objection to the statements made in open Council that only "destructive criticism" is offered of the action or inaction of the Council. It has often also been stated and inferred in the pages of the official Journal that critics were presumably incapable of "constructive criticism." I think such statements are a little less than just! Personally, I have said "that the only practical policy was one that would rigidly restrict unqualified persons from any interest in the qualifications and privileges earned by personal endeavour and sacrifice." I have advocated "claiming all the rights intended to be granted in 1868," on the ground that it was merely justice, that what was the minimum then cannot be too much after thirty-two years' compulsory examination. I have said

repeatedly that the action of the Lord Chancellor gave us a straight fight, and made the issue definite. I have advocated objection to Clause 2 and claiming inclusion—at the same time—in Clause 3. I have insisted that this issue should be forced, that the unanimous support of the medical and legal professions can (it has been demonstrated) be obtained. I have said, and it is proved, that the favourable consideration of members of Parliament and the public can be obtained for this policy. I have gone further, I have said if this policy merely made the Government drop the two clauses (which I refuse to take for granted), the ground will have been prepared for an agitation in favour of a short Amending Act, in which I would ask nothing but what would make the Act of 1868 real, and carry out the evident intention of the Legislature. The Council would confine itself to this because there can be no argument as to the justice of the claim, but especially because a principle is involved, which, if established, will put pharmacy on a footing from which progression and elevation are inevitable. In short, I stand or fall on the question of personal qualification and responsibility—which is the issue. In view of the statements in open Council and repeated suggestions elsewhere to the same effect, I am entitled to show that "constructive criticism" has been offered.

Blackburn, April 16, 1900.

R. LORD GIFFORD.

A Candidate's Views.

Being a candidate for the forthcoming Council Election, I should esteem it a favour to be allowed to express my views in the Journal. Briefly stated, they are as follow:—I consider that this is an opportune moment for securing legislation relating to company pharmacy. Something more should be done than merely to oppose Clause 2 of the Companies Bill, for if it is deleted our position remains unaltered. Now that the question is before Parliament, we should strain every nerve to secure titles for the qualified individual. I am in favour of the division of the Minor Examination, provided no qualification is given until the whole of the examination is passed. I am strongly of opinion that the Research Laboratory has not been used to the best advantage, and I should earnestly support any endeavour to secure that the investigations carried out there may be of more distinct pharmaceutical interest than has formerly been the case.

The question of reciprocity with the colonies in relation to the qualifying examinations has recently received prominence; whilst aware of the difficulties in enforcing a definite standard for all parts of the Empire, I am convinced our own qualified men would benefit from reciprocity. I should therefore be prepared to seize this, the most favourable of opportunities, when the mother country and her colonies are so closely drawn together, to obtain powers to reciprocate in any or all cases where it may ultimately be found desirable. Whilst anxious to secure fresh legislation, I believe much can still be done by more thoroughly enforcing all the provisions of the present Pharmacy Act—a faulty system of registration makes the Act, in many cases, a dead letter—and I therefore urge the immediate consideration of this registration question.

That I am specially in sympathy with attempts to improve our position as traders is, I hope, shown by the part it has been my privilege to take in connection with the P.A.T.A. (which is now in its fifth year). I have been a member of that Committee since its inception, and have the honour to be the first Chairman of the "Chemists' Defence Association." From my connection with these organisations I have learnt much as to the particular needs and difficulties of chemists in businesses of the various kinds met with throughout the United Kingdom, and I hope that the experience I have so gained will, if I am elected, prove useful to me as a member of the Pharmaceutical Council. As a London candidate, I should be readily available for any Committee work.

South Kensington, S.W., April 18, 1900. ALBERT COOPER.

The Council Election.

Many expressions of opinion have appeared in the *P.J.* as to whether it would be advisable to elect some new members to the Council or be content with the old ones. In my humble opinion, as a small retail chemist, some change is absolutely necessary. We are told by Mr. Cross in last week's Journal that the Society has done an immense amount of good for chemists. That statement, if it refers to years ago may be correct, but during the last ten years unqualified companies have been launching out in all directions, and the Society has quietly looked on without trying to make a really stern effort to stop them. That the majority of chemists would not join the Society has been a standing complaint of late. How can it be expected that a man in a small way of business can keep on paying his guinea and see large unqualified companies opening next door, without any attempt being made to stop them. Competition we must expect, but let that be confined to those legally allowed to compete. The very first item of the Council's work should be to ask Parliament to stop unqualified companies dispensing and selling poisons, and considering the number of members of Parliament who agree we have a great grievance, there should be a reasonable chance of getting what we want. The majority of the present Council have had ample chances of dealing with the company question and have not been particularly successful, so why should not others have a try?

April 16, 1900.

WANDSWORTH (28/15).

Some Suggested Reforms.

To a great extent the public estimate a man or a body of men at their own valuation. This largely explains why one man should receive better remuneration than another—the man who is content to occupy the back street position, receives back street position—and pay. We hear a great deal about the "status" of the pharmacist, and some of our members affect contempt for rank or position—they say "we don't want status, we want better pay," altogether forgetting that the better pay always follows better status. Mercenary considerations ought not, of course, to be the sole object in carrying on a business or profession, but it should nevertheless be taken for granted that the man who does his business well and thoroughly should as a matter of course receive a proper decent stipend—and as a rule does. Granted all this, how to do it? Suggestions without end have been made, many of them very good, some adopted, and some to be adopted. There are, however, one or two little things that might be done without any difficulty, which, I think, would add immediately and immensely to the dignity of our craft, and that is the adoption of a badge, in the shape of cap and gown, distinctive of pharmacists. It has been pointed out over and over again that the pharmaceutical diploma is on the same lines as the medical. In my opinion, it should be equal in dignity—some of the most eminent scientific men of this century in Europe have belonged to our craft—and yet in public ceremonial while an M.D. wears his hood, or even the licentiate of any of the various schools of music, or such Universities as Durham, has his gown and mortar board, the pharmacist, whose examination, has entailed a much greater acquisition of scientific knowledge, must perforce be content with the hideous silk hat and frock coat of civilised society. Why, even our Aldermen wear gowns—very ugly ones, too, as a rule. Another thing needing reform is the certificate of membership; this is ugly, inartistic, and bald to the last degree. If our Society cannot afford to go to Walter Crane or some specialist to get a decent design, I feel sure if a subscription list was opened pharmacists would quickly subscribe sufficient to pay the bill. I would give my guinea with pleasure. Out of a few school and other certificates I have, it is a fact that the Pharmaceutical Society's is the ugliest. It is a relic of early Victorian pseudo-art, when no designer aspired to anything better than ornamental pen-and-ink flourishes, or orna-

ment of the cast-iron fender variety. Then too, members of the Pharmaceutical Society ought to be able to call themselves pharmacists as well as "chemists and druggists." The word chemist is misused—we are chemists certainly in virtue of our scientific training, but we are also in addition pharmacists, *i.e.*, vendors of drugs? Of course, the title Ph.C.—the best and most dignified we have, by-the-bye—should be reserved for Major men.

Blackpool, April 16, 1900.

CHAS. H. TURVER.

The Practice of Pharmacy.

The following words occur in the preface to Bell and Redwood's 'Historical Sketch of the Progress of Pharmacy in Great Britain, 1880':—"An account of the early but unsuccessful attempts made to separate pharmacy from the practice of medicine in this country, and of the efforts which at a later period were successfully made to found an institution with the object of raising up a race of qualified men devoted to the practice of pharmacy as a distinct occupation." Thinking of the ceaseless chatter going on relating to what is called pharmaceutical politics, one is tempted to ask where is this race of men devoted to pharmacy as a distinct occupation? If such can scarcely be found, no wonder that many a one is soon shaken in his allegiance by the blatant talker who, being himself a lineal descendant of the enemy, makes it his business to persuade others that it is all a hoax, and that we have to begin afresh. The talkers about pharmacy are everywhere; but where are the workers? The workers who, after a very few years of service, come to realise what an inestimable treasure personal reputation is, and who go to work with greater energy than ever, with "the paramount interests of the public" in view as their chief concern?

I am writing as a "chemist and druggist," and let me say I have never felt any occasion of being ashamed of that good old John Bull title. It often, however, has occurred to me somewhat of a puzzle that the very Act of 1868 which gave that title its first legislative recognition seems to have ushered in its final doom. The very men who were the first to be enfranchised by the adoption of the term as a qualifying title were the first to discard it, and, for the purposes of business, call themselves simply "chemists," or "dispensing," or "consulting," or "store," or "cash" chemists—anything except the designation that they had themselves fought against and spoilt the Pharmacy Act for the purpose of gaining. And yet another puzzle; that men, with anything like an upper storey to their intellect, should, having fought for and gained a position of advantage fortified by Act of Parliament, and guarded for them by a quasi-government department of pharmacy, should break through the fence for the sake of meddling in everybody else's business, and let in the enemy to steal away their own fatness through the breaches they themselves had made. And still the most wonderful marvel of all is, that with the C. and D. outsider, and with those more active insiders who pretend to so keenly sympathise with him, the order of nature seems reversed, and it all presents a case of *Experientia non docet*.

We once had a United Society of Chemists and Druggists to contend with; that was an open enemy, and had it not been for very weak-kneed elements on the Council at that time, that led to a sort of peace-at-any-price policy, it would not have wrought the mischief that it did. Since then boredom has divided itself to worry us in detail as much as possible, and combine on critical occasions to gain a stronger foothold. We have in reality an organisation to bind on to the pharmacist still tighter the manacles of quackery and so prevent the consummation so earnestly wished and worked for so long—the proper co-relation of medicine and pharmacy as sister pursuits—styling itself the P.A.T.A. We have again what has called itself the Federation of Local Pharmaceutical Associations, a big bauble that arrogates to itself an influence to which it has no just or moral claim whatever, and we have, thirdly, what is called a Chemists' Defence Scheme, well calculated to catch

the silly fish who know that, being astray from their proper preserve, and wishful to stray further, are ready to venture their last mite, it may be, on the hope of being helped out by the lawyers in case of a capture.

These three nasty groups, set agoing by busybodies in other men's matters, are now combined to revolutionise the Council itself, a threat that has more than once been indulged in, but which seemed too monstrous to be seriously entertained. Surely the situation has become critical enough at last to call forth from their retirement the more quiet workers of the members of the Society who send, with gladness, their guinea a year, with what they can well afford in addition to the B.F., but who hitherto have refrained from helping on the work of the Society by further public effort, and who seem so satisfied with the conduct of affairs, and have such confidence in the stability of our cause as to forget or neglect to record their vote. Do let me remind such that this last assistance may become worth more than any number of guineas to the actual progress of pharmacy, for the question to be decided at this next Council Election is of no mean order; it is simply whether pharmacy proper is to be still nurtured and protected as the essential business of the chemist and druggist, or whether it is to become stifled and crippled in its natural development still more by the agglomeration of the meanest and basest kinds of promiscuous trade. Whether the chemist and druggist is to follow self-appointed leaders because of the din and the mimicry so much in fashion, or whether the good work of the Society is to be consolidated and extended on the lines that have already secured for it a place and a power in the Legislature.

April 10, 1900.

SKYLIGHT (27/47).

Glaucium Luteum.

As several correspondents have contributed their experience of this beautiful and interesting plant, and there still remains something to be said on the subject, perhaps another witness may be allowed to give evidence. Your correspondent, Mr. W. J. Brown, takes exception to the authorities, "Bentham, Hooker, and Johns as somewhat misleading," as they all state that the habitat is a "sandy seashore," and although he admits that it prefers the "sandy erosions (?) from the lower limestone," yet says that "the soil is not in the least sandy at Dover, Folkestone, or St. Margaret's Bay." Now, as a native of Dover, who, from the age of five years, has been familiar with the plant, I must beg to differ from Mr. Brown, who has himself been probably "misled."

I state as a fact that the horned poppy grows in sand, and that although a shallow stratum of shingle overlies it, *the root is in sand*. Withering, in 1818, records yellow-horned poppy, sea celandine, *Glaucium luteum* (Gærtner), *Chelidonium luteum* (With.), sandy seashores: Norfolk and Suffolk coast, Dunwich and Cartmel sands, and Roosebeck, Lancashire (Mr. Woodward), Northshore, Liverpool, Isle of Wight, Walney Isle, Teignmouth, Queen's Ferry, near Edinburgh, on the ballast hills of Tyne and Wear. Babington agrees with every other authority regarding habitat. Very abundant on the Kentish shores, particularly about Dover, etc.

I found it growing very freely at Portland, and all along the sandy reach towards Rodwell. Withering records that "although a high wind does not affect the petals, yet it is difficult to pluck the flowers without some of them falling off; perhaps this fact may be ascribed to a rapid loss of vitality in consequence of the copious exudation of milky juice.

Withering mentions two other species of *Glaucium*—*G. phœnicium* and *G. viola'ceum*, having opal petals veined with an elliptical purplish spot at the base of each.

Yet another species is recorded, both by Withering and Babington, *G. phœnicium*, by the former author—the latter styles it *G. phœnic'ceum*, red-horned poppy—pet. scarlet, with a black spot at the base; said to have been found in Norfolk. Withering states it was discovered by Mr. Stillingfleet in Norfolk, but Dr. Smith observes, "it has never been found by any person since." It seems

remarkable that so able a botanist as Babington should consider the plant entitled to a place in "British Botany" on so slender a credit. Nevertheless, a legend survives that such a plant does exist, and that it is to be found at Portland. I have paid three visits to that remarkable little peninsula, made diligent search and inquiry for the mysterious beauty, but without success. Possibly, if not probably, some of our enthusiastic young botanists may yet be successful.

Kew, April 16, 1900.

R. GOODWIN MUMBRAY.

A Botanical Freak.

The following particulars of an abnormal development in the inflorescence of *Primula vulgaris* may not be without interest to some readers of the Journal. The calyx was eight-toothed, and contained two distinct corollas, one considerably smaller than the other and of an infundibuliform shape without stamens, and attached to the side of the calyx. The other corolla was of the usual hypocrateriform shape, on which were inserted seven perfect stamens, two of these being united by their anthers; also, in addition to these, one stamen in a very rudimentary condition, and one filament without the anther lobes. Two pistils of bad formation were found, and the structure of the ovary was very irregular, but ovules were present. Since writing the above, I have also found a flower with the corolla four-cleft, the other petal having been transformed into a structure resembling a stamen and pistil combined, and arising from the ovary.

Bognor, April 16, 1900.

C. T. J. (28/1).

Mr. Boot Explains.

As you have introduced my name into a leaderette which appears on page 375 of your issue of April 7, I think you ought to allow me the privilege of commenting upon the statements therein made.

Your Journal states that the firms he (Mr. Boot) mentions—viz., Symes and Co., Allen and Hanburys, Southall Bros., and Barclay, etc.—are owned by and conducted by persons legally qualified under the Pharmacy Act to carry on the business, and to use the title of chemist and druggist in connection with that business.

On turning to your issue of July 25, 1898, page 604e, a notice of the formation of Messrs. Southall Bros. and Barclay, Limited, appears. It details an offer to the public of some 45,000 preference shares. These shares are daily quoted by Birmingham stockbrokers, and may be bought by even the much-despised dock labourer and drapers' assistant alluded to by a pharmacist in the Liverpool newspapers.

Moreover, the very first subscribers to that company included the names of ladies as proprietors, who, although legally qualified to become the partners (for life) of qualified chemists, are not yet themselves qualified under the Pharmacy Acts to carry on the business and use the title. With respect to persons legally qualified conducting the business, two of the first directors, namely, Messrs. Gilbert Southall and Thomas Barclay, jun., do not appear on the Register of Chemists and Druggists for the year in which they were appointed directors.

April 10, 1900.

JESSE BOOT.

The Sale of Photographic Chemicals.

With reference to the letter on the above subject in last week's *P.J.*, I have compared the prices given in the list of the 7th inst. with those of four of the largest retail dealers in London, and find they are practically correct, all coinciding except in a few cases, where there is a penny or two difference in the prices per pound one way or the other. If your correspondent will obtain the price lists of such houses as Fallowfield, Houghton and Sons, etc., he will find that no mistake was made by

April 18, 1900.

THE WRITER OF THE NOTE (28/35).

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LONDON: SATURDAY, APRIL 21, 1900.

PROFESSED EXPONENTS OF OPINION.

THE views expressed, respectively by Mr. R. LORD GIFFORD and by Mr. GLYN-JONES, in regard to the subject which is now exciting so much interest among chemists and druggists, represent the very extreme poles of opinion on that subject. The "straight issue" Mr. GIFFORD insists upon is that the provisions of the Pharmacy Act, 1868, shall have the effect he considers they were originally intended to have—while Mr. GLYN-JONES maintains that "regulation of company pharmacy" is now the only possible alternative registered chemists can hope for, together with "some chance of getting their titles." Both speak with very great confidence of the support which they believe is given to those views by chemists throughout the country and, though their several statements to that effect are by no means confirmed by the reports of proceedings at provincial meetings, they may be taken to indicate the existence of considerable division in the pharmaceutical house.

From a sentimental point of view there is much reason for sympathy with Mr. GIFFORD's idea that the intention of the Pharmacy Act should be realised. Such a result would at least be in accord with the Bloomsbury tradition which some presume to despise. But Mr. GIFFORD appears to overlook the fact that the course of events has had a contrary tendency; that judicial interpretation of the Act has decided the qualification it requires to be a purely personal one; that in popular opinion a qualified employee is thought to satisfy the object of the Act; that the practice of qualified persons has given support to that view, and that the Government as well as the highest legal authorities are disposed to give further effect to it. How those influences are to be counteracted, and the unrecognised intention of the Act effectively established Mr. GIFFORD has not yet shown, nor has he yet shown that any considerable number of registered chemists are ready to support the attempt to arrive at such a result. The full effect of the Pharmacy Act at the present moment is that a person who sells scheduled poisons must be

qualified under the Act, or liable to its penalty. Such a person may also use the title of chemist and druggist, but while that is the extent of the privilege the Act confers in regard to the practice of pharmacy, a company of unqualified persons, being held outside of the Act, can carry on the business of a chemist and druggist with impunity. It is now proposed to authorise such a company to use the title as well. That effect is certainly far short of Mr. GIFFORD's idea as to what the Act intended; but there is nothing tangible to show how he considers a better effect is to be brought about, beyond the utterance of futile demands.

The opposite opinion held by Mr. GLYN-JONES, viz., that all chance of realising the effect of the Pharmacy Act has been irretrievably lost, favours compromise involving entire sacrifice of principle: though it has been quite recently declared by him to be so general that "there could be no two opinions amongst chemists with regard to the company trading question," that statement may nevertheless be called in question. It is an opinion contrary to the spirit of the Act in every sense, though it has some practical support, of a kind. His chief assumption that consistency with the views and principles of the Pharmaceutical Society would exclude every kind of company from carrying on the business of a chemist and druggist is obviously fallacious, while the conclusion that "regulation of company pharmacy is inevitable" is in direct opposition to the intense feeling described by Mr. JOHN SMITH as pervading the ranks of chemists and druggists on that subject. The letter published by him last October (*P.J.* [4], 9, 413) gave a far sounder exposition of the state of opinion and the line of action to be taken by chemists, than either of the views above mentioned. The only apparent element of uncertainty on the point arises from the language used in expressing the desire that companies should be placed "on the same footing as individuals" in regard to liability for infringement of the Pharmacy Acts, the meaning being—not that of the LORD CHANCELLOR—but, on the contrary, that companies, as unqualified persons, should be held liable, or in other words prohibited from selling or dispensing scheduled poisons.

In connection with this view of the matter, Mr. SMITH's further letter, in this week's Journal, p. 421, is worthy of most careful consideration as showing that the regulation of company trading is a matter with which chemists should have nothing to do; but that Clause 2 is to be opposed, as Mr. JOHN TAYLOR has argued, simply because it involves violation of the principle of qualification. In regard to the use of titles there is, however, no kind of difference and, while their restriction to registered persons is held to be indispensable, chemists have accepted the statement, repeatedly made at the Council meetings, that there is absolute unanimity of its members on that point. But if Parliament should authorise companies of unqualified persons to carry on the business of a chemist and druggist, to a further extent than they are lawfully entitled to do at present, it would still be as unbecoming for the Pharmaceutical Society to take any part in the regulation of such company trading as it would be for the Collège of Physicians to regulate the practice of quack doctors.

ANNOTATIONS.

MR. BOOT THINKS A REPLY IS REQUIRED to the remarks which appeared at page 375, and, for his satisfaction, that reply will be found at page 424, though it does not, in the least degree, affect the main point of the remarks as to the fallacy of comparisons between Mr. Boot and persons—qualified under the Pharmacy Act—who legally carry on their business as a limited liability company. Nor does Mr. Boot require to be reminded that the business of any limited liability company is necessarily conducted on company lines, though that may be requisite to prevent others from being misled. The "preference shareholders" he speaks of are (as he is no doubt aware) practically mortgagees of the property, standing in the same relation to the firm he names as the landlord of a retail chemist, and having no more share in the control or management of its business. Then, in regard to the two directors mentioned as "conducting the business," though not qualified chemists, Mr. Boot must understand that in large druggists' sundries, scientific apparatus, table water, and other departments, there is occupation for directors who need not be registered chemists, though the drug portions of the business are under the control of five pharmaceutical chemists, who are directors and not merely managers. Those circumstances constitute the essential difference between such companies and those like Mr. Boot's; to point out that difference was the object of the remarks which appeared in this Journal on the 7th inst. Mr. Boot's letter shows nothing to the contrary. From a pharmaceutical point of view therefore, appreciation of Mr. Boot and his company must continue to be limited, as suggested in the first instance, to admiration of his capacity for securing a business advertisement—not always too fairly.

THE INTENTION OF THE PHARMACY ACT, 1868—viz., to establish a qualification for persons engaged in business on their own account as chemists and druggists, may be inferred from the definition in Section 3, and from the language of the certificates in schedules C. and D. In that respect, the Act followed the precedent of the Society's Charter, and of the Act of 1852; but its intention was obscured by the provision that the examination to be passed, for the purpose of qualification, should be that provided under the Pharmacy Act, 1852, "for the purposes of a qualification to be registered as an assistant under that Act." Consequent to that circumstance and to the provision that the business of a deceased chemist and druggist might be continued and conducted by such a qualified assistant, it was not thought by the House of Lords necessarily inconsistent with the object and policy of the Act that the principals—the proprietors of a business—should be unqualified, provided there was in the business a duly qualified assistant.

BY THAT CONCLUSION the legal position of the chemist and druggist was materially damaged, as regards the right to keep open shop, and qualification under the Act was made more analogous to the qualification of a ship's captain than the apparent intention of the Act indicates. Then a company, being a person outside the scope of the Act, was not held by the law Lords to be incapable of performing the functions to which the Act relates, but, on the contrary, capable of carrying on the business of a chemist and druggist. So the qualification was reduced to giving its possessor a right to use the title of chemist and druggist in connection with the exercise of his business. The resulting legal anomaly that a company, as a person, necessarily unqualified under the Act, can carry on the business of a chemist and druggist, is the point to which the Lord Chancellor's Clause 2 of the Companies Bill is directed; the intention of it is to remedy the existing anomaly by the provision that a company, carrying on the business of a chemist and druggist, shall employ an assistant legally qualified under the Pharmacy Act to conduct that business.

FROM THE POINT OF VIEW OF PUBLIC INTEREST, that provision would secure the object of the Pharmacy Act—viz., that none but qualified persons should perform the functions to which the Act relates; so far, it would respect the personal qualification. The Government and the Lord Chancellor consider that to be sufficient, and the difficulty in which registered chemists are placed in regard to Clause 2 of the Companies Bill arises from the fact that many of the body are inclined to accede to that part of the proposed settlement of the matter, provided the exclusive use of their title is reserved to them. On this latter point, however, it may be assumed that all registered chemists are agreed and absolutely unanimous in their determination to oppose the provisions of Clause 2, and that is the line of action which the Council of the Society has decided to take in regard to the Companies Bill when it comes on for second reading.

THE DEATH OF PROFESSOR GUSTAVE PLANCHON is a great loss to pharmacy in France, and causes another gap in the roll of the Pharmaceutical Society's honorary members. He was elected to that position in 1876, and in 1889 he was awarded the fifth Hanbury Medal, attending in person to receive it at the inaugural meeting of the Society in October of that year. He was born at Ganges, near Montpellier, and was only sixty-six years old when he died. He graduated as doctor of medicine at Montpellier before taking his diploma as pharmacist, and subsequently took the degree of doctor of science. He was appointed professor of materia medica at the Paris School of Pharmacy in 1866 and, in 1885, he became director of that institution. Finally, he was a member of the Academy of Medicine, an officer of the Legion of Honour, and president-elect of the forthcoming international pharmaceutical congress at Paris. Probably his most important work is the admirable 'Traité pratique de la détermination des drogues simples d'origine végétale,' but he also published classic memoirs on the cinchonas, and on the Montpellier Flora, a new edition of Guibourt's 'Histoire naturelle des drogues simples,' and numerous smaller works.

NO FURTHER INFORMATION is as yet forthcoming respecting the meeting referred to by "An Ordinary Pharmacist" in last week's issue, but neither have any of his statements been denied by the promoter of the meeting or his friends. It may be taken for granted, therefore, that the facts are as stated last week, Messrs. Cooper, Gibbons, Taylor, and Wootton having been selected at a private meeting, convened by Mr. Glyn-Jones, to replace present members of the Council. Why those four persons, and why not more than four, remains a mystery for the present; nor is it known whether the persons selected have assented to the inclusion of their names in the selected list. Apart from those points, however, curiosity attaches chiefly to the attitude taken up by a member of Council, who has deliberately gone out of his way to initiate a movement to replace four of those who have been his colleagues during the past twelve months or more. The opinion of another member of Council on the subject is expressed by himself in a letter which appears at page 421; what the opinions of the members of the Society may be will doubtless be ascertained on the day of election. It would be a pity, however, if the advocacy—in a somewhat unprecedented manner—of the claims of any candidate, against his own will, should be found to have acted prejudicially in his case.

THE PHARMACY ACT OF 1868 has been made operative, though, perhaps, not in exactly the way that registered chemists would prefer, by the judgments of the High Courts which have been called upon, from time to time, to interpret its provisions. But what Mr. Gifford means by making the Act operative is, presumably, to make it illegal for any but duly registered persons to assume or use chemists' titles, or to compound, dispense, or retail poisons. The pity of it is, however, that he will not state clearly and in few words what he does mean; but that he will persist in talking

and writing in vague general terms, instead of explaining what is his "straight issue." To say he stands or falls "on the question of personal qualification and responsibility" conveys no definite idea; the same statement might well be made by Mr. Jesse Boot, or any other advocate of the claims of limited companies carrying on the business of a chemist and druggist. Whilst, therefore, it is undoubtedly of the first importance that a clear issue should be placed before the members of the Society, that has not yet been done by Mr. Gifford, even when he advocated opposition to Clause 2 of the Companies Bill and that chemists should claim to be included in Clause 3 of that measure. Moreover, he has not yet offered anything that could, by any possible distortion of the meaning of words, be described as "constructive criticism."

THE STAMP DUTY ON MEDICINES was attacked by Mr. Cornelius Willson at the annual dinner of the Grimsby and District Chemists' Association, reported last week (see *ante*, page 407), but he was evidently imbued with the fallacious notion that abolition of that duty would be to the advantage of chemists and druggists. It is certain, however, that the reverse would be the case, and that chemists would have as much cause to regret such abolition as they had years ago to regret the lowering of the cost of licences to retail stamped medicines. In any case, it is absurd to talk about the "cruel law" which extracts a quarter of a million sterling from "the sick poor," for, as Mr. Willson ought to know, that is not the class which contributes much to the revenue in the form of stamp duty on medicines. So far as the interests of chemists and druggists are concerned, it would be a distinct advantage if the stamp duty on proprietary medicines were increased, and if also the exemption from duty of medicinal drugs vended entire were limited, as specified in 52 Geo. III. c. 150, to cases where such drugs are sold by a chemist, or a person holding a stamped medicine licence. For it is beyond question that simple drugs cannot be sold unstamped by other persons without committing an offence against the Stamp Acts.

SARTORIAL REFORMS SUGGESTED by Mr. Turver (see p. 423) savour too much of frivolity to commend themselves generally to sober chemists, and it is to be feared that the love of finery will be found less potent generally than the desire to appear in public without a label. Would Mr. Turver wear his cap and gown behind the counter, or—like grammar-school boys—when he goes to church, or would he reserve them for appearances on the platform at public meetings, at funerals, or at public celebrations of various kinds, such as the inauguration of a new village pump, a Royal visit, Maypole dances, Guy Fawkes day rejoicings, etc., etc.? Seriously, the thing is impossible in this prosaic age, though there is nothing to prevent any registered chemist purchasing and wearing a cap and gown, if he fancies doing so. With regard to the Society's diploma of membership, there is, of course, no particular reason why it should be less artistic than any other. Such as it is, however, it has served its purpose well and, in any case, if a prettier or more gorgeous one were to replace it, that would have to be reserved for new members, and not distributed broadcast among the older ones. As to the title "pharmacist," that certainly ought to be legally applicable to everyone who is truly a pharmacist, but an Act of Parliament will be needed to legalise its wider application, and such an Act cannot be got by simply asking for it.

ANOTHER CANDIDATE FOR THE COUNCIL has sent a statement of his views for publication in the Journal. Mr. Cooper—who is perhaps best known as Chairman of the Retail Section of the P.A.T.A., and of the Chemists' Defence Association—would not, as the Council has decided, merely oppose Clause 2 of the Companies Bill, but would seek to amend it, so as to restrict the use of chemists' titles to duly registered individuals. Apparently, he has no hope of being able to do more than that. He is also in favour of division of the Minor Examination, of some change in the

Research Laboratory arrangements, of reciprocity with the Colonies, so far as the interchange of certificates is concerned, and of enforcing the Pharmacy Act more vigorously.

AMONGST THE MANY LETTERS which the journalists' usually dull Eastertide has brought forth, that of Mr. John Smith will attract and merit especial attention by reason of its clearness and the logical nature of the writer's arguments. He points out that if the candidates who may be elected upon the Council are committed in advance to positions from which they are determined not to move, the lack of unanimity will be as marked in the immediate future as at present, and chemists "must be content to remain helpless and incapable." As Mr. Smith wisely remarks, what is wanted is that men of ability and knowledge should be sent to the Council, who can help intelligently in the effort to solve a problem, and remain broad-minded enough to appreciate the value of arguments against their own particular views. He would welcome the election of men who would enter upon the consideration of the company trading difficulty with open minds, realising their responsibility and convinced that a solution of the problem must be found. Men imbued with bias or prejudice, who will agree to nothing but the adoption of the particular scheme they favour, do not commend themselves to Mr. Smith, since he holds—reasonably enough—that as circumstances change, opinions must be modified accordingly.

THE 'PROCEEDINGS OF THE CHEMISTS' ASSISTANTS' ASSOCIATION,' containing papers and discussions and full particulars of the meetings held during the Session 1898—1899, occupy nearly seventy pages, and the editors—Messrs. H. Hymans and T. Morley Taylor—are to be congratulated on the completion of the fifteenth annual record of the useful work done by and in connection with the Association. The balance-sheet of that body for the year shows that such a record can be produced at a low cost and distributed to the members gratis without causing any strain upon the funds; there is no reason, therefore, why the enjoyment of so slight a luxury should not be continued, whilst there is every reason for endeavouring to maintain the interest of new and old members in the Association by the aid of such a useful and interesting reminder of each session's work.

THE ANNUAL DINNER ARRANGEMENTS are progressing, and the Secretary will be glad to receive applications for tickets, which are now ready. The first list of Stewards will be found in another place in this week's Journal, and those who may be desirous of having their names added to that list should promptly communicate with Mr. Richard Bremridge, 17, Bloomsbury Square, London, W.C. The liability of each Steward is but a few shillings—being a share of the incidental expenses incurred for music, printing, etc.—and is less in proportion to the number of Stewards. The price of the dinner tickets is one guinea each, inclusive.

THE SOCIETY OF CHEMICAL INDUSTRY is holding its annual general meeting in London this year, during the week preceding the British Pharmaceutical Conference meeting. The President, Professor C. F. Chandler, and with him a considerable number of the members of the New York section of the Society, will attend, and it is hoped that the London section will exhibit its appreciation of the hospitality extended in 1895-96 to the then president and the hon. foreign secretary of the Society when visiting the United States. An appeal is being made to the London members for contributions towards an expenses guarantee fund. A trip to Paris is being arranged by a party of the Society's members, and that will, unfortunately, take place during the Conference week.

THE LATE RICHARD REYNOLDS was inadvertently stated, in the obituary notice published last week, to be seventy-six years old when he died, instead of seventy, as originally written.

ENGLISH NEWS.

THE COMPANIES BILL.—On Tuesday evening, the 10th inst., Messrs. Geo. S. Woolley and Harry Kemp, President and Senior Vice-President of the Manchester Pharmaceutical Association, attended, by invitation, a meeting of the Manchester Medico-Ethical Society to take part in a discussion on the Companies Bill. The dental profession was also represented by the Presidents and Secretaries of the Manchester Odontological Society, and the local branch of the British Dental Association. Mr. Walter Whitehead, F.R.C.S., F.R.S.E., the President, occupied the chair, and first called upon Mr. F. H. Westmacott, F.R.C.S. After this gentleman had spoken at some length upon the anomalous position of the medical and dental professions, and quoted numerous instances to show the absence of any protection against charlatanism, so far as the public was concerned, or any to the *bonâ-fide* practitioner, excepting so far as titles were concerned, he gave it as his opinion that every effort should be made to get Clause 3 in the proposed measure passed. He further referred to Clause 2, affecting chemists, and expressed a wish to hear what the representatives of that body had to say in regard to it. Messrs. Campion, Whittaker, and Headridge then spoke of the situation from the dentists' position, after which the Chairman requested Mr. Woolley to explain the position of pharmacists and their views on the Bill. Giving details of what had been done by the Manchester chemists in respect to both clauses, Mr. Woolley said it was sought to wipe out all that had been done by the great body of chemists since 1842, to put a number of unqualified individuals on a level with the man who had attained a title after the expenditure of much time and money. Mr. Kemp, following, pointed out that it was to the interests of all branches of the healing art to stand together, that there should be no acquiescence in an attempt to deprive pharmacists of their legitimate titles, and that it was distinctly for the public good that the practice of pharmacy by companies should be declared illegal. He further argued that if it were once conceded that a qualified person could cover any number of unqualified ones in the calling of pharmacy, it would require a lot of argument to show that it was illogical for the same principle to apply to medicine and surgery. Dr. A. Wähltuch afterwards moved—"That it is desirable that Clause 2 be expunged from the Bill, and that Clause 3 be supported, after it has been amended so as to include chemists and druggists." This was carried unanimously, as well as a resolution instructing a committee to take all necessary steps to give it effect. Messrs. Woolley and Kemp were thanked for attending, and for the very lucid way in which the pharmacists' position in the Bill had been placed before the meeting.

LEEDS COLLEGE OF PHARMACY.—On Saturday, April 7, the Principal, Mr. F. Pilkington Sargeant, delivered a lecture to the students on "Bacteriology." The lecture, which was illustrated by over one hundred slides, dealt with the analysis of yeasts and the identification of micro-organisms by means of tube, plate, and hanging drop cultures. The methods of obtaining antitoxins, etc., were also explained, and the theories of the causes of disease formulated since the time of Kircher discussed. In the afternoon a botanical excursion was arranged to Bardsey, when amongst other plants *Fragaria fragariastrum*, *Stellaria media*, *Viola canina*, and *Ranunculus ficaria* were found in flower. Altogether the day was highly instructive and enjoyable to the participants.

ROYAL INSTITUTION.—On Tuesday next, April 24, Dr. H. R. Mill will deliver the first of a course of three lectures at the Royal Institution on "Studies in British Geography." On Thursday, April 26, Professor Dewar will commence a course of four lectures on a "Century of Chemistry in the Royal Institution." On Saturday, April 28, Professor Stanley Lane-Poole will deliver the first of two lectures on "Egypt in the Middle Ages." The

Friday evening discourse on April 27 will be delivered by Lord Kelvin; the subject is the "Nineteenth-Century Cloud over the Dynamical Theory of Heat and Light." The discourse on May 4 is on "Pottery and Plumbism," and the lecturer will be Professor T. E. Thorpe.

OVERDOSE OF LAUDANUM.—The Liverpool City Coroner held an inquest, on Friday, April 6, with respect to the death of Flora Ann Moore (70), a widow, of Greyrock Street.—The evidence showed deceased had suffered from sleepiness for some twenty years past, and had been in the habit of taking laudanum to produce sleep. On the previous Tuesday evening she took half a teaspoonful in water, and next morning was found dead in bed, death, according to medical evidence, being due to failure of the heart's action, accelerated by an overdose of laudanum.—The jury returned a verdict of death from misadventure.

A CORONER ON THE SALE OF CARBOLIC ACID.—At an inquest, held on Wednesday, April 11, at Monkwearmouth, in respect to the death of Thomas Maskell (41), miner, through drinking carbolic acid in mistake for stout, Coroner Graham strongly commented on the present state of the law with regard to the sale of carbolic acid. Replying to a juror who expressed the opinion that carbolic acid should not be sold in such bottles as the one in the case before the jury, the coroner said that unfortunately there was no law against it, though coroners had occasion again and again to deplore that certain poisons could be sold without labels. In the present case carbolic acid had been put into a bottle bearing the impress of a brewery company, and what could be more natural than for a thirsty man who thought he had discovered a prize to drink it off. Recommendations had from time to time been sent to the proper authorities, suggesting improvements in the law as to the sale of poisons such as carbolic acid, but it was time and labour utterly thrown away, and he was sick and tired of sending such recommendations; he could get no assistance whatever. He supposed nothing would be done in the matter until some prominent member of Parliament met his death in the same way as the deceased man. Coroners were perfectly helpless, they could only grumble and complain; as for getting any reform, it appeared to be utterly out of the question. The Act relating to the sale of poisons was not worth the paper it was printed on, because, while it closed the door against certain poisons, it left the door open to others equally deadly. He was inclined towards the opinion of Mr. Bumble in Dickens that "the law is a hass."

FOOD AND DRUGS ACT PROSECUTIONS.

CAMPHORATED OIL.—At Lambeth Police Court on Thursday, April 5, William B. Greig, trading as Greig and Co., chemists and druggists, Old Kent Road, S.E., was summoned by the Camberwell Vestry for selling camphorated oil which was certified by the public analyst to be deficient in camphor to the extent of 43 per cent.—Defendant, who repudiated any idea of fraud or intent to injure the purchaser, stated that the deficiency was due to an oversight on the part of the assistant when making the article.—Fined £5, and 17s. 6d. costs.—At Lambeth Police-court on Thursday, April 12, Albert Matten, trading as and for Elizabeth Williams, of Nunhead Green, was fined 20s. and costs for selling as camphorated oil a substance which was certified by the public analyst to contain 93.6 per cent. of oil other than olive oil, and to be deficient in camphor to the extent of 75 per cent.—Sarah Jane Hunter, Gordon Road, Peckham, was fined 40s. and costs for a similar offence, the oil being deficient to the extent of 82 per cent. of camphor, and contained 96.3 per cent. of mineral oil.—Both defendants pleaded that they sold the oil as received from the wholesale dealers.

QUININE WINE.—John E. Pedwell, grocer, High Street, Calne (Wilts), was summoned at Calne Police Court for selling as quinine wine, orange wine containing not more than 10 grains of quinine hydrochloride per pint, instead of 20 grains as ordered by the 'British Pharmacopœia.'—The analysis was not disputed, but it was contended for the defence that the case was covered by Sub-section 1 of Section 6 of the Sale of Food and Drugs Act.—Defendant pleaded that there were two qualities of quinine wine; one supplied by chemists as a medicine and the other supplied as a beverage, and drunk as such. If quinine wine B.P. was required, the purchaser would go to a chemist; but if he wanted a beverage, he would go to a grocer. The wine in question was sold and labelled thus—

"HOME'S QUININE WINE."—A pure and perfectly fermented aromatic bitter orange wine, free from acidity or any objectionable sweetness, and containing a st machic dose of pure sulphate of quinine to the glass. Of this invaluable medicine, sulphate of quinine, the dose is from half a grain to one grain as a stomachic, and from one to three grains as a tonic. For these purposes the present is by far the most agreeable form for its exhibition, and, as such, is universally recommended by the faculty. Manufactured by G. Y. Home and Co., wine makers and importers, Redcross Street, Bristol, and sold by all chemists, grocers, confectioners, and oilmen. Proprietors of Stiven's original green ginger wine.

The Chairman, having pointed out that the label did not state that the wine was prepared in accordance with the B.P. and did not state the number of grains of quinine in the bottle, Section 8 was quoted for the defence, and it was contended that the inspector did not ask for quinine wine, B.P., but asked for the quinine wine sold as a beverage.—The Bench decided that there must be a conviction, for if a person went to either a grocer or a chemist he expected to get the article asked for. The wine in question did not contain the amount of quinine it should; moreover, the magistrates were of opinion that the label should have shown the amount of quinine contained in the wine, and hoped that in future chemists and grocers selling quinine wine would affix such labels. Defendant would be fined 8s., including costs.

MAGNESIA.—George Smith, grocer, Wood Street, Calne, was summoned before the local magistrates for selling magnesia which was not of the nature, substance, and quality demanded by the purchaser, being composed of magnesium carbonate instead of magnesium oxide.—Defendant, who pleaded that he sold the magnesia as he bought it, was ordered to pay the costs, 7s.

ALUM IN BAKING POWDER.—Arthur W. Buckeridge, grocer, High Street, Calne, was fined 1s. and 7s. costs, for selling, on February 16, four packets of baking powder which contained 38 parts per cent. of alum, an ingredient injurious to health.—The defendant, who pleaded guilty, said he bought the article in question as "Nation's American baking and egg powder," labelled "Always genuine. See analytical report." He further stated that he sold many articles which might be adulterated for all he knew.—The Chairman said it was for him to ascertain whether the articles he sold were injurious or not, and not for the Bench to tell him. They hoped for the future he would insist upon having a warranty with goods.

SPIRIT OF NITRE.—John Teebay, chemist and druggist, Chorley Old Road, Bolton, was charged at Bolton Police Court on Monday, April 2, with selling sweet spirit of nitre not of the nature, substance, and quality demanded; it being deficient to a considerable extent in ethyl nitrite, the analyst's certificate stating that it contained only 62.8 per cent. of the minimum amount allowed by the B.P.—For the defence it was stated that defendant's assistant did not understand the Inspector to ask for the B.P. article.—As the prosecution did not press for a heavy penalty, the magistrates only ordered defendant to pay the costs.

IRISH NEWS.

PHARMACEUTICAL SOCIETY OF IRELAND.—The following have passed the Preliminary Examination: R. B. Lemon, T. Dunning, W. McCaw, W. J. McKane, L. J. Wilkins, H. E. Grimshaw, W. Crymble, R. Dillon (P. J. Cleary, M. McCabe, and J. J. O'Brien—equal), J. J. Fitzgibbon (T. Horan and G. H. Wilson—equal). Twelve candidates were rejected. James Dale passed as a pharmaceutical assistant. At the Registered Druggists' Examination at Belfast, S. Carson, J. Dunlop, Sara D. Gilmer, J. Moffett, and H. Todd passed; two candidates were rejected. At the Registered Druggists' Examination at Dublin, H. Harwood, J. Hood, and M. S. Keane—passed; two candidates were rejected. At the Pharmaceutical License Examination, C. McCann, Christina M. Jessop, D. F. Hegarty, A. Mawhinney, G. Wilson, W. A. Jones, and R. G. Greer passed; eight candidates were rejected.

COLONIAL NEWS.

AUSTRALASIAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.—The eighth session of this Association, which opened at Melbourne on January 9, and was continued until the 15th, was a very successful gathering, more than one hundred and fifty papers having been read in the various sections, while the average daily attendance was estimated at no less than 350. Papers of immediate pharmaceutical interest there were practically none, but no little stir has been created in the colony by the results given by Mr. W. Percy Wilkinson of a chemical examination of the local wines retailed in Victoria, showing that out of 166 samples submitted to analysis 67 were found to contain salicylic acid, in amounts varying from 1 to 8 grains per reputed quart bottle. Mr. Wilkinson showed that for this condition of things the climate of Victoria furnished no excuse, as the wine maker can, if he takes the trouble, control the temperature of fermentation and the proportion of acidity in the must, just as effectually in Victoria as is done in the hot climates of the South of France, Algiers, and California. The author drew attention to the strict laws against adulteration which are enforced in Continental wine-growing countries, and it is understood that practical attention is now being given to the subject by the Victorian Government. Among other papers of interest might be mentioned specially one by Mr. G. Harker, B.Sc., giving the results of an investigation undertaken at the suggestion of Professor Liversidge, of Sydney, the object being to search for alkaloids among the indigenous Australian plants belonging to the drug-producing class. A report of this, as well as another paper by the same author, "On the Estimation of Nicotine in Tobacco," is given in the January number of the *Australasian Journal of Pharmacy*.

PHARMACY BOARD OF VICTORIA.—At the January meeting of this Board a vote of thanks was passed, and ordered to be recorded in the minutes, to Mr. Henry Francis, for the valued honorary services he has rendered as a member during the past fourteen years. Mr. Francis explained that he had decided to retire from the Board in consequence of the work in connection with the examinations having become of too fatiguing and arduous a nature, but he would continue to feel deep interest in the proceedings and progress of the important work which the Board was performing in the educational interests of the colony. The report of the Board for 1899 shows that the work referred to by Mr. Francis has of late years been steadily increasing in volume, the increase in 1899 being something phenomenal. The examinations for the Final, it may be here explained, are conducted by the members of the Board, sitting in sections, and acting in an honorary capacity. In the year 1897 the candidates entering for this examination numbered only 30; in 1898 this was increased to 56 and last year to no less than 88. When, apart from this strictly

personal work, it is remembered that the Board are practically responsible for the preliminary and College of Pharmacy Examinations conducted by examiners appointed by the Board, the onerous nature of their educational labours will be apparent. During the past year the candidates for the Preliminary increased to 182, as against 87 in 1897, while for the College of Pharmacy Certificate Examination 72 entered in Chemistry and Practical Chemistry, and 71 in Materia Medica and Botany.

DURING THE YEAR 1899, 37 pharmaceutical chemists and 43 apprentices were registered in Victoria, showing in each case an increase over recent years. On December 31, 1899, the Pharmaceutical Register of Victoria contained the names of 815 pharmaceutical chemists. In 1879 the total number registered under the Pharmacy Act, 1876, was 631; since then, of 630 registered, 293 passed the Final, and 67 the Modified Examination of Victoria; 142 were registered under certificates from the Pharmaceutical Society of Great Britain, and 16 under the certificate of the Pharmaceutical Society of Ireland; 14 qualified by foreign diplomas, and 121 were registered by virtue of having been in business at or before the passing of the Pharmacy Act, 1876. Mr. R. P. Francis has been elected to fill the vacancy on the Board left by the retirement of Mr. Henry Francis, and Mr. H. A. Woolnough, the other retiring member for the year, has been re-elected. The President, Mr. C. R. Blackett, and Treasurer, Mr. H. T. Tompsitt, have also been re-appointed to their respective offices for another twelve months.

AT A MEETING OF DENTISTS held at the Australian College of Dentistry, Melbourne, on February 8, it was decided to form a Dental Defence Association, with the object of protecting dentists who were reputably practising throughout the colony, as well as the public, against the inroads of charlatans who were running all over the country. Dr. A. P. Merrill, D.D.S., who presided, asserted that thousands of good teeth were being extracted by such men, merely to replace them with artificial teeth of inferior quality. He stated further that it was the intention of the Association to expose the bogus diplomas which had been purchased from bogus dental colleges in the United States, and, if possible, to prosecute those who had, merely by a money payment without undergoing any examination, obtained and were utilising such sham diplomas.

THE PHARMACY BOARD OF NEW SOUTH WALES had under discussion at their February meeting the following remarkable communication from the Government:—"With reference to the prosecutions instituted against J. C. Radford and E. Leafe, in February last, for breaches of the Sale and Use of Poisons Act, I have the honour, by direction of the Hon. Premier and Colonial Treasurer, to inform you that His Excellency the Governor, upon the recommendation of the Hon. the Minister for Justice, has been pleased to approve of the fines being reduced from £10 to £2 in each case. As half of both fines was paid over to the informer, Mr. Angus McLeod, Inspector of the Pharmacy Board, I have to request that that gentleman may be instructed to repay £4 on account of each case, or £8 in all, in order that refunds may be made to Messrs. Radford and Leafe,—(Signed) F. KIRKPATRICK, Under-Secretary for Finance and Trade. January 25, 1900." Considering that a year had elapsed since the prosecution, and that, so far as the Board was concerned, no appeal had been lodged nor anything done in the matter, this generous remission of fines at their expense, and without their having been consulted, did not commend itself to their approval, and it was decided to have legal opinion on the matter before coming to a definite decision.

THE REPORT OF THE PHARMACEUTICAL SOCIETY OF WESTERN AUSTRALIA for 1899 affords evidence of steady progress. During

the year four candidates presented themselves for the Preliminary, all of whom were successful, and ten for the Qualifying Examination, of whom seven were successful. The passing of the amended Pharmacy Act, which, it is hoped, will greatly conduce to the more effectual carrying out of the original Act, was an important part of the year's work. The balance-sheet shows a credit balance of £487 4s. 11d., a result obtained by the amount of honorary work done by the secretary and examiners, and the gratuitous services of the members of the Council. The register now contains the names of one hundred and thirteen chemists, being an increase of fifteen during the year.

PHARMACEUTICAL SOCIETY.

Evening Meeting in Edinburgh.

The sixth evening meeting of the session was held in the Society's House, 36, York Place, Edinburgh, on Wednesday, April 18, Mr. PETER BOA, Chairman of the Executive, in the chair. The minutes of last meeting were read and approved, and apologies were intimated from Dr. Coull, Messrs. Davidson, Forret, Fraser, and Guyer. The Chairman referred to the loss sustained by the Society in the death of Sir Douglas MacLagan, and the meeting agreed to send a letter of sympathy to the family. The first two papers were on

"SOLUTION OF ARSENIC AND IRON WINE" AND "GLYCERIN OF CODEINE,"

by Mr. Archibald Currie, and are printed at page 418. In the discussion which followed,

Mr. LEMON said but for some sentimental regard for iron wine on the part of the Medical Council, it might well have been omitted from the Pharmacopœia. Wines varied much in acidity. He had examined a sample which required fifteen grains of sodium carbonate to neutralise one ounce; Squire said the wine never contained more than $\frac{1}{4}$ per cent. of iron. The hydrochloric solution of arsenic should be used, and could be flavoured with compound tincture of lavender.

Mr. HENRY said they would expect liquor arsenicalis to be incompatible with iron wine, and he would also have expected it to be incompatible with citrate of iron wine.

Mr. J. RUTHERFORD HILL said he could confirm the statement that glycerin became coloured and acquired an unpleasant odour, suggestive of some butyric compound, when heated with even a trace of hydrochloric acid; skatol, or methylindol, was formed when aniline zinc chloride was heated with glycerin. Possibly the disgusting odour might be due to some indol compound.

Mr. BOA said the colour and odour might be due to some minute trace of a fatty acid. He had frequently detected on the palate a taste of fried fat in samples of glycerin, and that was a ready means of judging. The precipitate in Mr. Currie's No. 2 mixture looked suspiciously bulky, as if it had been fortified with iron.

Mr. CURRIE, in reply, said when the glycerin was heated pretty hot with sulphuric acid and alcohol, he detected a fruity odour suggesting butyric acid. He had prepared the wines himself, and they were genuine. He had found nearly $\frac{1}{2}$ per cent. of iron in wine No. 2.

The next papers read were on

"QUININE ACETATE," "COPPER IN NUX VOMICA," AND "GELATINISATION OF TINCTURE OF KINO,"

by Mr. J. Rutherford Hill, which are printed at pages 416 and 417. In the discussion which followed,

Mr. CURRIE said he had a similar experience with a nux vomica mixture, but the patient did not complain.

Mr. MACPHERSON said it would be necessary to determine whether copper had been used in preparing the nux vomica seeds for the market. He exhibited a sample of gelatinised tincture of kino made by the 1867 formula; it was the remains of a quantity kept in a shop round; the last portion had been poured into a half-ounce

corked phial, and after standing it became solid. The shop round had a very tight stopper, and he thought Mr. Hill's theory as to loss of menstruum was correct.

Mr. HENRY said he had tried adding water to a gelatinised tincture of kino, and it slowly dissolved. He doubted the evaporation theory, because he evaporated some tincture to a low bulk, and it did not gelatinise. It would be interesting to know if the mill had been used to grind copper sulphate before the nux vomica containing so high a percentage of copper.

Mr. LUNAN asked if all the tinctures shown had been made from fluid extract. Some were as light as the old 1867 tincture.

Mr. KIDD asked if 1885 tincture had been tried. He had roughly determined the solubility of quinine acetate, and found it 1 in 84 of water. He asked if there was no dissociation when the acetate was dissolved in chloroform.

Mr. GLASS said if the copper was present in the metallic state in the ash it would be visible by using a powerful lens. It would be interesting to find out if the menstruum removed all the copper from the seeds.

Mr. DUNCAN said he thought the quantity of copper was accidental. The plant would absorb the metal from the soil if it were present. He had a case where several sheep had been poisoned. On examination, a deposit of copper was found on the teeth. They had eaten grass growing on soil that had been dosed with copper sulphate, used for steeping wheat. He had prepared a quantity of tincture of kino by the 1885 formula, and placed one half in one bottle and the rest in another; one was placed in the cellar and the other in the shop. The specimen in the cellar became solid, while the shop sample remained liquid. On repeating the experiment, the exact opposite happened. He had never seen trouble with the tincture till the glycerin was added.

Mr. McEWAN asked if Mr. Hill had tested whether the copper was combined with sulphuric acid. He had examined some seeds, but found no copper.

Mr. BOWMAN said he prepared a quantity of tincture of kino; one half was put into the ordinary stoppered shop round, the other half was placed in a 10-oz. bottle on the same shelf. The tincture in the shop round soon began to get thick and gelatinous, whereas that in the corked bottle remained liquid. He had no trouble when the tincture was kept in a well-corked bottle.

The CHAIRMAN said the note on copper in nux vomica might turn out to be of some importance. The reason why it had not previously been noticed was due to the mixture being an unusual combination, most prescribers being aware that sal volatile and nux vomica are incompatible. As to the tincture of kino, he was inclined to think evaporation of the menstruum had something to do with gelatinisation. He could quite confirm Mr. Bowman's opinion as to the superiority of cork to glass stoppers, in the case of such liquids as ether, for instance.

Mr. HILL, in replying, said he had tried the 1885 tincture, and it gave indications of copper. When quinine acetate was dissolved in chloroform the water of crystallisation seems to separate in little globules, but he did not find any evidence of dissociation. He found copper in some of the Museum specimens of nux vomica. He did not look for sulphuric acid.

CONCLUDING BUSINESS.

The ASSISTANT SECRETARY said, through the kindness of Mr. Henry, he was enabled to exhibit a bandolier, a leather legging, a Boer Psalm hymn-book, catechism, and prayer-book, and letters in Boer Dutch, one being pierced by a bullet, which had been taken from Cronje's laager at Paardeberg and sent home by an Army dispenser who used to be a regular attender at their evening meetings.

On the motion of the CHAIRMAN, votes of thanks were awarded to the authors of papers. He also expressed his indebtedness to all who had assisted in carrying on the meetings. The meeting closed with a cordial vote of thanks to the Chairman for the way he had presided during the session, on the motion of Mr. LUNAN.

CHEMICAL SOCIETY.

A meeting was held on Thursday, April 5, Professor J. M. THOMSON, F.R.S., in the chair. The first communication was given by Mr. NEWTH, who demonstrated a

METHOD OF LIQUEFYING A GAS

suitable for lecture purposes. Since the apparatus used by Professor Dewar and others for producing liquid air is very costly, it was desirable to have at hand a method illustrating the principle involved, that could be carried out in any lecture-room at a small cost. This can be done by taking a bottle of nitrous oxide, such as is sold for surgical purposes, and allowing the gas to stream from it down through a vertically fixed spiral of copper tubing. The liquid nitrous oxide drips from the tube, and in a few minutes several cubic centimetres of the liquid are produced. By collecting the liquid in the ordinary vacuum-jacketed glass vessels it can be preserved for a considerable length of time. Moreover, it is only necessary to blow air into the vessel for a few seconds in order to produce a crystalline crust of solid nitrous oxide over the liquid, which remains permanent for a quarter of an hour or more. This was performed by Mr. Newth, and the solid handed round for inspection. Criticisms on the paper were made by Dr. TRAVERS and by Dr. SCOTT, who said that there was nothing new in the principle adopted.

Mr. NEWTH also read a note on partially miscible inorganic solutions. Although many cases exist among organic compounds of the behaviour of water and ether when shaken up, the author said he had been unable to find any record of such behaviour in inorganic solutions. He showed that by skaking up a saturated solution of potassium carbonate with ordinary strong ammonia solution, the two liquids quickly separate, the heavier potassium carbonate solution, dissolving the ammonia solution to the extent of about 37 per cent., while the latter dissolves about 6 per cent. of the potassium carbonate solution. He has investigated the amounts of solution dissolved by each other at different temperatures, and has found that the solubilities increase with increasing temperature, becoming miscible in all proportions above 43°. If the quantity of water present be diminished, as when ordinary 0.880 ammonia is shaken up with solid potassium carbonate, the liquids are only miscible in all proportions at temperatures above 60°. The temperatures at which the different solutions become miscible in all proportions are sharply defined. The cloudy liquid obtained by shaking up the mixture becomes clear quite sharply at its critical temperature. If a solution of copper sulphate be treated with excess of a saturated solution of potassium carbonate so that the copper precipitate is redissolved, and strong ammonia be shaken up with this liquid, the layer containing the potassium carbonate retains almost all the copper, the ammonia layer possessing only a faint blue tint. Ferric chloride dissolved in excess of potassium carbonate and treated with ammonia behaves in the same way, the iron remaining dissolved in the potassium carbonate.

Dr. DIVERS enquired whether the author had tried the experiment of dissolving potassium carbonate in 0.880 ammonia in a closed vessel. He believed that liquid NH₃ might be produced as a layer floating on the potassium carbonate solution.

In reply, Mr. NEWTH stated that when this was done the potassium carbonate ceased to dissolve, but a useful method of obtaining dry NH₃ consisted in allowing 0.880 ammonia to drop slowly on potassium carbonate.

A paper was read by Mr. SODEAU on

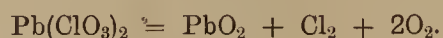
THE NATURE OF THE DECOMPOSITION OF LEAD CHLORATE BY HEAT,

this being a continuation of his work on the heating of chlorates generally. No perchlorate is produced, his observations leading

him to the conclusion that the reaction taking place is of two kinds only, namely:—



and



His own criticisms on the deductions made by Spring and Prost are, therefore, confirmed.

A paper was then read by Dr. HEWITT, dealing with

THE CONSTITUTION OF OXYAZO COMPOUNDS.

A great deal of work has been done to determine whether benzene azophenol existed as hydroxyazo benzene, or whether it took the configuration of quinone hydrozone. From the nitration of the compound he had come to the conclusion that it was the hydroxy compound, while Dr. Armstrong through brominating had come to the opposite conclusion. But he was able to show that a fault existed in Dr. Armstrong's deduction, since when the compound is brominated in the presence of sodium acetate, so that no free hydrobromic acid acts upon it, different results are obtained. The substance must therefore be regarded as the hydroxy derivative of azobenzene.

Mr. DUNSTAN congratulated the author, remarking that the work was one of the highest importance.

Dr. H. A. D. JOWETT read a paper on

A NEW GLUCOSIDE FROM WILLOW BARK,

to which he gives the name of Salinigrin. It is obtained from a new bark lately introduced into commerce, but the species of willow from which it is derived is not known with exactitude. He finds salinigrin to be the glucoside of meta-hydroxy-benzaldehyde.

A paper was next read by Dr. LANDER on

METHODS OF ALKYLATING BY MEANS OF ALKYL IODIDES AND DRY SILVER OXIDE.

The author has produced a great number of alkyl derivatives by this method, the most important of which were briefly described.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.

The annual meeting was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Wednesday, April 11, Mr. FRASER MCDIARMID, President, in the chair.

ANNUAL REPORT.

Mr. J. G. SCLATER, Hon. Treasurer, read the financial statement, indicating a satisfactory balance in hand of £8 6s. 6d. On the motion of Mr. PLENDERLEITH, seconded by Mr. KIDD, the statement was approved.

Mr. JAMES LENNOX, Hon. Secretary, read the annual report. In membership and finance the Association continued to prosper, but the attendance at meetings during the session had not been so good as in previous years. Regret was also expressed at the want of appreciation of the prizes offered in connection with the Association, as indicated by the small number of competitors. On the motion of Mr. GORRIE, seconded by Mr. ROWLAND, the report was approved.

On the motion of the PRESIDENT, seconded by the VICE-PRESIDENT, it was unanimously agreed to give a donation of £1 1s. to the Benevolent Fund of the Pharmaceutical Society.

ELECTION OF OFFICERS.

The following were elected office bearers for the next session:—President, David Harley; Vice-President, James Lennox; Secretary, J. G. Sclater, 6, St. Andrew Square; Assistant Secretary, Peter Gorrie; Treasurer, J. W. Plenderleith; members of Committee, P. Brown, W. F. Buist, A. Currie, G. P. Grainger, J. McBain, F. McDiarmid, G. H. C. Rowland, and J. Wright; Prize Committee, the President, Vice-President, and Secretary, and Messrs. McBain, McDiarmid, and Rowland.

A discussion then took place on the question,

SHOULD THE MINOR EXAMINATION BE DIVIDED?

Mr. LENNOX, in moving "That the Minor Examination be divided," grouped his reasons for doing so under the following nine heads:—

(1) The standard has been raised very appreciably in recent years.
(2) All six subjects have to be passed at one and the same time, a demand not made upon candidates in any similar examination in the kingdom.

(3) The present low percentage of passes shows the difficulty experienced in preparing for six subjects at once.

(4) The examination is capable, naturally, of being divided into two parts—viz., (1) scientific, and (2) technical.

(5) Chemists' assistants are not endowed with superhuman memories.

(6) We are only once more taking up the position which it was attempted to take up in the 1884 Pharmacy Bill, which, however, then, as now, was unfortunately loaded with suggestions for coincidentally enforcing a curriculum.

(7) By spreading the period of preparation over a longer period it would undoubtedly raise the educational standard of candidates, would approximate the standard of the candidates' knowledge to something nearer the standard demanded by examiners, and would also tend to do away with "cram."

(8) The aim of this, as of all examinations, is to test the state of education reached by the candidate.

This can be done as readily by having the examination in two portions, with a suitable interval, as at present, with only a week's interval.

(9) And probably at the present time most important. The new Preliminary Examination introduces a new set of circumstances. The apprentice now commences his life work with the necessary certificates, which will stand for the Preliminary Examination, obtained whilst yet at school. This causes, as was lately pointed out by Dr. Symes, a dangerous time of inaction between, say, the ages of sixteen and nineteen (when the serious studies for the Minor Examination may be said to commence), which would be obviated were part of the examination permitted to be entered for before that *sine qua non*, the age of twenty-one years, was reached.

From all the foregoing points of view the division of the Minor Examination is urgent and immediate, apart from all consideration of a curriculum.

Mr. PLENDERLEITH having seconded the motion,

Mr. W. B. COWIE moved a direct negative, and argued for retaining the examination as at present. To divide the examination would involve a curriculum of twelve months, instead of six months, as at present. It would also mean raising the standard. It was generally considered that the educational standard of the examination was quite high enough at present. The outlook in the drug trade did not warrant any such change. The subjects of the examination were so closely related that they did not involve a great tax on the memory. To take the scientific and technical subjects separate would be a mistake, because candidates in the technical subjects might fail, owing to having forgotten their chemistry or botany. The high percentage of failures was caused by students badly trained during apprenticeship, who failed again and again, and thus swelled the numbers. Division of the Minor would mean the expenditure of more time and money by the students. At present the Boards only examined on one session's work, just as was done in the medical examinations. They ought to think well before committing themselves to such a proposal.

The subsequent speaking was all on the affirmative side. On a vote being taken the affirmative was declared carried by a majority of two to one. Several members had left before the vote was taken. All the speakers favoured a compulsory curriculum, but regarded it as a question distinct from the division of the examination. One member stated that the former practice of the

Boards in the Minor Examination was to allow men to come up again for those subjects only in which they had previously failed.

The meeting closed with a cordial vote of thanks to the retiring office-bearers, and especially the President, for their services during the session, proposed by Mr. J. D. SINCLAIR, and passed with acclamation.

CHEMISTS' DEFENCE ASSOCIATION.

A representative meeting of North London chemists was held on the 11th inst. at The Old Cock Tavern, Highbury, to discuss the subject of chemists' defence.

The CHAIRMAN, Mr. Albert Cooper, Kensington, Chairman of the C.D.A. Directors, after a few commendatory remarks, called on

Mr. GLYN-JONES, who fully explained the objects and capabilities of the Association, as exemplified by some of its recent actions on behalf of its members. He said a member had recently been persuaded into ordering a considerable quantity of medicated wine, on the traveller's assurance that no licence was needed. Subsequently he discovered that the wine was excisable, and returned it to the makers, who, however, declined to receive it from the railway company. After some correspondence a lawyer's letter was sent to the chemist requesting payment, and threatening legal proceedings in default. The matter was referred to the Defence Association, and ultimately, as a result of courteous representations made by the Association, the manufacturers consented to take back the goods. That was only one instance, among many, of the advantage of having a strong trade protection society behind one. He (Mr. Glyn-Jones), in criticising the excise laws, said it was a fact, strange but true, that many chemists stamped proprietary articles which did not really require stamps. Speaking of various Acts, he pointed out how easy it was to break them unwittingly. A candid critic of the C.D.A. objected to the Shop Hours Act being included in the Official List. "Surely," said this gentleman, "no chemist ever breaks that!" He (Mr. Glyn-Jones) asked him if he had a copy of the Act exhibited in his shop. He admitted that he had not, and that he was unaware he was liable to a fine for the omission.

Mr. MCGEORGE wished to know if the Association was a limited liability one, and was informed it was.

Mr. MCKNIGHT expressed his intention to push the C.D.A. amongst his friends in the trade. He objected to the iniquitous methods practised by Somerset House informants, who often tried to trap chemists into breaking the Excise Acts. A letter had come to him some time ago purporting to be from the Rev. Somebody at an address named. It requested him (Mr. McKnight) to supply a number of samples of a proprietary ointment, which the "reverend" gentleman said he had found most efficacious. He would pay for them. Before supplying, he (Mr. McKnight) called at the address given, and asked if the Rev. So-and-So lived there. He was told no one of that name was known there, but that it was the residence of two gentlemen from the Strand. He was hopeful that the Defence Association would help to checkmate such tricks. He thought Somerset House should not prosecute or demand fines until they had first tried the effect of a caution. If that failed he would let them fine as heavily as they liked. He thought the knowledge that a chemist had an association at his back would have a good effect in warding off blackmail frauds. For instance, his assistant sold a little hartshorn and oil to a customer, who afterwards demanded compensation for injury, which he alleged had been caused to his skin by the medicament. The fellow was told that the hartshorn and oil was all right, that the fault lay in the application, and that no compensation would be paid. He was told, moreover, if he tried to recover damages in the law courts he would have an association to fight. After that the claim was dropped.

Mr. GAUBERT, Wembley, asked for an opinion as to the legality of selling bitter apple. He generally refused to sell it. He would also like to have a definition of a "noxious drug" in that sense.

Mr. GLYN-JONES said that the sale of noxious drugs, or any other substance with intent to procure abortion, was forbidden by the Offences to the Persons Act. According to a recent judgment it was more the intention with which a drug was sold or administered than the nature of it that rendered it a "noxious drug" within the meaning of the Act. Even a harmless drug had been decided to be noxious if sold with an illegal intention.

Mr. ANDREWS, Leinster Terrace, said he sold a good deal of bitter apple for the prevention of moths in fur.

Mr. MCKNIGHT said he did the same. He always used his discretion in each particular case.

Mr. CHIPP, Hackney, wished to know how far the Association would go in defending a case of, say, defective sweet nitre.

Mr. GLYN-JONES replied that members were entitled to defence before the magistrates up to £10; and if the Directors thought it would be in the interests of the members at large they would take suitable cases before the Appeal Courts, without restriction as to amount.

Mr. HOLDING, Barnsbury, commenting on prosecutions for defective sweet nitre, remarked that it was frequently the seller's own fault. The shop-bottle was too often allowed to run nearly empty before refilling. When that was done the last few ounces in the bottle could not fail to be much below the proper strength.

The CHAIRMAN intimated that the Directors had made arrangements so that members could have any article they were in doubt about analysed at a nominal fee by the Association's analyst. The analyst would simply report on the article as to whether it would or would not pass the Food and Drugs Acts.

The following resolution, moved by Mr. CHIPP, seconded by Mr. HOLDING, was passed unanimously:—

"That this meeting of north and north-west London chemists approves of the Defence Association recently formed, and wishes it complete success."

NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION.

At a meeting of this Association, held on Wednesday, April 11, the PRESIDENT, Mr. Charles Ridley, read a paper on

THE BOTANY AND MATERIA MEDICA OF THE BIBLE,

which will be printed in the Journal later. He exhibited specimens of all the articles named in the paper, as well as many excellent photographs, also a collection of dried plants which had been gathered in the Holy Land. Those were of a very high order, and much admired on account of the flowers having retained their natural colours, as well as the superb manner in which they had been mounted. Considerable interest was taken in an experiment with the dried fruit of the "Rose of Jericho," which when damped with water expanded, thus exposing the seeds, a characteristic which ensured fertilisation.

The paper was listened to with much interest, a hearty vote of thanks being accorded to Mr. Ridley for his contribution, which was stated to have been one of the most interesting ever read before the Association.

MANCHESTER PHARMACEUTICAL ASSOCIATION.

The annual meeting was held at the Victoria Hotel on April 11, Mr. G. S. WOOLLEY in the chair.

The SECRETARY read the report for the past session, and the TREASURER presented the accounts showing a balance in hand of about £19.

The PRESIDENT, in proposing the adoption of the report and balance-sheet, said that the Council of the Association was issuing to all the local members of Parliament a letter setting forth its views upon

THE COMPANIES BILL

now before Parliament. He also stated that he and Mr. Kemp had attended, by invitation, on the previous evening a meeting of the Manchester Medico-Ethical Society (see p. 428), to which were also invited representatives of the two Manchester Dental Associations. The pharmaceutical representatives succeeded in considerably modifying the opinions of some of the medical men present, with the ultimate result that this conference of medical men, dentists, and pharmacists unanimously decided to oppose Clause 2, and proposed the amendment of Clause 3 by the inclusion of pharmacists.

The officers elected for the ensuing session are as follows:—President, G. S. Woolley; Vice-Presidents, H. Kemp and W. Kirkby; Treasurer, A. J. Pidd; Secretary, W. Walton.

Obituary.

BIRD.—On April 13, Augustus Bird, Pharmaceutical Chemist, Shepherd's Bush, W. Aged 73. Mr. Bird had been a member of the Pharmaceutical Society since 1850; prior to that he was for some time a student in the School of Pharmacy, and in 1849 gained the second prize for Chemistry and Pharmacy. In 1853 he was appointed an Examiner to the Society, which position he held until 1872, when Mr. Wm. Martindale was appointed in his place. He was a constant supporter of the Benevolent Fund, contributing something like 120 guineas in donations.

COOPER.—On April 15, Frederick Richard Cooper, Chemist and Druggist, late of Manchester. Aged 48. Mr. Cooper had been connected with the Pharmaceutical Society for many years as an Associate, and latterly as a Member.

EVANS.—On April 12, Richard Evans, Chemist and Druggist, West Bromwich. Aged 69.

HUGILL.—On April 10, at Rosedale, Chislehurst, John Hugill, Pharmaceutical Chemist. Aged 87. Mr. Hugill was the son of John Hugill, an auctioneer and estate agent, Whitby, an influential townsman of local celebrity, who was associated with George Stephenson, the celebrated engineer, in acquiring land for and constructing one of the first railway lines in the kingdom. He was born at Whitby on May 29, 1812, and having served a six years' apprenticeship with Mr. Proctor, of Scarborough, was brought to London by the said George Stephenson, at the age of twenty, who was coming to London to give evidence before a Committee of the House of Lords. These were the times when barrels of oil for street lighting purposes were supplied by chemists, when paints were ground, and grey powder was mixed by hand by the apprentices. He first applied to Messrs. Bell, of Oxford Street, for a situation; being unsuccessful, he approached Messrs. Hearon, Squire's, and through their recommendation, accepted an engagement with Mr. Spite, chemist, Newington Butts (opposite the Debtors' Prison), where he remained for six months. From there he engaged with Mr. Wilmot, chemist, High Street, Borough. At that time the Borough was a fashionable residential quarter, many bankers and leading citizens residing in that district, and many of the customers at that time still wore knee-breeches and silk stockings. He had been in this situation three years when Mr. Wilmot died, and, in accordance with a promise given in his lifetime, Mr. Hugill arranged to carry on the business for the widow until the education of the sons was completed. That occupied a further period of twelve years. In 1848 he entered into partnership with Mr. George Meggeson, of Cannon Street, in conjunction with Mr. Alfred Attwood (both since deceased). At that period there was no railway station, and Cannon Street had not been widened, it being so narrow that one could almost shake hands across the street. When he first joined the firm of Meggeson and Co. the business was a retail one, and the two Misses Meggeson assisted their father in making the goods and in the general

conduct of the business, the family residing over the shop. It was then that Mr. Hugill's business ability, organising powers, and personal application found scope, enabling him to lay the foundation of, and eventually develop, the business which has become an historical name in the trade. The existence at that period of the heavy duties on sugar (the market value of which was £80 per ton) was a temptation to confectioners to adulterate. Mr. Hugill set his face against this from the first, and by raising the standard of the goods manufactured (in which his experience as a druggist stood him in good stead), secured to the firm an additional branch to their business. In the early days of the partnership no clerk was employed, and Mr. Hugill was accustomed to cross London Bridge from his lodgings in the Borough at 5 a.m., to make out the invoices of the previous day's work. George Newton, the first clerk he engaged, is still actively employed in the firm (after more than fifty years' service) as head ledger clerk. In 1876, on the expiration of the lease, the business was transferred to the present premises at Miles Lane. Mr. Hugill was present at the first meeting presided over by "Jacob Bell," to consider the advantage of establishing a corporate body for promoting the welfare of the trade and the advancement of pharmacy, which eventually resulted in the formation of the Pharmaceutical Society. Although taking a lively interest in all pharmaceutical matters, he took no active part, owing to his sensitive nature and peculiarly retiring disposition. No doubt the difficulties he had to surmount in coming friendless to London caused him to be ready at all times to interest himself in young men seeking situations—it was a source of pleasure to him to do so—and we feel sure there are many successful chemists to-day who can trace their success to his kindly advice and assistance. Mr. Hugill was actively engaged in business until his 81st year, when the shock caused by the sudden death of a younger son in India decided him to retire; but he was spared for some seven years to enjoy the quiet and rest he had so well deserved. He was a man of great ability and judgment, as well as of marked kindness of heart, of whom it may truly be said that he died as full of honour as of years, respected and loved by all who knew him.

PLANCHON.—On April 13, at Montpellier, Gustave Planchon, Director of the Ecole Supérieure de Pharmacie de Paris. Aged 66. Monsieur Planchon, who was a honorary member of the Pharmaceutical Society and a Hanbury medallist, was a member of the Académie de Médecine and an officer of the Legion d'Honneur, and was the President of the forthcoming International Pharmaceutical Congress.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Colocynthis Pulpa.

COLCYNTH PULP or bitter apple is the fruit freed from its rind and seeds, of *Citrullus colocynthis*, Schrad. (N. O. Cucurbitaceæ), a slender scabrous plant with a perennial root, which is widely distributed throughout Northern Africa, Syria, North-Western India, Persia, etc., and cultivated to a certain extent in Spain and Cyprus. The fruit is a gourd of the size and shape of an orange, having a smooth marbled-green surface which changes to yellow as ripening proceeds. It is three-celled when young and bears numerous seeds attached to axile placentas, which extend from the centre of the fruit nearly to the circumference. Near the pericarp the placentas divides in two, each half curving inwards and bearing seeds on the inside of the curve. As the fruit develops the carpellary walls disappear, and it becomes spuriously one-celled. The fleshy placentas of which the pulp chiefly consists are not juicy in the fresh state; they usually split in a radial direction throughout the greater part of their length, and appear deeply fissured in the dried

fruit. The fruit is collected when ripe, freed from the thin rind by peeling with a sharp knife, and dried. Unpeeled colocynth is occasionally imported from Mogadore; the peeled fruit is imported chiefly from Smyrna, Trieste, France, Spain and, less frequently, from Persia. It is freed from seeds after arriving in this country. The drug is a powerful hydragogue cathartic and dangerous in large doses; it is used in the preparation of *Extractum Colocynthis Compositum*, *Pilula Colocynthis Composita*, and *Pilula Colocynthis et Hyoseyami*.



COLOCYNTH FRUIT.—The peeled fruit of Turkey Colocynth, as imported.

CHARACTERS.—Colocynth fruit is usually imported peeled, occurring in more or less broken balls—about 5 Cm. or less in diameter, and very light in weight—the outer surface of which is formed by part of the thin whitish mesocarp, the seeds and fleshy placentas being visible at points where the mesocarp has been removed. On cutting a fruit transversely the placentas are generally exhibited as radiating fissures dividing the fruit into three parts. In each part, near the periphery, half of each placenta curves inwards and bears on its inner margin several vertical rows of seeds. The flattened ovoid seeds, which number from two to three hundred in each fruit, are yellowish-white to dark-brown in colour, according to the degree of ripeness. The pulp, which alone should be used for medicinal purposes, constitutes about one-fourth the weight of the peeled fruit, and consists chiefly of the placentas; it is very light, spongy, whitish, and pith-like, with a very slight odour but an intensely bitter taste.



COLOCYNTH FRUIT.—Transverse section of Turkey Colocynth, showing radiating fissures and seeds.

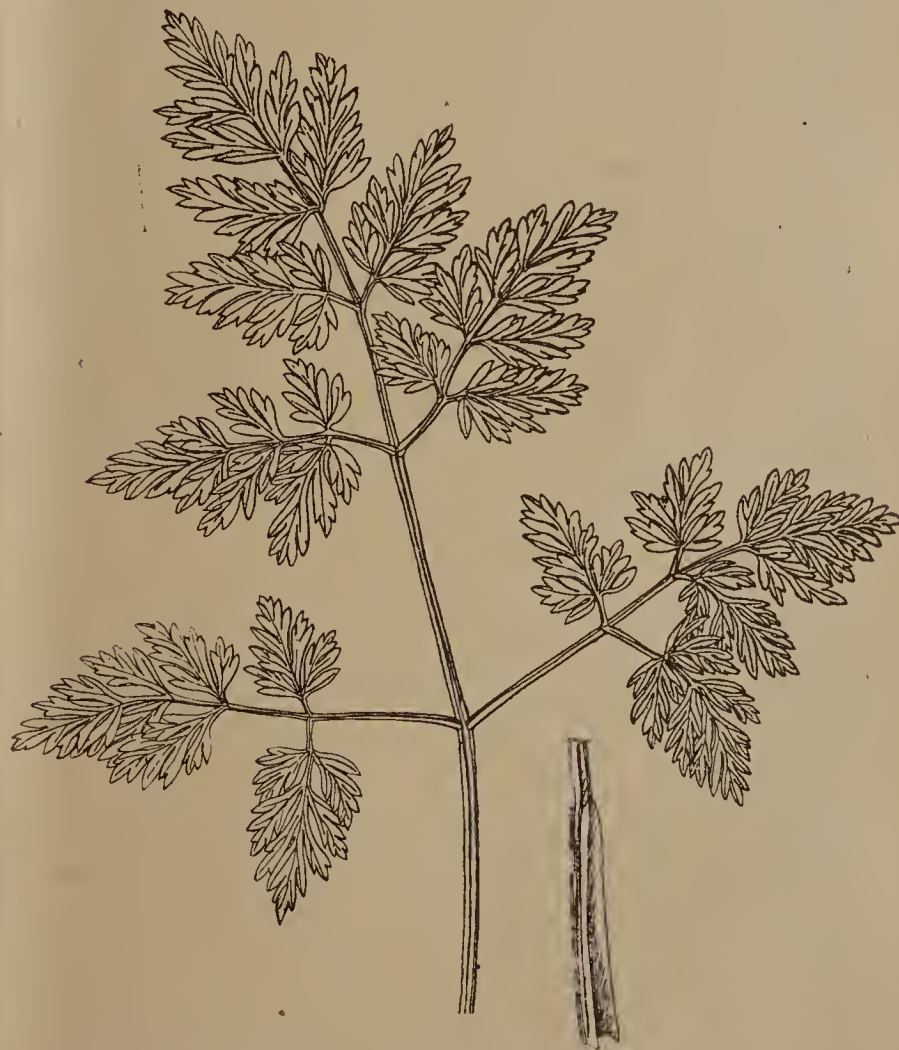
TESTS.—Colocynth pulp contains no starch, and when powdered should, therefore, not respond to the tests for that substance (see under "*Amylum*," *ante*, p. 113). Neither should the powder

yield more than traces of fixed oil to ether, thus showing that the seeds have been entirely removed. The seeds contain 15 to 17 per cent. of fixed oil, whereas the pulp alone does not yield to ether more than 3 to 5 per cent. of extractive of an oily nature. When dried at 100° C. and incinerated the pulp yields not less than 9 per cent. of ash, but the seeds yield only about 2.5 to 3 per cent., whilst the pulp and seeds together yield from 4.5 to 5 per cent. of ash.

NOTES.—The distinctive characters of colocynth pulp are its light weight, general appearance, and intensely bitter taste. Turkey colocynth, imported from the Levant, is the finest, and Spanish comes next in value; the poorest is Persian, which is only occasionally seen on the market. The bitter principle of colocynth is an amorphous yellow glucoside, colocynthin, which is found in the pulp to the extent of about 0.6 per cent., but not in the seeds; it has not been fully investigated, but appears to be easily hydrolysed by dilute acids or alkalis, yielding resinous colocynthein and sugar. The name "colocynthin" has been applied to a tasteless crystalline resin found in colocynth, which also contains fixed oil, pectin, gum, albuminoids, etc.

Conii Folia.

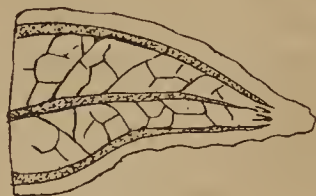
CONIUM LEAVES, or Hemlock Herb, consists of the fresh leaves and young branches of *Conium maculatum*, Linn. (N.O. Umbelliferae), the spotted hemlock, collected when the fruit begins to form. The plant is cultivated for medicinal purposes, but wild specimens are also collected and used. The drug possesses sedative and antispasmodic properties; it is used in the preparation of *Succus Conii* and that, in turn, enters into the composition of *Unguentum Conii*.



CONIUM LEAF.—Upper leaf of *Conium maculatum*, and clasping petiole.

CHARACTERS AND TEST.—Conium leaves are more or less divided in a pinnate manner, dark green on the upper surface, paler on the under surface, quite glabrous, and attached to the stem by amplexicaul or clasping petioles of varying length, those of the

lower leaves being hollow. The lower leaves are decomposed, and sometimes nearly 70 Cm. in length, but the upper ones are less divided, and smaller; the ultimate ovate or lanceolate segments or divisions of all the leaves terminate in smooth, colourless, horny points. The stem is smooth, hollow, and marked on its lower part with dark purple spots which tend to disappear on drying. The inflorescence of hemlock is an umbel, with about twelve rays and both general and partial involucre, the latter consisting of three short lanceolate bracts directed outwards. The broadly ovoid fruits have irregular crenate ridges and a grooved endosperm. The plant has a bitter taste and a strong disagreeable odour, which is more pronounced—recalling that of mice—when the plant is crushed and rubbed with solution of potassium hydroxide.



CONIUM LEAF.—Tip of ultimate segment of leaf of *Conium maculatum*, magnified.

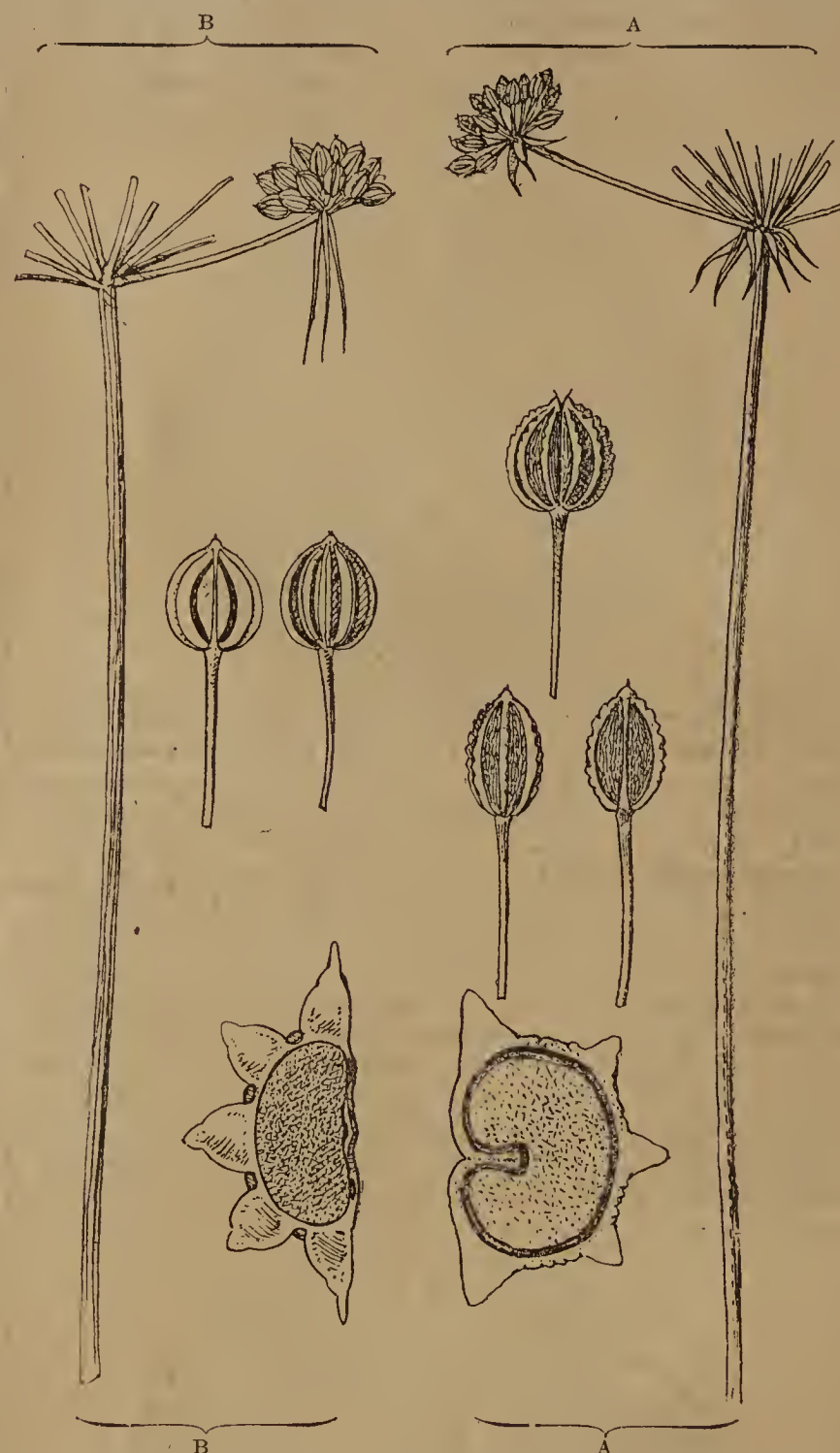
NOTES.—The distinctive characters of hemlock are the smooth spotted hollow stem, the much divided glabrous leaves with their ultimate divisions terminating in smooth colourless points, the presence of both general and partial involucre, the crenate ridges and grooved endosperm of the fruit. In Fool's Parsley, *Aethusa cynapium*, Linn., the ultimate divisions of the leaves terminate in short brownish points, the umbel has no general involucre, and the bracts of the partial involucre are long and narrow; in Wild Chervil, *Anthriscus sylvestris*, Hoffm. the leaves are hairy, the partial involucre is not directed outwards, and the fruit is elongated. The chief constituents of hemlock are the alkaloids coniine and conhydrine, which are present in largest proportion when the plant is in full bloom, the stem then containing about 0.064 per cent. of alkaloid, the leaves 0.187 per cent., and the flowers and flower stalks 0.236 per cent. Other substances found in the plant are a volatile oil, albumin, mucilage, etc. Coniine is a colourless, oily, volatile liquid, of disagreeable mouse-like odour, acrid taste, and possessing poisonous properties. Conhydrine or oxy-coniine, which is less poisonous, occurs in glittering plates or scales, and yields coniceine on heating with phosphoric anhydride.

Conii Fructus.

CONIUM FRUIT is collected from *Conium maculatum*, Linn. (N.O. Umbelliferae), when full-grown but whilst yet unripe, *i.e.*, before the colour has changed from green to yellow. It is then dried and carefully preserved. The medicinal properties of the fruit are the same as those of the leaves, but the fruit is stronger; it is used in the preparation of Tinctura Conii.

CHARACTERS AND TEST.—Conium fruit is broadly ovoid in shape, greenish grey in colour, about 3 Mm. in length and breadth, slightly compressed laterally, and crowned by the small depressed stylopod bearing the remains of the stigmas. The two glabrous mericarps of which the fruit consists are usually separated in the drug as met with in commerce; each one possesses five irregular, more or less crenate or wavy primary ridges, which are paler than the rest of the mericarp and sharply prominent. When a mericarp is cut transversely and examined with a lens, the endosperm is seen to be deeply grooved on the commissural surface, and no vittae are visible. The fruit has no marked taste or odour, but a strong disagreeable odour, recalling that of mice, is produced on rubbing it with potassium hydroxide solution.

NOTES.—The distinctive characters of conium fruit are the glabrous surface, irregular crenate ridges, grooved endosperm, absence of vittae, and the mouse-like odour given off on rubbing with potassium hydroxide solution. Anise fruit bear short bristly hairs, have



CONIUM AND FOOL'S PARSLEY FRUIT.—A. Fruit of *Conium maculatum*, *in situ* with enlarged representations of an entire cremocarp, of back and front of a mericarp, and transverse section of latter. B. Fruit of *Aethusa cynapium*, *in situ*, with enlarged representations of front and back of mericarp, and transverse section of latter.

numerous vittae, and an ungrooved endosperm, which is nearly flat on the commissural surface; the fruit of Fool's Parsley also has vittae, besides differing considerably in shape (see illustration) from conium. The chief constituent of conium fruit is the poisonous, volatile liquid alkaloid coniine, of which they may contain as much as 3.36 per cent.; as the fruit ripens the proportion of coniine diminishes rapidly. The production of the mouse-like odour on rubbing the fruit with potassium hydroxide solution is due to the liberation of coniine from its natural combinations with vegetable acids. Other constituents of the seeds are methylconiine—an oily liquid resembling coniine, conhydrine, volatile and fixed oils, etc.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

ENERGY OF BECQUEREL RAYS.

In a further note on the question as to the origin of the energy possessed by the Becquerel rays (see *ante*, p. 333), it is pointed out that the existence of substances capable of emitting radiations possessing energy, without any appreciable loss of weight or introduction of work from external sources, would appear to be impossible from the view of conservation of energy. The measurements of M. Henri Becquerel upon the deviation of the radium rays in an electric field, taken in conjunction with those of M. and Mme. Curie of the charges carried by those rays, lead to results which show a way out of this difficulty, on account of the extreme minuteness of the quantities of energy in question. The calculations of M. Becquerel show that the energy radiated per square centimetre is of the order of one ten-millionth of a watt per second. Hence a loss of weight of about a milligramme in a thousand million years would suffice to account for the observed effects, assuming the energy of the radium to be derived from an actual loss of material.—*Nature*, **61**, 547.

CONSTITUTION OF SULPHITES.

It is now very generally agreed that the true constitution of the sulphites is represented by the unsymmetrical formula $R.SO_2.OR$, as opposed to the symmetrical $SO.(OR)_2$. One interesting outcome of the former view is that there should be isomeric double sulphites, the one $R.SO_2.OR'$, and the other $R'.SO_2.OR$, and Schwicker and Barth have indicated the existence of such isomers in the case of sodium potassium sulphite. Dr. Fraps, however, after carefully repeating those experiments, has been driven to the conclusion that no such isomerism exists in this case. That coincides with the views of Hantzsch, who holds that structural isomerism is unknown in inorganic bodies.—*Am. Chem. Journ.*, through *Nature*, **61**, 547.

MEDICATED WATERS.

A. G. Criddle and W. O. Richtmann compare the results of preparing medicated waters by various methods, and state that all the evidence is in favour of the method depending upon impregnation of and filtration through cotton. The waters are easier and more readily prepared, retain their strength and quality of odour longer, do not become turbid, remain free from fungus growths, contain practically no foreign matter, and are not incompatible with the substances with which they are most frequently combined. Waters prepared by the aid of cotton gave no reaction with silver nitrate, ferrous sulphate, copper sulphate, or zinc sulphate. The same result was noted in the case of medicated waters prepared by agitation with cold water, or by distillation of water vapour through cotton impregnated with volatile oil. When kieselguhr or talc was used as a filtering agent the resulting waters gave no precipitate, but those prepared by filtration through calcium phosphate or magnesium carbonate gave precipitates with several of the reagents. Cocaine hydrochloride, atropine sulphate and boric acid were not affected by medicated waters prepared by any of the methods tested.—*Pharm. Archives*, **3**, 22.

A NEW THERMOMETER SCALE.

A. Betts has devised a milligrade thermometer in which mercury freezes at zero and boils at 1,000 degrees, the scale being to Fahrenheit as 10 to 7, and minus degrees abolished for all ordinary purposes. On the proposed scale water boils at 360 degrees—the number of degrees in a circle, the point of aqueous congelation is just above 100 degrees, and 200 degrees milligrade equals 100 degrees Fahrenheit.—*Scient. Amer.*, **82**, 170.

VOL. 64. FOURTH SERIES, VOL. 10.). No. 1557.

F. P. Venable discusses the nature of the **COLOUR CHANGE OF CHROMIUM SALTS** change from violet to green in solutions of chromium salts and adheres to the opinion, formerly expressed by himself and Miller, that the colour of the green solutions is due to the formation of green and uncrystallisable basic salts of chromium, as first suggested by Berzelius. It is now stated, in addition, that the formation of those salts is accompanied by the liberation of a portion of the combined acid, corresponding to one-half of the total in the case of alum.—*Journ. Am. Chem. Soc.*, **22**, 111.

OIL OF CHRYSANTHEMUM.

The green leaves of *Chrysanthemum japonicum* yield on distillation, according to G. Perrier, about 0.16 per cent. of a greenish volatile oil, which is most abundant at the commencement of flowering. It is a somewhat oily liquid with a peculiar odour, resembling that of mint and of chamomile. It begins to boil at 160° C. Its sp. g. is 0.932 at 15° C., and its refraction index 1.4931 at 18° C. It is soluble in 10 parts of alcohol (70 per cent.). When cooled to -15° C. it deposits a small amount of a solid amorphous body, probably a paraffin; at -24 C. it becomes very thick, and is completely solidified on immersion in a mixture of ether and solid carbonic anhydride. It is acid to litmus, combines partially with bisulphite, and has a saponification index of 8.61. When the alkaline salt resulting from this saponification is decomposed with hydrochloric acid, there is formed a solid acid resembling angelic acid in odour.—*Bull. Soc. Chim.*, **23**, 216.

COMPARISON OF TESTS FOR FORMALDEHYDE.

B. M. Pilhashy finds that in some instances the delicacy of tests for formaldehyde is not as claimed, and in others the reaction supposed to be peculiar to formaldehyde is obtained with other aldehydes, and even with distilled water. Thus Schiff's reagent (fuchsine decolorised by sulphurous acid) is affected by most aldehydes in dilute solution, but a similar result can also be obtained by merely exposing the reagent to air, or warming the suspected liquid with it in the absence of an aldehyde. Phenol with sulphuric acid gives a reaction with most aldehydes, as also does diazobenzenesulphonic acid. Nessler's solution reacts with acetaldehyde as well as formaldehyde. Trillat's reagent (dimethylaniline and sulphuric acid) does not show the presence of formaldehyde, but of dimethylaniline or its salts when not completely volatilised. Lebbin's reagent (resorcinol with sodium hydroxide) will only detect 1 part of formaldehyde in 200,000, and not 1 in 10,000,000 as claimed. Morphine hydrochloride with sulphuric acid is not sensitive enough to detect formaldehyde in a solution containing less than 1 part in 1,000. Phenylhydrazine hydrochloride seems to be the best reagent for formaldehyde and, when used in conjunction with sodium nitroprusside and concentrated sodium hydroxide, is capable of indicating the presence of 1 part in 1,000,000.—*Journ. Am. Chem. Soc.*, **22**, 132.

ARTIFICIAL COLOURS IN MILK.

A. E. Leach presents a scheme for the detection of foreign colouring matter in milk, more especially annatto, caramel, or aniline orange. About 150 C.c. of the milk is curdled by the aid of heat and acetic acid, the curd macerated with ether, and the ethereal extract separated. The ether is then removed by evaporation, the residue made alkaline with sodium hydroxide and poured on a wetted filter which will be coloured orange if annatto be present. If the extracted curd be orange or brownish in colour, it is shaken up with concentrated hydrochloric acid; the solution immediately becomes pink if aniline orange be present, or gradually turns blue if caramel has been used as a colouring agent.—*Journ. Am. Chem. Soc.*, **22**, 207.

QUININE HYDROCHLORIDE AND CAFFEINE.

BY DR. B. H. PAUL AND A. J. COWNLEY.

The tendency of alkaloids to form compounds with each other when present in various solvents, and to simulate a distinct alkaloid having characters different from each of the component parts, is well known. Quinine and cinchonidine, for example, will crystallise together from a solvent such as ether, in which quinine by itself is most freely soluble, in a crystalline form quite distinct from crystals of cinchonidine. The sulphates of these alkaloids will also form double sulphates crystallising from water of varying composition according to the proportion of each present. Cupreine and quinine will produce a similar combination, which was at first regarded as a distinct alkaloid. In these instances, however, the solubility of the compound is to a great extent dependent on the proportion of the more insoluble alkaloid or its salt forming the combination. "A chemical union of quinine and caffeine" is claimed by Dr. Kreidmann for a preparation termed basicine. This compound, however, is more freely soluble in water than either of its constituents. It is said to be produced by melting two parts by weight of quinine hydrochloride—hydrobromide or hydriodide—with about one part of caffeine. The "liquefaction" is stated to take place without addition of a solvent, but neutral solvents such as water, alcohol, or chloroform may be added. The quinine hydrochloride and caffeine are claimed in this manner to have "entered into a combination which has essentially other physical properties than its constituents," the chief of which is that one part will dissolve in its own weight of cold water, while quinine hydrochloride requires about 35 parts, and caffeine about 70 parts of cold water respectively. It is also described as melting at "+125° C.," quinine hydrochloride at 193° C., and caffeine at 225° C.

Basicine dissolves, as stated, very readily in its own weight of cold water, with a faintly alkaline reaction. From its aqueous solution quinine can be precipitated by ammonia and separated by ether, leaving the caffeine in the aqueous liquid. It was found to melt at 174° C., whilst quinine hydrochloride and caffeine, both dried at 100° C., melted at 153° C. and 228° C. respectively. An admixture of two parts of quinine hydrochloride and one part of caffeine, both in the dried condition, should melt at 175°·5 C. The melting point of basicine, therefore, would seem to indicate a mechanical mixture rather than a chemical combination. In fact it is quite unnecessary that quinine hydrochloride and caffeine should be melted together to make the soluble compound, as the mere admixture of the two in the proportion of 2 : 1 will dissolve in its own weight of water on slightly warming the solution, and remain dissolved on cooling. Analysis of basicine gave the following result:—

	Per cent.
Quinine hydrochloride	62·6
Caffeine	33·0
Water at 100° C.	4·4
	100·0

When expressed on the dry substance the results are as follow:—

	Per cent.
Quinine hydrochloride	65·5
Caffeine	34·5
	100·0

In aqueous solution it would fairly well agree with the formula $(C_{20}H_{24}N_2O_2, C_8H_{10}N_4O_2)HCl$, as shown by the following analysis.

	Theory.	Found.
$(C_{20}H_{24}N_2O_2, C_8H_{10}N_4O_2)HCl$.		
	Per cent.	Per cent.
Quinic	58·6	58·9
Caffeine	34·9	34·5
HCl	6·5	6·6
	100·0	100·0

The formation, in the manner above described, of this very soluble preparation of quinine hydrochloride and caffeine is of chemical interest, apart from any medicinal value that may be assigned to it.

BACTERIOLOGY FOR PHARMACISTS.—II.

BY C. EDWARD SAGE.

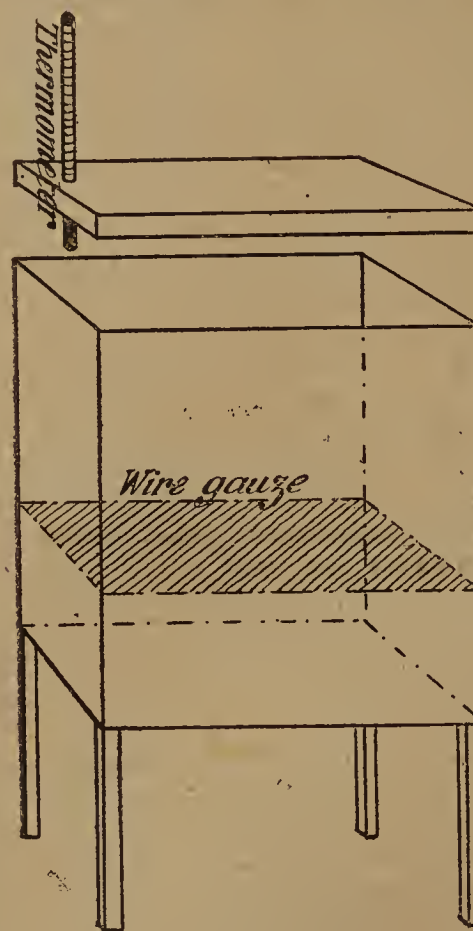
METHODS OF STERILISING AND WORKING.

Before we can proceed with the cultivation of micro-organisms, we must be able to start with apparatus absolutely free from living specimens, and the process of getting rid of or killing them is called sterilisation.

Apparatus must not be only outwardly and visibly clean, it must be absolutely clean, and when we consider that London tap-water contains somewhere between 30,000 and 100,000 organisms per litre, it will be evident that something more than washing will be needed.

The principal means of sterilisation are heat and germicidal agents, but for most practical purposes the student will find that heat in some form or other is necessary. The processes of sterilisation do not make very interesting reading, but unless they are carefully studied and scrupulously carried out no work worthy the name can be done.

To begin with the apparatus. Test-tubes, flasks, Petri dishes, pipettes, measures or bottles will be the chief things used by the student, and their sterilisation is best carried out as follows:—Make a solution of soft soap, 8 oz.; washing soda, 2 oz.; water, 4 pints, and keep some always ready. When operations are commenced, take a large enamel ware bowl and half fill it with boiling



HOT AIR STERILISER.

water, add a few ounces of the above soap solution, and place a bottle-brush or nail-brush in the hot water, then put in the test-tubes or other things, and as soon as the water has cooled to a temperature at which it can be borne by the hands, commence to brush all the things well with the soapy water; this removes all the dirt and grease. Next rinse well in tap-water and allow them to drain, then wash out with dilute hydrochloric acid (about 1 in 10), this removes mineral matter and other impurity, then rinse well with tap-water and finally with distilled water. If the distilled water is not used a film of lime salts will remain on the tubes and flasks when they are dried. When all the things have drained well place them on a tray, and put them into the hot air steriliser when

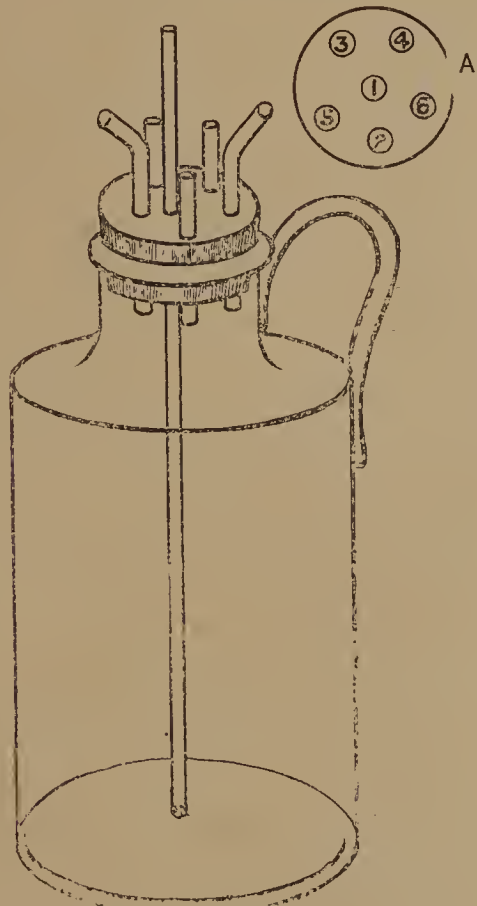
it is cold and gradually raise the temperature to about 150° C. The water is gradually expelled, and at the temperature named all organisms are killed and the utensils rendered sterile in about fifteen minutes after the maximum heat has been maintained. Thick glass vessels are very liable to crack when treated in this way, and it will be better to dry them more gradually in a warm oven and then to hold them in a jet of steam for a few moments, and afterwards to place them in a large sterile vessel to protect them from the air.

A hot air steriliser may be easily improvised if needed, but when the kitchen oven can be made use of, it saves a lot of gas.

To sterilise tubes, flasks, or dishes in an ordinary oven they should be placed on a dish and put in the oven when it is cool, and left there until it has been hot for an hour or more.

A very useful hot air steriliser may be made from a biscuit or quinine tin by boring a number of small holes in the sides about two inches from the bottom and threading iron wire through the tin, so as to form a network inside the tin. A hole must be cut in the lid for the thermometer, and when the damp apparatus is first placed in it the lid should be tilted to allow the steam to escape.

Flasks may be readily and conveniently sterilised by boiling a few ounces of water in each for five minutes, pouring out the water, and plugging with cotton wool previously sterilised.



STEAM JET STERILISER.—A Section of cork showing numbered holes.

For sterilising pipettes, bottles, or measures a jet of low pressure steam is invaluable, and may be easily obtained by boiling water in a half-gallon tin can fitted as follows:—Take a can with a wide neck and fit it with a good cork, bore six holes in the cork, as in the diagram. Through hole No. 1 fit a piece of $\frac{1}{4}$ -inch glass tubing long enough to go nearly to the bottom of the can and also to allow six inches above the cork. Through each of the holes 2, 3 and 4 fit pieces of $\frac{3}{4}$ -inch glass tubing about two inches long, and through holes 5 and 6 two pieces of $\frac{1}{4}$ -inch tubing about six inches long and bent at an angle of about 40° two inches from one end. The can is about half filled with water and boiled for a few minutes, then when steam is issuing freely pipettes may be slipped through the tubes in 2, 3 and 4, mouth downwards; on the tubes 5 and 6, test-tubes or small bottles may be placed, five minutes' steaming will effectually sterilise them and they can be plugged with sterile wool

and kept until wanted. Tube No. 1 acts as a safeguard, for if it is pushed through the cork until it is within half an inch of the bottom of the tin, as soon as the water gets below that level steam begins to issue from it.

Large bottles may be sterilised by washing them well with Liq. Hydrarg. Perchlor., then with distilled water, and holding them over the steam jet until the steam ceases to be condensed in the bottle. They must be plugged with wool until needed, and even if they are stoppered bottles wool is the best thing to put into the neck until they are cool.

Pharmacists would find this process of steaming out bottles of great utility if they wish to avoid the decomposition of hypodermic injections or eyedrops.

Cotton wool is continually needed with which to plug the necks of tubes or flasks, and it must be carefully sterilised before it is used. It will be found most convenient to use absorbent wool of fairly good quality, and to pull it into small pieces before sterilising, then it need not be handled until it is used. Having pulled some wool into convenient-sized pieces, place the whole loosely in a tin or old covered pot and place this in the hot air steriliser. It must be heated to 130° C. for about fifteen minutes, and no longer. Above this temperature the wool becomes brown and brittle, and falls to dust when handled. When it is required to plug a sterile flask all that is necessary is to take a piece of the sterile wool in a pair of forceps, previously sterilised by passing them through a bunsen flame, push the wool into the neck of the flask in a compact mass and singe it in the flame.

Flasks so plugged will remain sterile, and several should be done at a time; in fact, the washing and sterilising of apparatus should never be done piecemeal.

Alembroth wool, coloured blue, and Lister double-cyanide wool, coloured pink, are useful additions, and the coloured plugs are sometimes a means for distinction of different sets of experiments.

All vessels in which culture media or solutions are to be placed must be sterilised in one of these ways, but bell-glass covers and large dishes, in which the tubes and flasks are to be placed, can be sufficiently sterilised by washing with soapy water, rinsing well with water first and afterwards with 1 in 1,000 solution of mercuric chloride.

To keep apparatus out of the dust it is very convenient to have several bell jars and a cupboard with glazed doors and some shelves. All these should be carefully washed with soapy water and dilute mercuric chloride solution. Forceps and any metal instruments can be safely and effectively sterilised by heating them in the hot air steriliser in the tin in which they are kept when not in use, or platinum needles, scalpels, or scissors may be passed through a bunsen flame two or three times.

The room in which the student works should be as free from dust as possible, and a damp cloth should be used for dusting.

Before commencing and after finishing work the hands should be well washed, using some of the soap solution and, after rinsing a little, 1 in 1,000 perchloride solution.

Methods of sterilising liquids will be considered under the preparation of the different culture media.

With the exception of a few small things, all the apparatus required has now been enumerated, and although some of the things recommended have been improvised inexpensively yet it will be found that workmanship is of much more importance than costly apparatus.

The few remaining things needed by the beginner are:—

Glass plates for cultures, old photographic negatives are as convenient as anything, and the student may suit himself as to size according to the size of the bell jar he provides himself with. The corners of the plates should be cut off and the edges filed down a little.

A glass dish, about 10 or 12 inches in diameter, with another dish or a bell jar fitting inside it.

Glass shelves. These can be made by cutting up "half-plate" negative glasses and fixing a narrow strip of $\frac{1}{4}$ -inch plate-glass on each end. They are intended for placing one on each other, to form a tier of shelves for glass plates.



PETRI DISHES.

Petri dishes are shallow, flat-bottomed glass dishes about four inches in diameter and $\frac{1}{2}$ -inch deep, one fitting inside the other. They are by far the most convenient form for plate cultures, and every beginner should have some. Some form of levelling apparatus is necessary, and a wooden triangle with levelling screws is what is generally employed; this carries a large dish of cold water on which is placed a larger glass plate, and this will serve for a cold bed on which to set gelatin cultures to cool.

It is probable, however, that the student will not need this very frequently at first, and as mercury is always to be found in every pharmacy it may be utilised by pouring it into a developing dish, and then a glass plate floated on its surface makes a perfect level.

Petri dishes, if not very thick, will float on water, and if the water is cold the lower dish containing melted gelatin medium may be cooled on the level surface by floating it with care.

For the present no more apparatus, except flasks, test-tubes, and items to be found in every pharmacy, will be needed, but a small supply of agar-agar and white gelatin should be procured for making some of the culture media.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

A Sensible Appeal to Voters.

Of all the letters that have as yet appeared in connection with the approaching Council election, that of Mr. John Smith is far and away in advance of the rest. It is not couched in unintelligible language, it contains no absurd arguments or misstatements of fact, and its writer—unlike some others whom it would be invidious to mention—does not assume that his readers are so lacking in intelligence as to be able to see straight issues where there are none but very crooked ones. Nevertheless, he does put one straight issue before the electorate, when he urges the desirability of electing good all-round men on the Council, rather than mere partisans. The man of one idea may be an able exponent of the particular line of policy he advocates; but I think he is to be distrusted if he makes up his mind in advance not to diverge from that line, whatever may be the force of arguments advanced in favour of divergence. The members of the Pharmaceutical Society, if they are wise, will elect broad-minded representatives on the Council, and not mere delegates whose situation when attempting to deal with other subjects than those concerning which they have received instructions will be as that of ships without rudders—drifting aimlessly here and there, as the prevailing current may direct.

The Need of Sweet Reasonableness.

I note that even Mr. Glyn-Jones does not approve of returning men pledged to follow a particular course with regard to a single subject only. True, in his open letter issued with the *Anti-Cutting Record* a few days ago, he refers to the company trading difficulty as the matter requiring most pressing attention; but he appeals that new men may be elected on the Council, on the broader ground that he thinks great improvement is possible in the administration of the Society's affairs, and that only by reconstituting the executive body can such improvement as is needed be properly effected. That may or may not be so; I merely refer to his opinion on the

subject as an instance of the sweet reasonableness which is not necessarily absent from the minds of the most radical reformers. Mr. Glyn-Jones is a man of the world, possessing more than an average acquaintance with the difficulties that beset pharmacists, and he is at least entitled to such credit as may be earned by—though not always awarded to—anyone who devotes himself disinterestedly to the improvement of the position of his fellow-craftsmen. Such a man I firmly believe Mr. Glyn-Jones to be and, though I am not at all times able to see eye to eye with him, I trust that as full consideration will always be given to his arguments as to those advanced by individuals of a less impulsive temperament.

An Offence Against Tradition.

The only serious objection that has been and, in my opinion, can be raised in connection with the adoption of a caucus policy at the secret meeting previously referred to, is that matters have been put in train by a member of Council who is not himself standing for re-election on the present occasion. That circumstance alone is unusual and, perhaps, repetition or imitation of Mr. Glyn-Jones's action may render us so familiar with such procedure as to enable us to regard it with sufficient imperturbability in the days to come. Just at first, however, the novelty of the thing has caused something like a shock; it may be that recovery from that will not be complete until after the sixteenth day of May next ensuing. If such should prove to be the case, I anticipate the re-election of the seven retiring members of Council; at the same time, I must warn those who are not anxious for any change in their representation that they cannot afford to remain inactive in the coming struggle, as at least two thousand votes—and possibly many more—may be required to secure a seat. Mr. Glyn-Jones—as representing the views of some seventy writers of letters—has urged the members of the Society to vote solidly for the four new candidates selected after considering those letters. Doubtless we shall yet be similarly urged to vote for the seven old representatives and possibly for other combinations. In any case I would strongly urge every voter to exercise his full voting power. Seven members of Council must be elected and for every vote a member of the Society fails to record he sacrifices one-seventh part of his power to influence the course of events.

How Mischief is Done.

It may seem brave to be careless of consequences; but it is not always discreet to throw stones at one's own glass house and I utterly fail to appreciate the frame of mind which leads some pharmacists to send to trade journals letters in which they confess the imaginary sins of others. One of the latest shining examples of that bad habit is a pharmaceutical oracle, hailing from Dumfries, who is not attempting to secure election on the Council of the Pharmaceutical Society this year, though a time may come, etc. But, though not of the Council, he has chosen to identify himself with that body by writing about the prosecutions (under the Pharmacy Act) "we" undertake and, with sublime impertinence, asserting that they are not according to sound judgment. Continuing, he gives expression to rank nonsense in the statement that "*we* drag up some poor grocer for selling a quack medicine which is too valueless to injure anybody and which (*sic*) brings no profit to *us*, whilst *we* let the unqualified man who conducts branch shops, either for limited companies or private persons, alone." Then, apparently quite convinced of the truthfulness of the foregoing statement, he raves about the supposed facts leading people to accuse "us" of being a close corporation seeking after a monopoly, and about an imaginary charge by the President of the Board of Trade that "we" do not look after the public interest, in addition to much more rubbish of a similar kind. So long as they were carefully buried in the columns of a trade journal those reckless exaggerations and misstatements counted for nothing, but they have been

taken seriously by the *Grocer* and quoted by the editor of that sedate journal, who has been so far imposed upon in the matter that he refers to the self-constituted and mistaken apologist for the Pharmaceutical Society and its Council as appearing to be "a person of sound common-sense." The thing would be laughable if it were not so serious; but perhaps, after all, even the commendation of the credulous editor of the *Grocer* may not suffice to give weight to the nonsensical scribblings I have referred to.

An Ex-Editor's Views.

The gist of the vicarious confession partially quoted in the preceding paragraph is, it will be noted, that the Council of the Pharmaceutical Society has not, in the opinion of its Dumfries critic, acted as it ought to have done in the matter of administering the Pharmacy Act of 1868. But, in the election address just issued by the recently retired editor of the trade journal in which the "confession" appeared, I find a passage which cuts the ground from under the feet of the Dumfries critic. Thus, Mr. Wootton says: "I do not complain in the least of the legal administration of the Act. As far as an outsider can judge, the Council of the Pharmaceutical Society have (*sic*) exercised their powers in this direction with such vigour, tempered with discretion, as to make the statute respected without risking the alienation of judicial sympathy." So much for Dumfries criticism and grocers' approval thereof. With regard to the rest of Mr. Wootton's address, I find in it but small trace of the policy he sets himself to define. The guiding principle of his policy is to be "the maintenance in its integrity of the Pharmacy Act of 1868." But that is what Mr. Gifford says and he means something quite different from what Mr. Wootton means. Apart from that, however, Mr. Wootton's policy would apparently be limited to attempting to come to an agreement with the Lord Chancellor on the subject of company trading in pharmacy and the starting of a "crusade"—a Red Cross one, presumably—to secure the scheduling of carbolic acid as a poison. The policy is neither a rash nor a striking one; in fact, its chief feature appears, to me, to be its close resemblance to that of the Council as at present constituted. Nor can much more be said of Mr. Cooper's statement of his views, which appeared in last week's *P. J.* I therefore feel impelled to ask, once more, in what respect are the new men better than those they propose to replace? Newness may be a sufficient recommendation to some voters; but ability to do what is required strikes me as being a quality of a more practical character.

Un-Natural Selection.

It would seem, however, that Mr. Glyn-Jones and his friends are prepared to stake everything, at this election, on the fact that the candidates supported by them have never served on the Council before. The same qualification is possessed by six other candidates, but they, apparently, are lacking in some other saving grace. Such, at least, I infer from their non-selection by those who attended the caucus meeting and had those seventy letters before them. Doubtless, the favoured four are good men of business; but are the remaining six otherwise? Something in the nature of a reason for making a selection is to be found in Mr. Glyn-Jones' words: "There are ten new candidates and if your votes are distributed amongst them, none of them will be successful. If, therefore, you want 'fresh blood' on the Council, I respectfully urge you to vote solidly for the above four." But though the reason given for making a selection is intelligible enough, I am still unable to comprehend why only four of the new candidates should be thus favoured, especially in view of the fact that none of the old candidates are recommended for re-election. Time, however, solves most problems and we may expect to have Mr. Glyn-Jones' explanation of his little mystery before many days are past. The voting papers will have been issued by the time the next issue of the *P. J.* is published and I shall be surprised if we do not receive further advice, how to vote, about a week or so hence.

A NEW PHARMACOGRAPHIC ATLAS.

ATLAS DE PHOTOMICROGRAPHIE DES PLANTES MEDICINALES. Par Dr. L. BRAEMAR and Dr. A. SUIS. Pp. 76 (Illustrated). Price 15 fr. Paris: Vigot Frères, 23, Place de l'Ecole-de-Médecine, 1899.

The publication of an Atlas of Photomicrography of Medicinal Plants is the more cordially to be welcomed, as unusual energy has been devoted during the last few years to the study of the anatomy of drugs, and several valuable works have in consequence made their appearance.

The object that Messrs. Braemar and Suis have had in view has been the collection of a series of illustrations that shall faithfully represent microscopical preparations as they appear to the observer. They state in the preface that they have found their students experience considerable difficulty in identifying the illustrations in the current text-books when compared with the corresponding objects examined under the microscope. Attributing this to the inaccuracies inherent in every illustration produced by sketching, which can necessarily be but an approximation to the truth, they have endeavoured to obtain by photography an exact representation of the object, and by means of the usual mechanical methods of reproduction, to furnish illustrations more faithfully accurate than the best of sketches.

The vast advance that has been made during the last few years in the mechanical reproduction of photographs has created a revolution in the methods of illustrating works of the most varied nature. The half-tone, collotype, and other processes have rendered the production possible of faithful, elegant, and inexpensive illustrations, and the attempt has not been wanting to apply these processes in conjunction with photography to the reproduction of objects viewed under the microscope. Such attempts have, however, met with only a modicum of success, and the leading pharmacognosists and anatomical botanists have continued to draw the object by hand and reproduce their sketches by wood-cuts or lithography, or one of the mechanical processes referred to.

The subject is one of great interest and high importance, and merits, therefore, the most careful consideration. If it is possible by means of simple mechanical processes not only to avoid the tedious sketching by hand, but at the same time to produce a more accurate illustration, an enormous saving of time and labour can be effected.

The work that Messrs. Braemar and Suis are offering to the scientific world consists of 76 plates, embracing 159 illustrations and accompanied by 70 pages of descriptive text. A few of the illustrations are photographs of the drugs themselves, but the majority of them are reproductions of microscopical preparations such as sections of barks and leaves, surface views of the epidermis of leaves, etc. These illustrations, which form the *raison d'être* of the work, have been printed from blocks made by the half-tone process from photographs of the objects themselves.

Of the photographs of the drugs some are remarkably good, as, for instance, those of couch grass rhizome (Fig. 7), cassia bark (Fig. 35), boldo leaf (Fig. 64), and cherry laurel leaf (Fig. 90), but others such as senna leaf (Fig. 92), foxglove leaf (Fig. 121), and star anise fruits (Fig. 148) are only moderately successful.

Turning to the photomicrographs, it is truly unfortunate that the first plate, illustrating wheat, sago, and potato starch, should fail to afford support to the process adopted. The starch grains appear uniformly black, the outline being shown, but all detail such as the hilum, striae, etc., being completely lost. The difficulty of obtaining good photographs of starch grains is, however, well known, and this plate may therefore for the present be passed over.

Fig. 8 on Plate 3 illustrates the transverse section of the rhizome of *Agropyron repens*, P.B., and Fig. 9 that of *Cynodon dactylon*, Pers. In these sections strongly lignified, thick-walled

cells and fibres are sharply contrasted with parenchymatous tissue, the distribution of the bundles and their general structure being well shown. The same may be said of the section of Honduras sarsaparilla (Fig. 13). The illustrations of the sections of aconite root (Fig. 14), of rhatany root (Fig. 22), of cinnamon bark (Fig. 34), and cusparia bark (Fig. 38) are also good. In the illustrations of Jamaica and Surinam quassia the distribution of the vessels is well shown, but that of the wood parenchyma is less easily perceptible, as the difference between this and the wood fibres is not very well marked. All of them are, however, characterised by a truly remarkable veracity, and one could readily imagine oneself to be looking through the microscope at the section itself.

But it is amongst the leaves that the best illustrations of all are to be found. Here the epidermis can usually be separated, and often lends itself well to reproduction by photography, whilst the transverse section of the midrib exhibits a bold contrast between strongly lignified wood tissue and non-lignified parenchyma. Particular allusion might be made to the sections of the orange leaf (Fig. 75), periwinkle (Fig. 114), and foxglove (Fig. 122), as well as to the surface views of the lily of the valley (Fig. 55), periwinkle (Fig. 115), and buckbean (Fig. 119). These are all beautiful examples, for the production of which exquisite sections, as well as great experience and skill, must have been necessary.

An inspection of these illustrations will show that the process is well adapted for exhibiting the general distribution of tissues in sections of large size under low powers, and Messrs. Braemar and Suis may be congratulated on producing a series of plates that certainly surpass in excellence any similar ones that have hitherto been published. Such illustrations as these have, moreover, a unique value in their unimpeachable veracity. At the same time, in this, as in all cases, there is a reverse to the medal, and it is only right to inquire into and point out the shortcomings of the process. Let it, however, be understood that the remarks that follow apply to all mechanical processes of reproduction, and not to Messrs. Braemar and Suis's plates alone.

The illustrations of the anatomy of a drug should show, first, the distribution of the various cells and tissues, and, second, the details in the structure, etc., of those cells and tissues.

The distribution is usually sketched under a low power, and must include a considerable area; although the insertion of details is not necessary, yet a higher power must often be requisitioned to clear up the nature of doubtful parts that are generally to be found even in sections of more than average quality.

The details of the tissues are sketched under a higher power, and the attempt should be made to reproduce them accurately in all their minute details. Now, only that part of the section can be seen distinctly that is exactly, or very nearly exactly, in focus at the moment of observation; this permissible variation from the exact focus has been estimated to be about one ten-thousandth of an inch in either direction—that is, either above or below the accurate focus. In other words, all those parts of the section that for any reason such as the unavoidable thickness of the section, inequalities in the mounting, etc., are more than one ten-thousandth of an inch above or below the exact focus will not be distinctly seen without special adjustment of the focus. Hence, while a section is being examined under a high power, a continual changing of the focus is necessary, and as a matter of fact the finger of the expert microscopist seldom leaves the fine adjustment. The observer must mentally combine the several views of the object under examination at different foci, so as to obtain a complete conception of it; he has then to depict upon one plane points that exist in different planes, as proved by the necessary change of focus. The production of a sketch is therefore a matter for the brain as well as for the eye and the hand.

Moreover, portions of the section lying above or below the part focussed interfere with a distinct vision of that part; in that case

the worker has it in his power to make his sketch more distinct by omitting them, and this is invariably done.

Now, let the reader interested in the subject examine Messrs. Braemar and Suis's photomicrographs, bearing in mind always that the following remarks apply to all mechanical reproductions of microscopic objects, and not to these illustrations alone. He will observe that although, as already pointed out, the general distribution of the tissues is well shown, the details are so indistinct that these tissues can only be identified with difficulty, if indeed at all. Thus in the leaf sections the bast and the pericyclic fibres can be identified by their position only; in the surface preparations the stomata, which are often elevated above or depressed below the level of the epidermal cells, are usually indistinct, and sometimes quite unrecognisable. Take, for instance, the upper and lower epidermis of the orange leaf (Figs. 77 and 78); in the former the calcium oxalate crystals that lie just below the surface would infallibly be mistaken for stomata were not their nature indicated; whilst in the latter even an experienced eye can detect them only with difficulty. These details would have at once become apparent by a slight alteration of the focus, and in a sketch would be clearly delineated.

But, it may be urged, details, as already observed, are not necessary in somewhat extensive views under a low power. That is true, and it will be desirable to ascertain to what extent smaller portions under higher powers exhibit the particulars required. Take, for example, the illustration of cassia bark (Fig. 36); here the shape of the cork cells, sclerenchymatous cells, and bast fibres are quite indistinguishable, whilst the starch grains and calcium oxalate crystals are not depicted at all, yet these constitute important points of the section. Hairs, as is well known, are amongst the most important features; but there is scarcely an instance in which they are satisfactorily shown. Compare in this respect the illustrations of the senna leaf, witch-hazel leaf, foxglove, henbane, etc.

It may be said that these details are better exhibited on slides made and photographed for that purpose. But this necessitates the production of a large number of such, and even then there is no guarantee that they would be more successful, at least if one is to judge by the plates of starch grains shown in the atlas. Moreover, it must also be remembered that the screen necessary for the production of blocks by the half-tone process (the one selected for the atlas) is very liable to obliterate fine lines, which might therefore be visible in a photograph, but lost during the process of reproduction. In the production of illustrations of powdered drugs the disadvantages of photography would be still more conspicuous, for how many different preparations must be examined to produce one sketch that shall include all the important cells, cell contents, etc., shown with the necessary clearness?

But even if photomicrography should eventually become capable of producing illustrations equal to sketches, there is one very cogent reason why it should be employed with caution—viz., the educational value that the latter possesses. The close and critical attention that both student and expert must give to any object examined under the microscope before a sketch can be produced is in itself, as every teacher knows, an education of incalculable value. Such sketches prepared by students serve as an excellent index of his comprehension of the subject. Hence there are good grounds for recommending illustrations produced by sketching for comparison, an opinion which is contrary to that expressed by the authors in their preface.

The plates in Messrs. Braemar and Suis's atlas are beautiful specimens of what photomicrography as applied to the anatomy of drugs is capable of effecting. It is a convenient method for exhibiting the distribution of tissues, as shown by large sections under low powers; but it is not, even in the high state of efficiency to which the authors have brought it, well adapted for delineating delicate details, and it is devoid of the educational value possessed

by the drawing of sketches. These opinions coincide with those recently published by Lenz, in the *Berichte d. deutschen pharm. Gesellschaft*, after devoting considerable attention to the subject.

For the expert pharmacognosist the atlas possesses a great and permanent value. It provides indisputably authentic records with the utmost detail that the process allows, and will therefore take a high place as a standard work of reference. It is to be hoped that the authors will publish an account of the method by which their results have been attained, and thus, by saving the time, lengthen the lives of their fellow-workers.

PHARMACEUTICAL SOCIETY. COUNCIL PRIZES EXAMINATION.

BOTANY.

Saturday, April 21, 1900, from 10 a.m. to 11.30 a.m.

1. State what you know of the different methods in which Flowering Plants perennate. Give an example of each method you describe, and point out its ecological significance.

2. Write an account of the life-history of any Saccharomycete, and point out the effect of its life upon the medium in which it lives.

3. Arrange in a convenient classification the methods of pollination observed in Flowering Plants. Describe the process of fertilisation in Flowering Plants, comparing particularly the features of it in Gymnosperms and Angiosperms.

4. What are the characters to which you would ascribe importance in determining the position of a Natural Order as low down or high up in the group of Dicotyledones? Give illustrative examples.

MATERIA MEDICA.

Time: 11.30 a.m. to 1 p.m.

1. Describe the two chief active principles of Broom, outline a method by which they can be obtained, and state to what extent they are represented in the official preparations of the drug.

2. Name the principal fatty acids in Cod-liver Oil, and state approximately their proportions and the state of combination in which they chiefly exist. Give, if you can, a process by which the admixture of other fish-liver oils may be determined. To what is the "rancidity" of Cod-liver Oil due?

3. Give the botanic source of the commercial varieties of Liquorice Root; indicate their respective characteristics; describe the best method of obtaining and retaining their sweet content; and say which you think the most generally useful for pharmaceutical purposes.

4. How would you identify a sample of Powdered Ginger and determine its value, and freedom from sophistication?

CHEMISTRY.

Time: 2 p.m. to 5 p.m.

1. Describe and explain the phenomena that would be observed on treating a quantity of mercury with excess of nitric acid in an open dish, and afterwards evaporating the resulting solution to dryness and applying heat to the residue until no further change took place.

2. What changes, if any, take place when the following salts are exposed to the action of heat:—Zinc sulphate; potassium sulphate; ferric sulphate; ammonium sulphate; potassium chlorate; potassium chloride; ammonium chloride; ammonium nitrate?

3. Starting from ethane, describe the steps you would take in preparing from it (a) Ethyl alcohol; (b) acetone; (c) oxalic acid.

4. How is acetanilide prepared? Mention the chief properties of acetanilide, and give its constitutional formula.

5. Write out in concise form an account of the process, as you would actually use it in the laboratory, for the gravimetric determination of magnesium in a sample of magnesium sulphate, and emphasise any precautions necessary to secure a high degree of accuracy.

6. 0.5013 Gm. of a mixture of sodium and potassium sulphates, when mixed with a solution of barium chloride in slight excess, yielded 0.7634 Gm. of barium sulphate. Find the quantity of each sulphate in 100 Gm. of the mixture.

EXAMINATIONS IN LONDON.

April, 1900.

MAJOR EXAMINATION.

Candidates examined	36
„ failed	17
„ passed	19

Barnes, George Harry	Heaton, Wallace Evans
Chatburn, Edwin Jordan	Hobbs, Henry Allmond
Collin, John Francis	Lenton, Walter Henry
Dawson, Robert Hilliard	Nash, Ernest
Derbyshire, Charles Henry	Newton, Alfred
Dunford, Walter Henry	Pollard, Evelyn William
Finnemore, Horace	Roy, Louis Leslie
Griffiths, Edwin	Thwaites, George Rose
Hardecastle, Edward	Wilson, Thomas Ellick
	Young, Francis Joseph

MINOR EXAMINATION.

Candidates examined	363
„ failed	263
„ passed	100

Abelson, Barnett	Irving, Eldred
Arnold, Wm. Robt. Bradfield	Jackson, David
Ashford, Frederick Charles	Jones, John
Ashton, Charles Henry	Josty, Waldemar
Bannister, Frank Ewart	Jull, Alfred Proctor
Barton, Ernest Alfred	Lambert, Joseph William
Bayley, Leonard	Martin, Hubert Joseph
Beer, Bernard	Mills, Frederick Charles
Booth, Herbert Cyril Swanley	Monks, Edgar Kingsley
Boss, Frederick James	Needham, Joseph Henry
Bowers, Thomas Edwin Sefton	Newell, William Robert
Brackenbury, Frank Hayden	North, Frederick James
Breese, Andrew	Norweb, Arthur
Brocklesby, David	Oddie, Major Sidney
Campion, Sydney Hooper	Parkin, Ernest
Cartwright, Alfred Harry	Parkinson, Henry James
Clark, John William	Perkins, George Mitchelson
Clouting, John Mackenzie	Pickard, William
Cocking, Harold Holland	Porter, Frank
Connor, Thomas Haigh	Powell, Bertram Henry
Cuthbertson, Lucy Maud Mary	Prichard, Thomas John
Davies, David Augustus	Read, Robert
Denton, Joseph	Rees, Rees
Duckworth, Arthur	Richardson, Herbert Stanley
Dyas, James Edmund	Roberts, Caswallon Pugh
Edmunds, David	Robinson, Alfred Ernest
English, Robert Coulson	Saint, Thomas
Evans, David	Sandberg, Frederick James
Evans, Robert Harold	Sant, Arthur William
Fielden, James	Samuel, Henry
Fisher, Percy	Scott, William Atha
Ford, Meade Leahy	Simpson, Gibbon
Gilman, William Robert Altham	Smart, Frederick
Godson, George Frederick	Smith, Daniel
Gouldbourn, John Banks	Smith, Harold
Grout, Harry Fred	Smith, Percy Lewis
Hadfield, James Henry	Smith, Tenison Norman
Harlow, William Thomas	Smith, Walter Leslie
Hass, Hermaun Leouidas	Spicer, Malcolm
Hearle, Joseph	Steel, George Augustus
Heath, Sidney	Teasdale, Harold
Hipperson, Charles Wm. White	Thomas, Thomas Henry
Hitchen, Clement Farnell	Thompson, Edwin
Hobbs, George Thomas	Thorne, William Henry
Hooton, William Henry	Tillott, John Booty
Horsley, Percy James	Toon, Arthur
Hulme, Jasper Edward	Westlake, William Smalley
Hume, Ernest Norris Webb	Whaley, Frederick Thomas Bilbe
Hunt, Frederick Edward	Whitehouse, Colston Henry
Ironmonger, Herbert Lovell	Yeats, William George

FIRST EXAMINATION.

Certificates by approved examining bodies were received from the undermentioned in lieu of the Society's Examination:—

Aldridge, Frank Stanley; Ipswich	Lester, George H.; Dunstable
Allen, William Herbert; Kilburn	Liner, Frederic; Newark
Beken, Frank William; Cowes	Mercer, Nicholas; Blackburn
Bettinson, Fred. L.; West Bromwich	Metcalfe, Robert; Sunderland
Browning, Herbert L.; New Brompton	Meyler, Llewellyn J.; Cardiff
Child, Richard Stewart; Chepstow	Milnes, Frederick Charles; Keighley
Clarke, Arthur Blayney; Forest Hill	Molyneux, Reginald; Northwich
Comer, Donald William; Watton	Parsons, Harry Edward; Spilsby
Cooling, Thomas; Boston	Pratt, Herbert William; Liverpool
Crompton, Harry G.; London	Reeves, Robert; Birmingham
Day, Harold Davis; Dewsbury	Sanders, William Linthorne; Ilminster
Day, Reginald J. Herbert; Dewsbury	Shaw, Edgar Phillips; Sleaford
Govier, Ralph George, Leek	Stancombe, Sydney J.; Plymouth
Hicking, Joseph Edgar; Barnstaple	Stiles, Henry W.; Doncaster
Hill, Miriam; Birmingham	Suteliffe, Frank R.; Buxton
Hopkinson, Alfred J.; Canterbury	Verdier, Louis N. J. B.; London
Horrod, George William T.; Brixton	Vincent, George B.; Walham Green
James, William D.; Crosshills	Vincent, Sydney William; Clapham
Keen, Herbert H.; West Hampstead	Walmsley, S. E.; Kingston-on-Thames
King, Katharine M.; London	Wooster, Herbert Edward; Ealing
	Wright, Walter John; Reading

PRACTICAL NOTES AND FORMULÆ.

Liquid Cement.

Gelatin, 10 Gm.; water, 15 Gm.; sodium salicylate, 1 Gm.; clove oil, 9 drops.—*Oesterr. Zeits. für Pharm.* 54, 101.

Cough Mixture for Consumptives.

Bromoform, 30 drops; alcohol (90 per cent.), 10 Gm.; ipecacuanha syrup, 30 Gm.; cherry-laurel water, 20 Gm.; syrup of opium, 150 Gm. Three or four tablespoonfuls to be taken daily.—*Oesterr. Zeits. für Pharm.*, 54, 100.

LETTERS TO THE EDITOR.

The Council Election, 1900.

In connection with my candidature for re-election to the Council, I am rather averse to do anything in the way of issuing an address. To do so is quite right and proper on the part of new candidates; but in the case of one who, like myself, has been a Councillor for ten years, it appears to be quite unnecessary. My opinions upon current pharmaceutical questions are well known, and if my services have been satisfactory to the electors I shall no doubt continue to receive their support, and if unsatisfactory no promises which I can make now could or should induce them to return me again. Some of my friends, however, appear to misunderstand the position I have taken up in regard to the Companies Bill, and have expressed a wish that I should restate my case. This I shall do as briefly as possible.

Whatever our opinions may be as to the original intention of the Pharmacy Act of 1868, there can be no doubt as to the interpretation put upon the Act by the Law Courts and the Legislature. They say, in effect, that the sole motive of the Act is to secure the safety of the public, and that any protection which it gives to pharmacists is purely incidental. It is this opinion which has inspired Clause 2 of the Companies Bill. Companies, its framers say, have been declared to be outside the Act, and it is expedient for the safety of the public that they should be brought inside, and, *from the point of view of its authors*, the proposed clause does this most effectively, although from our point of view, as pharmacists, it does so most unfairly to us, more especially by giving away our clear right to exclusive use of the titles. I feel as strongly as ever I did that we should fight to the last in defence of our titles. These can only be earned by personal effort, and their use should therefore be confined to the persons earning them; but I have come round to the conviction that it is useless trying to put a stop to company trading altogether. Our aim should rather be to ensure that such trading is carried out under thoroughly efficient and qualified control.

In the present state of opinion upon company trading, both in and out of Parliament, it appears hopeless to try to secure anything savouring of protection, so long as it can be argued, with some measure of truth, that the safety of the public may be as efficiently secured in company as in private trading. But while my opinion, as an individual, is in favour of treating with the enemy, I could not, and cannot yet, see my way to do so as a member of Council. To begin with, I think that any amendment of the Pharmacy Acts should be done *directly* by an Amending Pharmacy Bill, instead of *indirectly* in an Amending Companies Bill. And, again, for the Council to propose any amendment upon Clause 2 would commit, not only itself, but the Society to its principle. Is the majority of the Society prepared for this? I think not. It is rapidly nearing the point, but has not quite reached it.

The present Council was elected to carry out the traditional policy of the Society, and cannot constitutionally change that policy without an "appeal to the country." Besides, it cannot be denied that, as yet, the prevailing *expressed* opinion of the members is in favour of prohibition, not control; so long as that is the case it appears to me incumbent upon the Council not to give the Society away. The result of this election will to a certain extent clear the situation and, should I be re-elected, I shall after this declaration, consider myself free to support the policy of control if I see fit to do so. If, holding these opinions, the electors should return me to office, I shall, as hitherto, do what little I can, as a country member of the Society, to look after their interests.

Kirkcaldy, April 20, 1900.

DAVID STORRAR.

Mr. Glyn-Jones and the Council Election.

I have received, in common with many other chemists, the April number of the *Anti-Cutting Record* and find therein (see enclosure) "An Open Letter to the Members of the Pharmaceutical Society," signed by Mr. W. S. Glyn-Jones, in which he seeks to influence voters on the forthcoming Council election to return Messrs. Cooper, Gibbons, Taylor and Wootton in place of four of the present members who offer themselves for re-election. Mr. Glyn-Jones states that he feels extreme urgency for doing so; but I wish to point out that the matters to which he refers are capable of being represented in a light quite different to the one in which he is desirous to exhibit them and that the interest of the Society lies in the direction exactly opposite to that which he is taking.

Mr. Glyn-Jones complains broadly of the inactivity of the Council; that he—presumably the only active member of it—is "hopelessly outvoted." He gives in detail examples of the inaction of which he is the opponent. The first of these is the question of unqualified dispensers in doctors' surgeries, about which so much was said at last year's annual meeting. It will be remembered that when that discussion took place the subject had been referred to the General Medical Council by the Privy Council; that fact was stated at the annual meeting before it was asked to leave the further consideration of the matter in the hands of the incoming Council.

Mr. Glyn-Jones is, however, incorrect in stating that the Council has "done absolutely nothing since," for at the very first meeting of the General Purposes Committee, at which Mr. Glyn-Jones was present, the matter was carefully considered and a conclusion unanimously arrived at, that while the General Medical Council had the matter under consideration, it was not the province of the Pharmaceutical Council to interfere. When the General Medical Council did report upon the matter—although disappointment was undoubtedly universally felt at the conclusion arrived at by that body—no one, not even Mr. Glyn-Jones, proposed to come into conflict with a duly accredited department and surely no member of the Pharmaceutical Society would desire the Council to take a course that would certainly expose it to rebuff for interfering with a matter wholly outside its own province. Surely the most superficial reflection should convince us that while we have our own affairs to regulate, those of the medical profession must be left to its own rulers.

Mr. Glyn-Jones goes on to say that "companies are still using our titles and keeping open shop for the sale of poisons," but the inference that he, and he only, of the members of the Pharmaceutical Council, has made any move to alter and amend this state of things is not justified by facts. I can testify that each and every one of his colleagues was, and is still, quite as anxious as himself to amend the law and no one knows better than himself that it is because the Government is determined not to accept any amendment of the clause, that a practically unanimous decision has been arrived at to oppose the clause altogether. On other matters Mr. Glyn-Jones complains that his views are in a hopeless minority and therefore, strongly believing in himself, he demands "a change in the personnel of the Council."

With regard to the selected list, I presume that he has carefully consulted, and come to an arrangement with, the four gentlemen he recommends; for it would be a dire disappointment to find, after all, that some, if not all, of them held different views to himself and, having seen some of the opinions formerly expressed by one of them, I should not personally be surprised at such a result. After all, Mr. Glyn-Jones, although a shrewd, capable man, is only a one-year-old Councillor; his energy is manifest and his courage is dauntless; but, after all, it is a large order to give him the controlling power of the Society all at once.

Shrewsbury, April 24, 1900.

W. GOWEN CROSS.

[ENCLOSURE.]

AN OPEN LETTER
TO THE

MEMBERS OF THE PHARMACEUTICAL SOCIETY.

Last year I solicited your support for my candidature for a seat on the Pharmaceutical Council—you were good enough to elect me, and I have now had almost twelve months' experience as a member of that Council. I asked for your support last year because I was, above all things, anxious that dispensing by unqualified persons in doctors' surgeries and elsewhere should be dealt with. In spite of the evident feeling on that subject, expressed at last year's annual meeting, nothing has been done. The Council at that meeting asked you to leave the matter in their hands. They have done absolutely nothing since. Until there is a change in the personnel of the Council I am convinced I should be wasting time in again raising the question.

Companies are still using our titles and keeping open shop for the sale of poisons. The Council for years have been appealing to the Government to deal in a Companies Bill with the anomaly. The Government have at last inserted a clause dealing with it in the present Companies Bill. That clause has been receiving the attention of our Council's Committee, and that Committee has been allowed by the Council to dally with the question for months at a time. Now the Council proposes to make no attempt to get a suitable clause in the Companies Bill, but simply to secure the deletion of the present objectionable clause, and as a result let things go unaltered. If the deadlock is to be ended new men must be sent to the Council.

On other matters those of you who have followed the reports of the Council meetings will have noted that I am hopelessly outvoted. I believe that a great improvement is possible in the administration of the Society's affairs. Money can be saved and utilised for fostering healthy local organisations. The majority of the outgoing members are, judging from their votes in the Council and its Committees, satisfied with the present state of things. If you think no improvement is possible you will doubtless vote for retiring members. If, however, you are not satisfied that the most is being made of the Council's opportunity to improve your position as registered chemists, return new men to the Council. Over 130 chemists from all parts of the country, including a number of local secretaries, have written me that they want to see new men returned. I invited them to a meeting, and if they could not come, I asked them to select four they favoured out of the new candidates. The meeting was held, and had before it over seventy letters containing such selections, and in view of these letters decided that the following were the most likely of the new candidates to secure election:—

Mr. ALBERT COOPER, F.C.S., 80, Gloucester Road, London.

Mr. WALTER GIBBONS, 21, Market Street, Manchester.

Mr. JOHN TAYLOR, 210, St. George's Road, Bolton.

Mr. A. C. WOOTTON, Barrymore, East Finchley, London.

There are ten new candidates, and if your votes are distributed amongst them none of them will be successful. If, therefore, you want "fresh blood" on the Council, I respectfully urge you to vote solidly for the above four.

I would esteem it a favour if any of you who will assist in securing the return of these candidates would send me a post-card to that effect—if you have not already done so. That this is all very unusual on the part of a member of the Council, I am well aware, but I feel the urgency of such a step, and I therefore make no apology for taking it.—Yours obediently,

159, East India Road, London, E.

W. S. GLYN-JONES.

Mr. Glyn-Jones' Open Letter.

A few days ago I received a circular or open letter, *re* the pharmaceutical election, signed by Mr. Glyn-Jones. As this was enclosed

with the *Anti-Cutting Record*, the official organ of the P.A.T.A., I, as a member of that Association, wish to raise my protest against its Secretary being allowed to use the Association on behalf of any set of candidates. The four candidates recommended by Mr. Glyn-Jones are no doubt very estimable gentlemen and may be the nominees of Mr. Glyn-Jones, but they are not the nominees of the P.A.T.A.

I, myself, voted for Mr. Glyn-Jones at the last election on account of his labours for the P.A.T.A., but I could not vote for him again, as I cannot understand his position on the companies' question. I feel sure that he only represents a very very small minority of the P.A.T.A. in this matter. I consider that the right stand for the Council to take is to demand what was intended by the Pharmacy Act of 1868, viz., that the title of chemist and druggist, or pharmaceutical chemist, should only be used by those who have earned it by qualifying for the same in the examination room; also, that the retailing and dispensing of poisons should only be done by those who have qualified. I argue that if a company cannot pass an examination, therefore it cannot claim either one or the other of the above privileges.

April 23, 1900.

"P.A.T.A. MEMBER" (29/26).

A Pharmaceutical Caucus.

Mr. C. B. Allen's severe criticism of my action in respect to this election merits a reply. We are agreed there is nothing wrong in taking concerted action to secure the return of certain candidates; indeed, I should like to quote Mr. Allen's letter on this point:—

"I admit that it is both right and judicious for members of our Society, whether as associations or in meetings convened for the purpose, to gather together and discuss the claims of rival candidates—whether singly or in group—and to recommend them to their brother electors as desirable representatives, pushing the candidature by every influence they can bring to bear. That has been done before, on many occasions, and probably will be again."

It is therefore not a caucus, as such, that Mr. Allen attacks; but this particular movement, which he describes as "the Glyn-Jones caucus." And why? Because it is initiated by a member of the Council, who seeks "to oust at least four of his colleagues." Last year a "caucus" ran four of the retiring candidates, and succeeded in placing them almost at the head of the poll, but we had no protest from Mr. Allen as to there being any iniquity in that, nor did he suggest that its example, if followed, would be "likely to render the honourable position of Councillors intolerable." It would almost appear as if, in Mr. Allen's opinion, such action is wicked only when the operator happens not to be of *his* way of thinking. Does not Mr. Allen's letter afford strong evidence that new men are wanted on the Council? However strong the convictions of Councillors, and however hopeless they may be about carrying their reforms because of the constitution of the Council, it appears, from Mr. Allen's argument, that such Councillors, owing to a strained conception of loyalty to their colleagues, must put respect for the retiring members before duty to their constituents; in other words, put loyalty to colleagues before loyalty to convictions. The fact that a member of Council dares to welcome to the Council strangers, who share his convictions, to take the place of friends who oppose what he believes to be reforms, shocks Mr. Allen. Need I argue further in support of change?

As a member of the Council I have learnt a little about the Society's internal administration, and new members will find that under existing conditions it is not easy to learn rapidly in that direction. What I have learnt places me, other things being equal, in a better position to judge of the need of a change or otherwise than one who has no "inside" information. I now *know* that improvement in the administration is urgently needed. I have learnt that in past years money has been needlessly lost on the Journal. I believe

figures will show that, last year, an amount equal to the subscriptions of nearly a thousand members has been saved. That saving was effected before I became a member. I believe we might save further hundreds of pounds a year in that direction. I know we are spending hundreds a year too much for our legal work, and I know these things as a member of Council. Does Mr. Allen suggest that, if I believe "new blood" will effect reform, I am not to speak out and ask the members of the Society to send men to the Square who will be likely to remedy these things?

I asked to be sent to the Council because I wanted unqualified dispensing tackled. The votes of my present colleagues at the annual meeting carried an amendment leaving the question to them. I raised the question from my place at the Council, a member was good enough to second my motion, though he found it necessary to parenthetically remark that he did so in order that the subject might be discussed. I wanted immediate action taken, but, with the exception of the seconder, the rest of the Council voted against me. They shelved the question until the General Medical Council Committee had reported. That Committee reported last November—nothing has yet been done. Does Mr. Allen expect me to abandon my convictions on this subject, or to keep on moving resolutions in reference to it, without finding a seconder, especially when I was backed by a general meeting of members of the Society? Surely these members thought I was in earnest about the matter, and they expect me to take every legitimate means for securing support for them? My reply to Mr. Allen is that, even should it prove intolerable to present members of the Council, it will be well for the trade when men sit at that table with convictions sufficiently strong to compel them, when they think the question of sufficient importance, to help to oust those of their colleagues who block the way. I quite accept Mr. Allen's statement that he has criticised my action in no unfriendly spirit, and I hope that he, and those of my colleagues who agree with him, will believe my defence has been made in the same spirit: that my action in asking 130 members of the Society to act as a committee for securing the return of Messrs. Cooper, Gibbons, Taylor, and Wootton (whom they, not I, have selected) has not been actuated by the slightest personal feeling against my colleagues.

London, April 23, 1900.

W. S. GLYN-JONES.

Mr. Wootton's Views.

"An Ordinary Pharmacist" professes to be to some extent curious as to whether I, with others, have consented to be recommended by Mr. Glyn-Jones and his friends as a candidate for the Council. The question seems a superfluous one. Of course I assent with gratitude to the recommendation with which any member of the Society may honour me. Why should I object? I shall be even more grateful to all those members who may be good enough to vote for me. I do not understand that this recommendation on the part of Mr. Glyn-Jones and those associated with him commits the persons selected to any particular line of action. Nothing of the kind has been suggested to me. I have my own ideas of the policy which it would be wise for the Council to pursue at this time, and these are embodied in my address, copy of which I enclose. If any share my views they need not wait for my assent before recommending me.

North Finchley, April 23, 1900.

A. C. WOOTTON.

[ENCLOSURE.]

TO THE MEMBERS OF THE PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

Ladies and Gentlemen,—In asking for the favour of your support at the forthcoming election for the Council of the Pharmaceutical Society, it becomes my duty to indicate concisely my qualifications for the honour I seek at your hands and the policy I should advocate if my candidature should be successful.

I have been a member of the Society since the year 1865, and from 1869 to 1899 I was editor of the *Chemist and Druggist*. This occupation involved, or I might say compelled, the acquirement of an intimate familiarity with the general conditions of pharmacy throughout the Empire, with the difficulties, the needs, the aims, and the aspirations of British pharmacists, and, of course, incidentally, with the history and proceedings of the Pharmaceutical Society. I think, therefore, I may fairly lay claim to the possession of the equipment of knowledge essential to a member of the Council.

The guiding principle of the policy which, according to my judgment, should be pursued by the Council of the Pharmaceutical Society may be succinctly described as the maintenance in its integrity of the Pharmacy Act of 1868. That Act may not have been a perfect statute, but the chemists and druggists of the present generation perhaps hardly realise how much they owe to it. It set them apart from other traders, made their title a property, raised them in the estimation of the public, and gave them the nucleus of a monopoly. If the official guardians of the Act had regarded it with more cordiality, our position at this time would have been much better than it now is. I do not complain in the least of the legal administration of the Act. As far as an outsider can judge, the Council of the Pharmaceutical Society have exercised their powers in this direction with such vigour tempered with discretion as to make the statute respected without risking the alienation of judicial sympathy. But they have not, I submit with all due deference, shown the zeal which might have been fairly expected from them in fulfilling the duties which the Act cast upon them or in defending the rights which it bestowed upon chemists and druggists. The statute had been in operation more than twenty-five years before it was realised that it restricted the right to sell poisons to qualified persons, and that only such persons could keep open shop for the sale of so-called patent medicines containing poisons, and the High Court decisions which established these views, and which almost doubled the value of the qualification, were obtained rather by the aid of outside pressure than by willing action on the part of the Council. The adoption of regulations for the storage and sale of poisons, though obviously contemplated by those who framed the measure, was delayed for thirty years, and at the present time the substance which holds the highest position in the Registrar-General's list of poisons is not named on the schedule of the British Act.

I only refer to past history because I regret to believe that the indifference, if not the hostility, to the provisions of the Pharmacy Act, which was the cause of the neglect alluded to, prevails still. During the past two years opportunities have presented themselves in Parliament, such as could hardly have been hoped for, to remedy the most serious defect in the Act. It is not possible to say what might not have been accomplished by a Council thoroughly in earnest, and with the trade at their back. So far, however, to the keen disappointment of many who have the advancement of pharmaceutical interests at heart, not only has nothing been done, but practically nothing has been attempted. The inaction of the Council in this matter of the professional clauses of the Companies Bill is a serious calamity to pharmacists. So long as the Council of the Pharmaceutical Society are looked upon as officially voicing the opinion of the trade, and members of Parliament naturally so regard them, their apathy must neutralise all other efforts. If they could have done no more, the Council could certainly have secured the defeat of the monstrous proposal to appropriate for the benefit of unqualified companies the authority to use titles which the Pharmacy Act expressly reserved to those who could acquire them after examination.

It may not be too late for the new Council to take effective action in the House of Lords. The Lord Chancellor, who is the real author of the clause affecting pharmacists, would surely discuss it

with a deputation able to speak to him with representative authority, and it is not necessary to assume that he would be impervious to reasonable arguments. Since he drafted the clause he has not even been approached by the Council.

If elected, and if there should still be time, I should do what one member could to press the policy suggested in regard to the Companies Bill, and I should support the present minority in the Council in their attempt to take advantage of the opportunity which that Bill offers to secure justice for qualified chemists. At an early date I would also seek to induce the Council to enter upon a resolute crusade to extend the present schedule of the Act so as to include in it at least the arch-poison of the day, carbolic acid. Most influential support to such action could readily be obtained, and I conceive the enterprise to be one which the Pharmaceutical Society owes to the community.

It is not practicable for me to comment on the many topics of pharmaceutical concern which must come before the Council within the limits of an address. I will, however, with pleasure reply to any questions which may be addressed to me.

I may add, in conclusion, that in seeking election to the Council I have no private interest to serve; I have the necessary leisure to properly fulfil the duties incumbent upon a member of Council; and, if honoured by the confidence of the pharmaceutical constituency, I should spare no pains to serve to the best of my ability the trade (and thereby the Pharmaceutical Society) to which I am myself deeply indebted.—I am, Ladies and Gentlemen, yours faithfully and respectfully,

Barrymore, North Finchley, London, N. A. C. WOOTTON.

Separable Solutions.

Referring to the report of the Chemical Society's meeting in the last issue of the Journal, if Mr. Newth, or any other reader of the *Pharmaceutical Journal*, desires to find record of such experiments as Mr. Newth describes, he may find in the *Chemical News* of January, 1864, a record of observations which I made about that time of a character much the same as those now described by Mr. Newth, and each edition of Proctor's 'Pharmacy' has given similar notes in the Lectures on Solution. The separability of ethereal solutions of tannin is a phenomenon which may be advantageously studied in connection with this matter. It forms the subject of a paper which I contributed to the Newcastle meeting of the British Pharmaceutical Conference, 1889, and will be found in the pharmaceutical periodicals of that date.

Bradford-on-Avon, April 23, 1900. BARNARD S. PROCTOR.

Glaucium luteum.

With reference to the comments appearing in the Journal about this plant, I would like to add that it may be found in great profusion on the higher beach between Rye and Winchelsea, and right on to Cliff End. In the middle of October last I was in this locality, and found the plant still freshly blooming, many of the fruits being at that time more than twelve inches in length. I still have a number of the fruits in my possession, and if any of your student readers would like one I shall be happy to distribute what I have to those who first apply.

Dore, near Sheffield, April 21, 1900. JOHN AUSTEN.

I regret for Mr. Mumbray's sake that my note on *Glaucium luteum* was not so clear as it might have been, and also that he does not take the trouble to quote me correctly. My words were, "I have found it (*i.e.*, *Glaucium luteum*) in abundance between Dover and Folkestone, and also, but less frequently, at St. Margaret's Bay. . . . It may be of interest to note that in neither of these situations (meaning the spot where I actually found the plant growing) is the soil in the least sandy," not that "the soil

is not in the least sandy at Dover, Folkestone, or St. Margaret's Bay."

I am positive of the fact that at the Warren, between Dover and Folkestone, on July 1, 1891, there was a strong colony of *Glaucium* growing on the outcrop of a stratum of gault at least twenty feet thick and at least a hundred yards from any sand, and I have specimens of those self-same plants now in my herbarium. Anyone familiar with the blue gault knows that in a moist condition it more resembles Ung. Hydrargyri than sand or anything else, hence my remark that I considered Bentham and Hooker's and John's restriction of the habitat to sandy seashores somewhat misleading. I had in my mind the relation of botany to geology, and intended to draw attention to the fact that as one travelled from Brighton to Dover—*i.e.*, from the lower limestones to the upper cretaceous rocks—so *Glaucium luteum* became less frequent.

There is only one other misunderstanding I should like to explain, and that is the one indicated by the query mark placed by Mr. Mumbray after the words "sandy erosions," but as he takes no further notice of the phrase I fail, at present, to understand the difficulty.

Bridgnorth, April 22, 1900.

W. J. BROWN.

There is a minute typographical error in my letter published last week—thus, at line 30 for "opal" read "oval," the correct wording of the quotation. It is pleasing to remark that some of your readers manifest satisfaction in the study of natural objects amidst the troubles of business and domestic politics.

Kew, April 23, 1900.

R. G. MUMBRAY.

Gelatinised Tincture of Kino.

I beg to express my thanks to the following gentlemen who have kindly forwarded specimens of gelatinised tincture of kino, in response to my request for specimens, published in the Journal for April 14 last, p. 399:—Mons. F. Delchevalerie, Brussels; Mr. F. Dudderidge, Newcastle; Mr. C. A. Macpherson, Edinburgh; Mr. J. J. Makin, Dorking; Mr. C. Innes Russell, Newcastle; Mr. N. G. Beck, Burgess Hill; Messrs. Davidson and Kay, Aberdeen; Mr. W. J. Tiltman, London. I shall be much obliged if any further specimens included some of the liquid from which the kino has separated, as that may contain some clue to the change. Two of the specimens received consisted of the kino alone, without the spirituous liquid.

17, Bloomsbury Square, W.C.,
April 21, 1900.

E. M. HOLMES.

The Kinninmont Prize Competition.

I shall be greatly obliged by being permitted to mention in the Journal that April 30 is the last day for receiving names for the Kinninmont Prize Competition. Names to be sent to me.

WILLIAM L. CURRIE.

223, Byres Road, Dowanhill, Glasgow, April 21, 1900.

The Society's Library.

In view of the extreme importance of the matter, I wish, through the medium of the Journal, to invite all members and students who desire occasionally to use the Library in the evening to communicate with me as early as possible. In the opinion of many it is unnecessary to open the Library before 10 a.m. any day, but it is distinctly necessary that it should remain open until 10 p.m. one evening per week for the convenience of those engaged during the day.

13, Queen's Terrace, St. John's Wood,
N.W., April 25, 1900.

T. MORLEY TAYLOR.

Copper in Nux Vomica.

I was rather astonished to see Mr. Hill's figures with regard to the presence of copper in nux vomica seeds, viz., 0.24 per cent. Nux vomica seeds are generally powdered by machinery, and in considerable quantities at a time, say, for instance, 10 cwt. lots. Now

such a batch of powdered seeds would contain 2.68 lbs. of copper. Grinding machines are not made of copper, or of copper alloys such as gun metal or brass, but only certain small parts, such as the bearings, are made of those metals. The wear and tear indicated by Mr. Hill's figures are out of all proportions to common sense; no machine would work under such conditions, for if the copper represented by those figures is calculated into gun metal or brass, the amount comes to over 3 lbs. of the alloy.

I can scarcely credit that any grinder would allow his machines to suffer such a terrific wear and tear as this, since it involves an enormous expense each time for the renewal of the bearings. It is hardly possible, on the other hand, that Nature has turned these seeds into a veritable copper mine. I think Mr. Hill should revise his work, and study his results from a practical standpoint, and then there would be no need for a grinder to grin.

April 25, 1900.

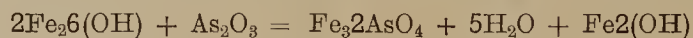
"GRINDER" (29/37).

Solution of Arsenic and Iron Wine.

Referring to Mr. Archibald Currie's interesting paper upon "Solution of Arsenic and Iron Wine," may I venture to suggest an explanation of the "green precipitate" noticed? As liquor arsenicalis contains potassium carbonate, the following reaction would probably take place:—

$$3K_2CO_3 + Fe_26C_2H_3O_2 + 3H_2O = Fe_6(OH) + 6KC_2H_3O_2 + 3CO_2$$

This freshly precipitated ferric hydroxide would then interact with the arsenious oxide as follows:—



giving a precipitate of ferrous *arsenate*, quickly becoming oxidised to ferric *arsenate* or ferroso-ferric *arsenate* (Wittstein), and ferrous hydroxide.

I am not quite clear from the *Pharmaceutical Journal* report whether No. 2 sample of iron wine was "neutral" or "faintly acidulous," as it is described as being both—if the latter, the amount of K_2CO_3 was sufficient to more than neutralise this acidity and to form the ferric hydroxide required to react with the arsenious oxide, while in the No. 1 sample the amount of acid present was probably greater than that required to neutralise the K_2CO_3 and so prevent the formation of ferric hydroxide and, further, "the green precipitate." The fact that the greater portion of the iron in No. 2 existed in the *ferrous* condition need not interfere with the above explanation, as the ferrous hydroxide formed in that case would be quickly oxidised to the ferric condition.

Cambridge, April 25, 1900.

E. SAVILLE PECK.

The P.A.T.A. and the Council Election.

Being a subscriber to the P.A.T.A. (on the principle that if it is any benefit to the trade I am willing to support it) and receiving the *Anti-Cutting Record* regularly, I was surprised on opening the current issue to find enclosed a circular letter from Mr. Glyn-Jones, advocating the return of certain gentlemen to the Pharmaceutical Council. Now, whatever the merits of those gentlemen, I feel very strongly that Mr. Glyn-Jones is using the *Anti-Cutting Record* for a purpose for which it was never intended, and, as a member of the P.A.T.A., I certainly think it is against the interests of the Association. The question naturally arises, "To whom does the *Anti-Cutting Record* belong and who pays the postage?" If the members of the Association, ought the paper to be issued without their consent in the interests of a few individuals?

Sheffield, April 25, 1900.

J. F. EARDLEY.

ANSWERS TO QUERIES.

APOTHEKER VEREIN (A. B.—41/17).—The address is Berlin C. 22, Spandauerbrücke 14.

PHOTOGRAPHIC SUPPLEMENT (F. S. H.—28/23).—No, only once a year, at the beginning of the season.

DEFINITION (J. L.—41/18).—The views you express are reasonable and are not being lost sight of.

APOTHECARIES' HALL EXAMINATIONS (B. L.—41/16).—Apply to the Secretary, Apothecaries' Hall, Blackfriars, London, E.C.

POWDER (A. A. M.—41/19).—It is apparently the powder of a starchy root like calumba, but it is probably not an official drug.

BACTERIOLOGY (F. R. D.—41/10).—Hewlett's 'Manual of Bacteriology' (Churchill, 10s. 6d.) is about the best work of its kind.

PRELIMINARY EXAMINATION (R. R.—41/13).—The examination will not be held after July. See the *Pharmaceutical Journal* for February 24 last, page 189.

TONING AND FIXING BATH (H. L. S.—41/14).—If the lead is not used the alum decomposes the hyposulphite, setting free sulphurous acid, etc., which act on the silver image and cause yellowness.

CONSULTANT CHEMIST (S. R.—41/15).—Possibly Dr. Samuel Rideal, D.Sc., F.I.C., 28, Victoria Mansions, S.W., would undertake the work you require. He is a specialist on the lines you speak of.

GREASY BOTTLES (W. J. D.—41/12).—Leave them for some time in a tub containing strong soda or potash lye, or, if a more speedy result be desired, boil them in a copper with a similar liquid.

BOTANICAL (A. H.—41/9).—Hooker's 'Students' Flora of the British Islands' (Macmillan, 10s. 6d.) provides the information you require. A more convenient book for field use is Hayward's 'Botanists' Pocket Book' (Bell, 4s. 6d.).

PRELIMINARY EXAMINATION (F. W.—29/28).—The matter is now settled, and it is impossible to act upon your suggestion. Moreover, the reason advanced by you appears insufficient to justify any further delay in the matter.

SILVER MIRRORS (L. E.—41/8).—We have no information on the subject beyond that given in the article referred to. It may be that you have got wrong through ignorance of the fact that the United States fluid measures are not the same as the British. Thus, whereas the British fluid ounce is equivalent to 28.412 millilitres, the American is equivalent to 29.574 millilitres. Possibly, a knowledge of that fact may help you to get the solutions right.

COATED PILLS (D. L.—29/14).—It certainly ought not to be necessary to coat 4-grain pills so thickly as to increase their weight to $6\frac{1}{2}$ grains, but that is a point to be taken into consideration when comparing prices. A quoted price may seem low, so far as the composition, etc., of the pills is concerned, but if you buy by weight and less than two-thirds of each pill consists of the mass you think you are obtaining cheaply, you may simply be paying an unreasonably high price for French chalk. At the same time, you should not call it "cheating," the proper term is "commercial enterprise."

POLARIMETER FOR SUGARS AND ESSENTIAL OILS (F. R. D.—41/10).—Probably Zeiss's Saccharimeter will answer your purpose. You should order a 100 Mm. tube for essential oils, in addition to the 200 Mm. tube used for saccharimetry. The shorter tube is now universally employed for oils, as it requires much less to fill it. If you want a more delicate instrument, you cannot do better than get Messrs. Watson and Co., 313, High Holborn, to make you one of their "half shade" instruments of the Laurent type.

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LONDON: SATURDAY, APRIL 28, 1900.

ELECTION ADDRESSES.

THE unprecedented occurrence that has taken place in connection with the approaching election of seven members of the Society's Council, is a phenomenon deserving of some notice, both on account of its novelty and because of the interest attaching to the question whether it should be compared to a fierce outburst of suppressed volcanic force, to the equally irresistible avalanche of crumbling *débris* from which support has been suddenly removed, or whether, in reality, there is any sufficient reason for departure from the practice which has hitherto been generally regarded as consistent with the position of a candidate offering himself for election to the Council. Members of the Council of the Pharmaceutical Society occupy a position which is honourable chiefly in being honorary; a position of trust and public responsibility, involving much laborious, tiresome, and onerous work, for the performance of which holders of the office are entitled to nothing less than the gratitude and respect of the electors and of the entire trade. Unless—in accordance with the ethics of Burnley—that view of the matter is to be regarded as “old, antiquated, worm-eaten,” any idea of a “contest,” in the ordinary electioneering sense, between members of the Society who are willing to undertake a share in the official administration of affairs, would be utterly out of place—merely an effluvium of the parasitic press that aims at directing the affairs of the Society and would rejoice to see the Society's election a faction fight and its Council chamber a bear garden. To that source of inspiration alone can be attributed the assumption that the present Council would be “improved” if some of its members were replaced “by new and inexperienced men.” To the same misleading influence may be attributed, in some instances, the acceptance of nomination on the present occasion; for though increased willingness to undertake administrative duties may be a sign of “healthy interest in the Society,” it would probably be far more correct to say that there is at present no greater desire, on the part of the members, to

effect some change in the constitution of the Council than there was last year, or has been during the past twenty years; notwithstanding the platitudes that have been uttered about “new blood.” Moreover, on looking back to the records of that period for information, the question may well be asked what particular mark has been left upon pharmaceutical affairs by some half-dozen members of the Council who held office, for a time, during the alleged “reactionary” period?

A NEW EVANGEL.

Regarded from the point of view above described, the election addresses that have been issued by new candidates, do not generally commend themselves to favourable consideration. Some of them betray direct hostility to the action of the Council, in regard to the matter now prominently under notice, others a want of acquaintance with historical facts and prevailing conditions which are of prime importance in reference to that matter, while others again deliberately misrepresent those facts and conditions. Only one of them is at all in accord with the policy which the Council, in its representative capacity, has by a large majority decided to adopt, as the only one possible for the Society, in regard to company trading. But the most remarkable circumstance is that some of the present members of Council, who offer themselves for re-election, have responded to invitations which, in their position, might be considered to convey the impertinent assumption that they have not afforded members of the Society opportunity of judging how they have discharged their representative duties, but require to furnish assurances on that point. Still more strange is it that they should have been induced to make trade journals the medium for addressing their constituents; that they should, apparently, have forgotten they have, in common with their fellow-members, an official journal of their own, which is the proper medium for such communications as may be necessary or desirable and of which they are, officially, joint custodians. That advantage should be taken by the promoters of “change in the Council” to treat the views expressed with compassionate ridicule and to point out the sign to be taken by electors “as an indication of whom not to vote for” cannot be matter for surprise. But such procedure tends to degrade the function of electing representatives “to direct and manage the affairs” of the Pharmaceutical Society and the members of that body, who have any regard for the maintenance of its credit, will do well to beware lest they fall a prey to the insidious wiles of self-constituted and irresponsible instigators of mischief.

A REVIVAL.

One of the addresses “to the members of the Pharmaceutical Society of Great Britain” is especially deserving of notice, inasmuch as it breathes a latent spirit of hostility to the Society, which is in fact merely a recrudescence of that once animating the defunct “United Society of Chemists and Druggists,” an organisation created by the glorified trade circular now known as the *Chemist and Druggist*, to represent a “trading community,” to oppose the Pharmaceutical Society and largely instrumental in curtailing the pharmaceutical provisions of the 1868 Act. The late editor of that

journal now solicits the favour of support by pharmacists, recommending himself for the position of member of Council, as possessing intimate familiarity with imperial pharmacy and with the "aspirations of British pharmacists." That is an equipment the dimensions of which appear too fine at one end and too large at the other, to fit the comparatively modest aperture to be filled by a member of the Council, especially since acquaintance with "the history and proceedings of the Pharmaceutical Society" is claimed only as an "incidental" accomplishment, as though those details were matters of mere "Bloomsbury tradition," lying quite outside the range of practical consideration. Proceeding with his recommendations, the candidate deftly suggests that his line of action would be guided by a policy different to that of the Council; but of a better sort, ensuring more due fulfilment of the duties cast upon the Council by the Pharmacy Act and greater defence of "the rights which it bestowed upon chemists and druggists." As if in support of those suggestions, the statement is made that twenty-five years elapsed before establishing that the right to sell poisons was restricted to qualified persons. That statement is made with the evident intention of casting blame on the Council, in face of the fact that while many chemists and druggists strenuously objected to conform to the Act by labelling their cough linctus, etc., poison, they complained sorely when that necessity was enforced upon them, as well as upon the vendors of secret remedies containing poison. As further support of the suggestion that the Council has neglected its administrative duty, reference is made to the postponement for thirty years of poison regulations; as though it were not due to the opposition—so unwisely made by chemists to the fulfilment of that obligation—of which the *Chemist and Druggist* was a prime instigator. Obviously this candidate, having with success promoted hostility to the provisions of the Pharmacy Act, cannot now do otherwise than believe in its existence; but the pretence of regret that there should be such hostility, and at the indifference it has produced, should be too transparent to deceive any but ignorant or willing dupes. To contend that blame for that result attaches to the Council and not chiefly to the entire body of individuals who are all equally guardians of the Act, is distinctly false and disingenuous. But that is the line of inflated pretence that has always been followed by the *Chemist and Druggist*. Of course it is not possible to say what might not have been accomplished in the interest of chemists, by a Council with the trade at its back, had the trade not been misled, by the destructive delusions of the *Chemist and Druggist*, into a bottomless pit of disappointment and company-trading competition, where even the titles representing qualification and the privileges attached to it, are now as much in jeopardy as the exercise of that part of the chemists' business for which legal qualification is required by the Act—not in the chemists' interest, but in the public interest.

ORACULAR.

Another candidate for a seat on the Council—in preference to a present member—comes forward as the apostle of "demands" and a policy of "active aggressiveness," no knuckling under, etc. His communica-

tions and utterances display a spirit of unrest which persistently refuses to be comforted and, probably, his letter at page 422 must be understood as complaining of the comment, at page 404, upon his election address. So far as that letter can be fathomed, it appears to deny the existence of any real division of opinion on the subject of company pharmacy and to attribute "apparent disunity" to confusion of a simple problem. This candidate is in the habit of confining his argument to statements that he is "justified in thinking" or that he is "entitled to say," either this, that, or the other, of which he feels satisfied, and there leaving the matter; there is consequently much difficulty in getting to close quarters with him. But assuming "the simple problem" to be that of making the Pharmacy Act operative, the question may be asked—Did not the House of Lords' decision take the bottom out of nearly all the Act intended? and at the present moment—Does not the Lord Chancellor's Clause 2 propose to cast to the winds any remaining relics of what was intended by the Act? The issue is not whether that should be so; but how that is to be counteracted. Notwithstanding the miserable shred that the intention of the 1868 Act amounted to, careful observance of its requirements, together with "an abiding faith in pharmacy," might, in the past, have served as a nucleus round which the practice of pharmacy could have crystallised and built up for itself, from within, a fence which intruders would not have broken through, as they have done through the breaches made in the provisions of the Act by chemists' own disregard of it. At present, however, the intended effect of the Act as to the proprietor of a chemist and druggist's business is, as Mr. GLYN-JONES holds, irretrievably lost—nothing remains of it but the necessity of legal qualification being personal, the use of which individuals may, and do, hire out, as a chattel, to enable companies of unqualified persons to keep open shop in opposition to the intention of the Pharmacy Act. That is the aspect of affairs to which "constructive" action and constructive criticism must be directed.

FRIENDS IN COUNCIL AND OUTSIDE.

THOUGH disputation *de gustibus* is seldom a profitable exercise, all the available materials for consideration connected with the ethical question that has been raised are printed in this week's Journal at page 444 *et seq.* for the convenience of those who may desire to form their own opinion on the matter. Much other matter on the same and similar questions has been sent for publication in the Journal but, a selection being necessary on account of the limitations of space, preference has been given to communications by those who have not previously had an opportunity of stating their views, or who have something fresh to say. Mr. GIFFORD sends eight quarto pages of manuscript in which he criticises and argues about many things; repeating much that has been said, at various times, in this Journal about the action that chemists and druggists should have taken, years ago, in regard to company trading that interferes with the provisions of the Pharmacy Act. Such criticism might flow on for ever without much benefit, but it does not appear sufficiently "constructive" to merit occupation of the space it would require.

ANNOTATIONS.

ALL SUBSCRIPTIONS TO THE PHARMACEUTICAL SOCIETY for the current year must be received by the Secretary—Mr. Richard Bremridge, 17, Bloomsbury Square, London, W.C.—on or before Monday next, April 30, and the names of persons who have not paid their annual subscription before Tuesday, May 1, will be omitted from the Register of Members or of Student-Associates. One effect of that, so far as defaulting members are concerned, will be the loss of their qualification to vote at the approaching election of members of the Council and auditors. The annual subscriptions were due on January 1 last, and subscribers who did not, prior to that date, give notice of their intention to withdraw from the Society are, therefore, liable to be called upon to pay the subscription for the current year, whether or not they now intend to withdraw. Nevertheless, unless they have discharged their liability to the Society by May 1 they will cease to receive the usual weekly copy of the Journal, and they will not be entitled to attend the Annual Meeting or to vote at the forthcoming election.

THE ANNUAL GENERAL MEETING of the Pharmaceutical Society, as officially notified in another part of this week's Journal, will take place at 17, Bloomsbury Square, London, on Wednesday, May 16, at noon precisely. In the absence of the President—Mr. William Martindale—who is visiting South Africa for the good of his health, the chair will be taken by the Vice-President—Mr. G. T. W. Newsholme. The annual report will first be presented and, presumably, discussed before adoption. Any notices of motion will then be dealt with, after which scrutineers will be appointed to ascertain the number of votes given for each member nominated for election, and auditors will also be appointed for the year. Subsequently, the meeting will be adjourned until the following day, to receive the report of the scrutineers.

THE ANNUAL DINNER of the members of the Society and their friends will be held at the Hôtel Métropole, on the evening preceding the Annual Meeting. In addition to the list of Stewards published in last week's Journal, the following gentlemen have intimated their readiness to become Stewards in connection with the Annual Dinner:—T. P. Blunt, Shrewsbury; A. S. Campkin, Cambridge; W. P. Robinson, Clapham; P. H. Marsden, University College, Liverpool, and J. A. Wink, Devonshire Square, E.C. Other pharmacists who desire to contribute to the success of the chief social function of the year directly associated with official pharmacy, are invited to send their names to the Honorary Secretary to the Dinner Committee, Mr. R. Bremridge, 17, Bloomsbury Square, W.C.

THERE IS GOOD REASON for stating that Mr. Taylor, who, as a candidate for election as a member of Council, has been placed in a somewhat perilous position by being recommended to the electors by the Glyn-Jones caucus, is in no way pledged to support a line of action in regard to regulation of companies inconsistent with the view put forward in his paper (see *ante*, page 148).

MR. PICKERING writes to say he infers, from the Annotation at page 404, that he "was not sufficiently explicit" in his letter; but, though no deficiency was felt in that direction, it must be admitted that the long explanation he now proceeds to enter into—as to the purport of the Royal Charter of Incorporation granted to the Pharmaceutical Society in 1843, and as to what he considers should consequently have been done by an apparently imaginary entity, which he speaks of as "the Society"—betrays such evident want of acquaintance with the subject he writes upon as to make his long letter unfit for publication.

"ALPHA" writes again to say he cannot grant that the question of the legality of company chemists is a quite superfluous question at the present moment; on the contrary he thinks that question is the crux of the whole matter. That being the case, it can only be inferred that "Alpha" has not fully considered the statement (*ante*, page 374) of the conditions under which the present legal interpretation of the Pharmacy Act has taken shape and left companies outside the operation of the Act. Chemists have certainly contributed largely to that result themselves; but, late as it is, they have much to gain and nothing to lose by opposing the encroachments of companies. Such opposition requires something more *ad rem* than amendment of Clause 2 of the Companies Bill, in fact, a thorough Pharmacy Acts Amendment Bill could alone deal with the matter. Meanwhile the only course to be taken in regard to Clause 2, which tinkers with the matter, is to oppose that Clause as the Council has decided.

THE CRITICISM OF THE B.P.C. PROVISIONAL PROGRAMME, which appeared in the notes by "An Ordinary Pharmacist," published last week, appears to have commended itself to a number of readers who seem to be quite as dissatisfied with the proposed arrangements as our contributor has expressed himself. It may be suggested that the proper place to express disapproval was at the meeting of the General Committee, held on April 10 last, but everyone who has attended such meetings knows well how difficult it is to form a clear idea of proposals when presented for the first time, and how difficult it is to criticise them off-hand without incurring the risk of appearing unmindful of the feelings and labours of those who have been responsible for drafting the proposals. In the present instance the responsible persons were the members of the Local Executive Committee—Messrs. R. Bremridge, M. Carteighe, H. Cracknell, J. F. Harrington, W. Martindale, J. H. Mathews, J. C. Umney, and Warren. The responsibility for the programme as it now stands, however, must be shared by every member of the General Committee, inasmuch as the report and recommendations of the smaller committee were unanimously adopted at the meeting held a fortnight ago. For the rest, if any strong desire exists for modification of the draft programme, there is ample time to effect any reasonable alteration if attention be properly directed to the matter, and pressure brought to bear upon those responsible for carrying out the arrangements.

WISHING PROPHETS vaguely predicted or suggested last year that the alleged existence of a profound feeling of disapproval of the action of the Council would properly be manifested by the rejection of all the members who offered themselves for re-election. The true quality of those prophets was demonstrated by the result of the election. Either they did not know the state of opinion or they spoke falsely and tried to mislead. But their desire for the introduction of discordant elements was frustrated. The object of their chief aversion was returned at the head of the poll and only one of the new candidates for office was elected. This year a still more insolent attempt is made, through the medium of an isolated member of the Council, to indicate to the members of the Society whom they should vote for and it is being made on the basis of statements that are utterly destitute of foundation.

THE STATEMENT that the maintenance of the integrity of the Pharmacy Act has been neglected and that the Council has not done its duty in that respect is not unfrequently referable to want of knowledge; but no such excuse can be made in the case of those who, knowing better, persistently propagate that false representation and strive to conceal the fact that, by allowing apprentices and unqualified assistants to sell poisons and by keeping branch shops in the charge of unqualified persons, the rank and file of chemists and druggists have neutralised the intention of the Pharmacy Act, even as a "wretched poisons Act." Such practical neglect

of the Act, arising from indifference or hostility to its provisions, has unduly developed the opportunity, afforded by the "Widows' Clause," for the conclusion arrived at by the law Lords—viz., that legal qualification of the proprietor of a chemist and druggist's business is not required for the public purposes of the Act and, thus, apparent foundation has been provided for the spread of company trading contrary to the spirit of the Act.

THE FURTHER STATEMENT that no attempt has been made by the Council to effect amendment of the law can only be attributed to ignorance or to deliberate misrepresentation. From the time of the House of Lords decision, Bills have been repeatedly prepared for the purpose of providing a remedy for the state of things then established. Those Bills have met with more or less strenuous opposition from the rank and file of chemists and druggists. It is as a consequence of that opposition, of the disinclination to acquiesce in reasonable modification of the "Widows' Clause" or to throw the entire influence of the body into support of proposed action, and generally, in other respects, to be led by the Council, that nothing has been done for the advancement of pharmaceutical interests or for the protection of those carrying on the business of chemists and druggists.

ON VARIOUS OCCASIONS, observes the *Physician and Surgeon*, pharmacists have sighed for the protection that medicalmen enjoy, and at one annual meeting of the Pharmaceutical Society a member stoutly maintained against all explanations by the President (at that time Mr. Carteighe) that no one dared entrench on medical practice who was not a registered medical man. The mistakes on this point are said to arise probably from the fact that chemists and druggists are practically the only persons who have been made sensible of the provision of the Apothecaries Act, which is the only Statute that checks the unqualified practice of physic when it is not accompanied by illegal assumption of title. "The Apothecaries' Society seems to have gone on the principle that a man could not be said to practise as an apothecary unless he prescribed from behind a counter, and hence it is that chemists who ventured to attempt the treatment of disease by any pretence of diagnosis rendered themselves peculiarly liable to the Apothecaries Act. Even the pharmacist, however, has to admit that this Act has been administered with great moderation. It is a pity it cannot be applied to those most arrant quacks who tour the country posing as professors of some department (or more usually the whole field) of medicine, or to those makers of remedies which are guaranteed to cure all diseases under the sun."

THE NEW BIRMINGHAM UNIVERSITY is the subject of a recent report by the Advisory Committee appointed to inquire into the best manner of providing for scientific and commercial training respectively, in connection with the new University of Birmingham. The report is summarised in the *Times*, which points out that Mr. Andrew Carnegie and an anonymous donor have each promised a gift of fifty thousand pounds towards the establishment of those two departments. The question has been exhaustively considered in all its aspects, one feature of the investigation being a visit of inspection to colleges and universities in the United States and Canada by Mr. George Kenrick and Professors Poynting and Burstall. The members of the committee have also made themselves acquainted with the facilities existing in various colleges and universities of England for the teaching of science in its application to industries. In their opinion no such teaching, complete as they contemplate it and as it must be if it is to be successful, exists in any college in Great Britain. They are encouraged therefore to believe that a really complete technical college would not only be of use to the industries of the district, but would attract a number

of students from a much larger area. The first object in view has been the teaching of science in its application to industry, coupled with such technical instruction in handicrafts as will enable the students to complete their course in the University itself. The committee recommends that the facilities already provided in Mason University College should be supplemented by chairs of mining, metallurgy, engineering, and applied chemistry.

THE SCHEME SUBMITTED contemplates the introduction of a complete equipment for the treatment of metals by heat and a small plant for treatment by electricity, as well as the necessary outfit for testing metals. Shops would be provided for manual training, and it is recommended that the machines used should be of the best and most modern type of English, American, and foreign manufacture. The committee further recommends the acquisition of twenty-five acres of land in the outskirts of Birmingham on which to build the University, the estimate of the total cost being £155,000. The cost of maintenance, including staff, is put at £10,450 per annum. On an estimate of two hundred day students at £55 a year each there would be a surplus of £550. The cost of education given in the existing institution would, however, remain to be provided. The Advisory Committee submits an elaborate scheme of commercial education, the adoption of which would entail an outlay of £6,000 for building and equipment, and £2,200 per annum for staff. The deputation to the United States and Canada reports that in America subdivision of subjects and specialisation in teaching is carried much further than in this country. Admiration is expressed alike for the high ideal of scientific education, which is the aim in American universities, and for the enthusiasm in all classes which renders it possible to approach so near that ideal. Everywhere evidence was found that the wealthier citizens realise the importance of university education, and encourage the universities by generous gifts, and everywhere, both by teachers and by students, those gifts are being used for higher learning and research.

"A LADY WHO WALKED WITH WORDSWORTH" was Mrs. Richard Reynolds, of Cliff Lodge, Leeds, the wife of that distinguished member of the Pharmaceutical Society whose death was recorded only a fortnight ago. We now have to record the lamentable fact that Mrs. Reynolds, who never got over the shock of her husband's sudden death, is also dead. According to the *Yorkshire Post*, she was born at Kendal, in 1829, and was the youngest daughter of Mr. Samuel Marshall, who kept the Friends' School in the county town of Westmorland. Mr. Marshall's great interest in religion, literature, and science led to many valued friendships, and his youngest daughter was privileged both in her Westmorland home and in later years to make the acquaintance of some of the great men of the present century. She knew Wordsworth, and used often to walk with him in the garden attached to his Lakeland home. She was also acquainted with Coleridge, Livingstone, John Bright, and other men of eminence. Her knowledge of old Quaker families was very extensive, and only within the past month she was asked to write an account of the Friends in Westmorland. Mrs. Reynolds was always clever with her pen and pencil, and as a young girl found pleasure in the study of several branches of science. Her fondness for collecting specimens was encouraged by the curator of the York Museum, whom she met when a pupil at the Friends' School in that city. Some of those collections are still to be seen with beautifully-printed labels, done by her own hand. Her father kept records of the rainfall, wind, and temperature in the Lake District for half a century, and it was this, no doubt, which influenced the late Mr. Richard Reynolds to take similar meteorological readings in Leeds. Mrs. Reynolds' father used to regularly correspond on scientific matters with the late Duke of Devonshire whose letters are still preserved.

ENGLISH NEWS.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).—On Wednesday, April 25, a very enjoyable social and musical evening was held at the Westbourne Restaurant, 1, Craven Road, W., the President, Mr. J. F. Harrington, in the chair. A programme of unusual excellence had been provided, and was successfully carried through under the able direction of Mr. T. Lawler, the accompanist being Miss Blanche Walker.

INLAND REVENUE PROSECUTION.—At Bow Street Police Court on Thursday, April 19, George Squire Boutall, chemist and druggist, was summoned by the Inland Revenue authorities for selling at his branch shop in the Strand a bottle of chargeable cough medicine, to which no duty stamp was affixed.—Mr. Albert Osborn, who defended, said the offence was admitted, although the defendant was not personally to blame. The defendant had several shops in London, and he always instructed his assistants not to sell "patent" medicines without an Inland Revenue stamp affixed to each bottle. In this instance, an unstamped bottle was sold—owing to the carelessness of an assistant, who had since been discharged—although there were stamped bottles in the shop, and about £5 worth of stamps on the premises.—Sir F. Lushington (Magistrate) imposed the reduced penalty of £4 and 2s. costs.

POISONING BY POTASSIUM CYANIDE.—On Friday, April 20, the Brighton Borough Coroner resumed an inquest, which had been adjourned from April 7, on the body of Obadiah Streeter, an elderly man, who had been found dead in his bedroom.—Evidence was given to the effect that deceased was in the habit of doctoring himself, and that he had complained very much about his heart. An analysis of the contents of the stomach and also of a medical measure-glass found near deceased had been made, potassium cyanide being detected in both. Death was attributed to poisoning, together with the shocking condition of the heart.—A verdict of "Death from misadventure" was returned.

FOOD AND DRUGS ACT PROSECUTIONS.

CAMPHORATED OIL.—At Lambeth Police-court on Thursday, April 19, Edgar F. Munday, chemist and druggist, Camberwell Green, was summoned by the Camberwell Vestry for selling camphorated oil which was found upon analysis to be deficient in camphor to the extent of 57 per cent.—Mr. Marsden, solicitor for the prosecution, having pointed out that in this case there was no complaint against the quality of the article beyond the fact that there was a deficiency in the amount of camphor, the defendant explained that at the time the article was made the whole of the camphor necessary was put in, but, owing to the very cold weather, the camphor had not dissolved.—Mr. Francis (Magistrate) said this was not one of those bad cases in which some foreign ingredient had been introduced; the defendant would, however, have to pay a penalty of 40s. and costs.—George Pardoe, Lower Park Road, Peckham, was also summoned by the Vestry for selling camphorated oil, which was found upon analysis to be deficient in camphor to the extent of 95 per cent., and which had, apparently, been made with mineral, instead of olive, oil.—Mr. Marsden said that the defendant kept a general shop. The Vestry had done its best to get hold of the wholesale man who supplied the defendant, but had been unsuccessful. If a fine was inflicted upon the defendant, he would have his remedy against the wholesale dealer.—The defendant who agreed that the Inspector had taken a great deal of trouble to bring the right man to justice, was ordered to pay the full penalty of £20 and costs.—Three other cases were adjourned in order that the Vestry might proceed against the wholesale dealer.—Llewellyn Davies, chemist and druggist,

3, Bridge Terrace, Enfield Wash, was summoned at the Enfield Petty Sessions on April 2 for selling camphorated oil deficient in camphor to the extent of 21 per cent.—For the defence it was stated that the sample left with defendant had been analysed by Mr. F. Davis, who certified that it contained 18.5 per cent. of camphor, and was therefore not deficient to the extent mentioned by the public analyst. A technical objection was also raised on the ground that when the summons was served a copy of the analyst's certificate was not served with it, as required by the new Act.—The magistrates dismissed the case, but refused to grant costs to defendant.

SEIDLITZ POWDERS.—George Stevens, grocer, Headington, was summoned at Bullingdon Petty Sessions, Oxford, on April 7, for selling seidlitz powders not of the substance and quality demanded.—Defendant, who pleaded that he sold them as genuine quite innocently, was fined £1 18s. 6d., including costs.—Evan E. Newell, grocer, Iffley Road, Oxford, was summoned for a like offence at his branch shop at Littlemore.—For the defence, it was stated that the powders were sold as "Aperient Powders," not as seidlitz powders.—Fined £5 and costs.

OLIVE OIL.—William Florence, Station Road, Rickmansworth, was summoned at Watford Police Court, on Tuesday, April 3, for selling cottonseed oil for olive oil.—Defendant stated that it was a mistake, made by his wife in his absence, and that it would not have occurred if he had been present.—The Bench considered that there was no intention to defraud; it would be sufficient, therefore, if defendant paid the costs; £1 2s. 6d.

MILK OF SULPHUR.—William Holmes, shopkeeper, Glascote, was summoned at Tamworth Petty Sessions, on March 27, for selling milk of sulphur, alleged to be adulterated with 49 per cent. of sulphate of lime.—Defendant pleaded that he sold the article in the same condition as he received it from Messrs. R. Judd and Co., Birmingham. On the suggestion of the Chairman the case was adjourned in order that Messrs. Judd and Co. might also be prosecuted.

LINSEED OIL.—Frederick Laurens, pharmaceutical chemist Great Missenden (Bucks), was summoned at the Aylesbury Petty Sessions on March 31 for selling linseed oil adulterated with 40 per cent. of rosin oil.—Evidence having been given to show that linseed oil came within the definition of drugs in the Foods and Drugs Act, defendant admitted selling the oil, but stated that he sold it in the same condition as received from Messrs. S. Bowley and Sons, of Battersea, who had since expressed their regret that a mistake had been made, and had offered to bear all the expenses that he was put to in connection with the case.—In reply to the Chairman one of the witnesses for the prosecution said that linseed oil was used for other purposes besides that of a drug; it was pointed out, however, that there was nothing to show that defendant sold the oil in any other capacity but that of a pharmaceutical chemist.—The Chairman said the Bench were of opinion that it was their duty to convict. Hence a fine of £2 including costs must be imposed.

SPIRIT OF NITRE.—On Saturday, April 14, Mallinson Helliwell, grocer, Sowerby Bridge, was summoned at Halifax West Riding Police Court for selling sweet spirit of nitre not of the nature, substance, and quality demanded.—Defendant produced a guarantee from the wholesale house stating that the article was genuine, but as he had failed to give seven days' notice to the prosecution that he had such a guarantee, the Magistrates decided, that while they were wishful to give defendant the benefit of the guarantee, they could not do so.—A penalty of £1 was imposed.

SCOTTISH NEWS.

GLASGOW AND WEST OF SCOTLAND SCHOOL OF PHARMACY.—On Saturday, April 21, the students of this College went botanising, with Mr. T. S. Barrie, co-Principal, in Orbiston Glen, famous for its beauty and its ideal communal settlement of sixty years ago. A large number of specimens were collected and examined by the students. The following plants were found in flower:—*Pellia epiphylla* (in fruit), *Agrapis nutans*, *Galanthus nivalis*, *Mercurialis perennis*, *Ulmus montana*, *Corylus avellana*, *Salix caprea*, *Anemone nemorosa*, *Ranunculus ficaria*, *Chrysosplenium alternifolium*, *C. oppositifolium*, *Ribes rubra*, *Primula vulgaris*, *Tussilago farfara*.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—In connection with the report of the meeting published last week the reporter writes to say that he made a slip in saying that the vote was two to one in favour of dividing the Minor examination. It should have been three to one.

FATAL EXPLOSION OF A CHEMICAL DRUM.—On Wednesday, April 18, while a chemical drum belonging to Sir Charles Tennant and Company, Glasgow and Manchester, was being repaired at a Manchester tinplate works, the drum exploded, and a man named Thornton was killed. The inquiry was opened by the Manchester Coroner on April 20. The report of an analytical chemist showed that the explosion was due to the action of sulphuric acid on the steel or iron of the drum, generating hydrogen which had mixed with the air. Tennant and Company were legally represented. The Coroner pointed out that there was a suggestion of negligence on the part of Tennant's firm in sending a drum like that to be repaired, and suggested to the firm's representative that his clients should investigate the matter. The jury might take the same view as to negligence, and that was all the more reason why the affair should be thoroughly sifted. If it was known that the drum contained an explosive, and it was sent in that condition to be repaired, the jury would have to say what degree of negligence there had been. Formal evidence of identification was taken, and the inquiry adjourned until May 2.

IRISH NEWS.

PHARMACEUTICAL SOCIETY OF IRELAND.—The following is the text of the address presented to the Queen:—"May it please your Majesty: We, the President and Council of the Pharmaceutical Society of Ireland, respectfully approach your Majesty on behalf of ourselves, the members of our Society, and the associate druggists, to offer to your Majesty a most sincere and hearty welcome on this the occasion of your visit to Ireland. In tendering this welcome to your Majesty, we, in common with all your loyal Irish subjects, most gratefully recognise your Majesty's devotion to the interests of your subjects and the kindly and self-forgetful thought which prompted you to undertake such a journey to give pleasure to your Irish subjects, and we trust that this visit may prove of great benefit and pleasure to your Majesty. We would express our loyalty to your throne and person, and earnestly pray your Majesty's reign may still be continued, and that your remaining days may be days of health, happiness, and honour."

COLONIAL NEWS.

THE PHARMACEUTICAL SOCIETY OF TASMANIA reports a satisfactory condition of affairs generally, the past year being represented as the most successful in its history, fourteen members having been added to the roll. At a recent meeting the following officers were re-elected for 1900:—President, Mr. H. T. Gould

J.P.; Vice-President, Mr. Carl Eberhard; Hon. Treasurer, Mr. Percy Ash; Secretary and Registrar, Mr. J. B. Hickson; Hon. Auditor, Mr. M. Mason. The Council now consists of: The President Vice-President, Hon. Treasurer, and Messrs. T. Holmes, F. K. Fairthorne, A. P. Miller, J. T. Weaver, F. Styant Browne, and W. J. Clewer. On the evening of the annual meeting a banquet was given by the President at the Metropolitan, Hobart, the guests numbering about thirty, including Dr. Bright (President of the Court of Medical Examiners), the Hon. G. H. Butler, M.L.C., Dr. E. L. Crowther, M.H.A., Dr. E. J. Crouch (Hon. Secretary to the Court of the Medical Examiners), Dr. Barnard, and Mr. Leonard Rodway, L.D.S., R.C.S., Eng.

THE INTER-COLONIAL RECIPROCITY MOVEMENT.—The effort recently made to resuscitate this movement having dismally failed, it may be interesting to note what the various Colonies, or, at least, those of them who have recently spoken, have to say on the subject. The Western Australian report refers to the question as having, until that colony took it up, been at a standstill "owing to the Victorian Board's unwillingness to come to an understanding with New South Wales," and hopes that "when Victoria gets out of its masterly inactive mood, some progress will be made, and that the movement will be eventually successful." The Victorian Pharmacy Board, while describing the effort as a commendable one, and many of the Western Australian suggestions as admirable ones which had already been urged without success by themselves, lays the blame on New South Wales, which had again raised the old points in dispute, and wanted to arrive at an understanding in reference to the recognition of the various present registers before agreeing to a conference. Most outspoken of all, however, was the President of the Tasmanian Society, who, in his annual address, said:—"A move has been made towards a reciprocity of certificates throughout the colonies, and whilst I should welcome a reciprocity on the basis of recognised examination by the various Boards, I am not prepared to admit men who have passed nothing at all of an equal status with our young men who have passed the examinations required by our regulations. We have very few men in Tasmania who have got on our Register without passing an examination. Up to within three or four years ago we did admit some Victorian and New Zealand men who had certificates of having passed their examinations in those colonies, but at present the British is the only certificate we recognise. If some arrangement can be entered into by which all certificates of passing the Final Examination of a Colony will be recognised I shall be very glad to move in the matter; but whilst New South Wales admits lads of three months' standing and yet shuts out British majors and minors, I see no prospect of such a movement succeeding." It now remains to be seen what New South Wales has to say in reply to this straight-out criticism.

FOREIGN NEWS.

THE RESTRICTIONS OF THE SALE OF MEDICINES IN GERMANY.—The exercise of medical practice is free throughout the German Empire, and it is only forbidden to use the title of "Arzt"—i.e., physician—or any similar denomination without having duly passed the medical examinations. The pharmacist is specially prohibited from medical practice by the trade-law, except in cases of necessity; for example, in cases of severe injury or poisoning. On the other hand, medical men are not allowed to dispense medicines for their patients, unless danger be imminent. But in places where a pharmacist's shop does not exist or is not found in the neighbourhood, doctors may be permitted by the competent authority to have a house dispensary. Homeopathic practitioners who are qualified physicians and have passed a special examination in pharmacology and pharmaceutical technics, are authorised to keep a private

homœopathic dispensary everywhere. Also veterinary surgeons are entitled to dispense their medicines themselves. Apart from these exceptions conceded to medical men, the sale of drugs is regulated for the whole of the Empire by Imperial ordinances based upon a special paragraph of the German trade-law. The issue of an amended ordinance is expected within the next month.

THE EXISTING REGULATION is based on two principles: (1) The sale or offering for sale of certain forms of preparations, particularised in a special schedule A, is reserved to pharmacists, if the preparation is destined for a medical purpose (as a remedy for human or animal diseases), no matter whether it contains substances possessing really sanative powers or not.

THE SALE OF DRESSINGS AND BANDAGES is excepted from those restrictions, as well as the sale of preparations destined for the bath, and of soaps for external use. Disinfectants are open to free trade if they do not contain potent remedies, the dispensing of which is prohibited without a doctor's prescription. Corn-rings, corn-plasters, and cosmetics are also free, unless they contain substances included in Schedule B. Artificial mineral waters are free if their composition does not correspond to natural waters and contain no antimony, arsenic, barium, chrome, copper, free nitric acid, free muriatic acid, nor free sulphuric acid. (2) Pharmacists only are allowed to sell or to offer for sale certain drugs and chemical preparations enumerated in the Schedule B. The Schedule A runs thus: (1) Decoctions and infusions, (2) caustic styles, (3) extracts and tinctures, except certain household medicines of common use, like tincture of arnica, tincture of valerian, tincture of benzoin, liquorice, malt extract, etc.; (4) powders, mixed salts, and teas, triturations (except effervescent powder), smelling salts, salts made from natural mineral waters or imitations of such salts, etc.; (5) mixtures and solutions, enclosed mixed balsams, honey preparations and syrups, except certain household medicines like alcoholised hydratic-ether, formic spirit, aromatic vinegar, Goulard water, lime-water, etc.; (6) filled capsules of gelatin or amyllum, except capsules filled with balsam of copaiva, cod-liver oil, bicarbonate of soda, castor oil, or tartaric acid; (7) electuaries; (8) liniments; (9) pastilles, lozenges, tablets, pills and granules, except mineral water tablets, peppermint lozenges, and similar preparations; (10) plasters and ointments, except cold cream, court-plaster, adhesive plaster, mustard leaf, etc.; (11) Suppositories and cereoli. The Schedule B, which resembles the British poison schedule, comprises about 250 drugs and chemical preparations (with their salts, etc.) of a poisonous or somewhat potent character, the sale of which is reserved to the pharmacist. The sale of substances enumerated in Schedule B by wholesale to pharmacists and public institutions (for research and teaching purposes) is free. The sale of poisons for technical purposes is also restricted. Except in the case of pharmacists who are allowed to sell poisons for all purposes under certain conditions, and the local head of the police is authorised to give special licences for the sale of certain poisons for technical purposes to other trustworthy dealers. On the basis of the limitation of the ancient apothecaries' privileges has arisen the class of druggists (*Drogisten*) who, by taking advantage of the concessions to free trade, have had a large development, and are now continually asking for extension of free trade by making the most of public prejudices, of the antagonism of the medical body, and the self-interests of the sick funds, so that the pharmacists are always in a state of defence.

THE "APOTHEKER-ZEITUNG" publishes a description and illustrations of the newly-built "Polnische Apotheke" at Berlin, the property of the well-known member of the Council of the German Apotheker-Verein, Dr. Karl Schacht. The building is a handsome edifice, and the store, laboratory, etc., are of modern style—a model of the German "Apotheke" of to-day.

RAID ON A PARIS OPIUM DEN.—The Paris police recently made an unexpected raid on an opium den kept by Madame Veuve Assim at 6, Rue de l'Etoile, and, after badly frightening the smokers, habitués of the place, seized all the paraphernalia and arrested the proprietress. Until quite recently opium smoking was not included among the side attractions offered the visitor to Paris. Madame Assim is a Frenchwoman, and the widow of a Chinaman, named Seing Leing, who died in 1898. When she first met him he was engaged with a dealer in Chinese wares in the Avenue de Choisy. Since her marriage, however, and although she is but thirty years old, her personal appearance has undergone a complete change. She was once very pretty, but her features now bear a remarkable resemblance to the Chinese type. This, it is claimed, is owing to her association with her husband, whose habits she quickly adopted, and who initiated her into the joys of opium smoking directly they were married. On her husband's death, Madame Assim opened her opium den in the Rue de l'Etoile. She furnished a large room on the ground floor with all kinds of Chinese bric-à-brac—pottery, grinning masks, and silk hangings, porcelain vases, parasols, fans, etc.—and amidst these exotic surroundings her customers indulged in their day dreams. To this den repaired clandestinely, not Chinamen and Colonials, accustomed to smoke opium, but Parisians belonging to the wealthy bourgeois class. The price of each séance was left to the generosity of the smokers, who usually paid liberally for their celestial joys. For some time complaints regarding the place had reached the police, and on Saturday Monsieur Cochefort, with a force of detectives, went to the Rue de l'Etoile to raid Madame Assim's paradise. When the police forced their way in, six persons—two women and four men—were lying stretched out side by side on an enormous bed. Each was fully dressed, and had within reach the pipe and chafing dish. As the police entered the smokers rose in panic and tried to escape, but all the exits had been closed, and each had to give a name and address before being allowed to depart. The police cannot proceed against the smokers, for there is no law against indulging the habit in France. Monsieur Cochefort, however, informed Madame Assim, who had been looking on in a state of considerable perturbation, that she would be proceeded against for selling poisonous substances in contravention of the Pharmacy Acts, such being punishable by a law of July, 1845, and a decree of 1850. Madame Assim's case will come on shortly in the Police Correctionnelle.

ANOTHER USE FOR NESTLE'S FOOD TINS.—A bomb, with the fuse lighted, has been found by a policeman on the exterior window-ledge of the ground floor of 132, Boulevard Malesherbes, Paris, a flat occupied by Monsieur Paul de Cassagnac. It appears that the policeman, whose name is Nodin, could not reach the bomb as he stood, but by pulling himself up by the ironwork of the window he succeeded in knocking the bomb down on to the pavement. With commendable pluck he extinguished the fuse, burning his hands rather severely in doing so. The bomb had been placed on the exterior window-ledge, inside the ironwork, after which the fuse had been lighted. When examined later on at the Municipal Laboratory, it was found that the bomb was a dangerous one. It would not have done great damage to the building in exploding, but might have seriously injured or even killed any persons who might have been passing at the time. The bomb was made of a "Nestlé Food" tin, wound round with electric wire, and covered with white cotton and gutta percha. The fuse passed through a hole in the lid. The explosives used were black powder and pyroxile powder, while rough bits of iron and lead, revolver and rifle bullets, were put in as projectiles. The police maintain secrecy regarding the bomb, but do not consider it as an act of anarchist propaganda. Monsieur de Cassagnac said he supposed his being a property owner had been the motive of the extraordinary incident, but he could throw no light on the affair. A portion of an address label remaining on the tin is scarcely expected to furnish much information in the way of a clue.

BRISTOL PHARMACEUTICAL ASSOCIATION.

The annual dinner of this Association took place at the Royal Hotel, Bristol, on Wednesday, April 25, Mr. G. T. TURNER, President, in the chair, supported by a large company, including Mr. Michael Carteighe, past-President of the Pharmaceutical Society; Professor Lloyd Morgan, Principal of University College, Bristol; Professor Wertheimer, Principal of Merchant Venturers' Technical College; Captain Rintoul, Mr. F. Richardson Cross, Dr. Watson Williams, Mr. S. R. Atkins, Treasurer of the Pharmaceutical Society; Alderman Gadd, of Exeter; Mr. N. M. Grose, member of the Pharmaceutical Council; Mr. B. Keen, Hon. Secretary of the Bristol Association, and others.

The CHAIRMAN, in giving the usual loyal toast, referred to the Queen's visit to Bristol last November, and said her goodness, purity of life, and beauty of character had done more than anything else to make England what it is. He next proposed the "Navy, Army, and Auxiliary Forces," Captain RINTOUL, Bristol Engineer Volunteers, responding.

Professor LLOYD MORGAN gave the toast of the

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.

He said that, in looking at the constitution of the Pharmaceutical Society, he was struck with the breadth and the wisdom of its basis; it was constituted to elevate the calling by furnishing proper means of education, and thus to benefit the public, while at the same time, individually and collectively, members were protected from hostile attack. No doubt it was most valuable that there should be mutual protection of common interests; but the broader and richer and fuller basis was that which was placed first—the founding of the great conception of the Society upon education. The Society was a pioneer in technical education, about which we heard so much now. He used to think that the College of Chemistry in London, where he spent a good deal of time, was the first college in which practical chemistry was taught in London. But he found that the Laboratory of the Pharmaceutical Society was a year or two older. He was glad to think that Professor Norman Collie won the Chemical Scholarship at University College, Bristol, and he was proud to have known the late Mr. Schacht. He coupled with the toast the name of Mr. Carteighe, who had had the unique honour of being President of the Pharmaceutical Society for fourteen years.

Mr. M. CARTEIGHE, who was received with applause, observed that he was pressed into the service of the Pharmaceutical Society at a very early age. He belonged to that period which dated from about the death of Jacob Bell to the passing of the Pharmacy Act, 1868. Bell went into Parliament and got a Pharmacy Act of a voluntary character, which tended materially to advance the respect in which the Society was held educationally. But he did not obtain from Parliament recognition of the principle that the practice of pharmacy should be limited to persons who had had certain training and had passed certain examinations. The principal actor in the work after the death of Jacob Bell was George Webb Sandford, who possessed no scientific training whatever; but he had a very clear notion of the value of training. In 1867 the Society's Bill was opposed by a Poisons Bill, promoted by the United Society of Chemists and Druggists; the result was a joint Poisons Bill next session. But the Society always insisted upon education and the effect of the work had been to advance enormously the rank and file of pharmacy from the bottom upwards. He did not find that the middle or the higher pharmacy had advanced much; but the Society was exercising its powers in regard to examinations in a way which some might think a little onerous. To them he would say that the difficulty of examinations was entirely due to the fact that the candidates were not taken through a definite course, but were crammed just before the examination. Referring to the question of company pharmacy, he said that the Pharmaceutical Society was

doing its best to defeat the clause which would allow seven persons to be a pharmacy company if they had a qualified assistant. The application of the company principle might be made to destroy all education, for instance, and everything else. He was of opinion that the opposition of the Society would be successful and he would rather wait ten years than accept any compromise. He did not see how the objectionable clause in the present Bill could be modified satisfactorily. They could not at one and the same time get rid of the principle of the Pharmacy Act and yet retain it.

Mr. B. KEEN proposed the toast of

THE MEDICAL PROFESSION,

and observed that no body of men knew better than chemists what the work of medical men was like. Hard work and hard reading were their lot and he hoped to see some provincial medical baronets in Bristol. He believed that pharmacists had the confidence of the medical profession. Both had common enemies—the flagrant advertiser and the despot capital.

Mr. F. RICHARDSON CROSS, who was the first to reply, said it was obvious that the two professions were closely allied. Sixty or seventy years ago the pharmacists of England determined to make themselves fully qualified men. The Government then encouraged them; but now the Government appeared to be threatening them with company law. Medicine and pharmacy largely overlapped. Let them take care that they did not interfere with each other. Do not let it be said that pharmacists, who objected to interference, were interfering with the work of medical men. His own relations with the pharmacists of Bristol had been excellent and he believed that the two professions work very pleasantly together.

Dr. WATSON WILLIAMS also replied, saying that often enough he was indebted to the care and patience of the pharmacist. Medical men depended more and more upon educated pharmacists, as separate branches of medicine and surgery increasingly occupied their attention.

OTHER TOASTS.

Mr. S. R. ATKINS proposed the "Bristol and other Pharmaceutical Local Associations," to which Mr. KEEN replied.

Mr. H. E. MATTHEWS proposed "Our Visitors," to which Mr. GROSE responded.

A capital selection of vocal music was given during the evening.

EXTRACTS FROM CONSULAR REPORTS.

INDIARUBBER IS THE CHIEF SOURCE OF REVENUE of the State of Pará and district, Brazil. That it is enormously taxed is shown by the fact that out of a total income of £476,000 derived from the taxation of exports in 1897-98, the sum of £437,000 was collected on indiarubber alone. The total quantity of rubber exported in that year was 22,218 tons, of which 10,796 tons were shipped to Europe, and 11,422 to the United States. In the year 1898-99 the total quantity exported was 25,246 tons, the year's crop amounting to 25,374 tons, of which 9,839 tons were produced by the State of Pará, the previous year's crop being 8,919 tons. The total shipments of Amazonian rubber during the year 1899 amounted to 25,401 tons, of which 8,954 tons came to the United Kingdom.

THE CACAO PLANT, according to a recent report, is not cultivated in the States of Pará and Amazonas, but grows wild and in great profusion. When the fruit is mature it is picked and the seeds are sun dried and sold to exporters. That is practically the only time when the plant receives attention. The Pará quality is said to be one of the best in the world, in that it readily assimilates the delicate perfumes given to it in the manufacture of chocolate. In 1899 the exports from the two States amounted to 5,653 tons, of which 5,239 tons were sent to France, the average price being 6·27d. per lb.

MEETING OF BRADFORD CHEMISTS.

On Tuesday, April 24, a meeting of the members of the Pharmaceutical Society in the Bradford district was held at the County Restaurant, Bradford, Mr. H. G. ROGERSON, presiding, to consider the candidatures for

SEATS ON THE PHARMACEUTICAL COUNCIL.

Mr. WADDINGTON introduced the subject. He said that, in view of the increased interest in the election the three local secretaries had met to go through the list of candidates, with a view to the selection of seven names which they would recommend for the support of the Bradford members. They did not want the members to think that they desired to dictate in any way, but had thought it might be useful to the members if they made detailed comparison of the candidates, and then offered suggestions with a view to securing common action among them. He believed that by its recent extension of the franchise the Society had done a great deal to increase interest in its work, and he would remind members that although they might not think that the Society was immaculate, or had done all that was possible, they should remember that at no previous time in its history had it had such a considerable following as it had to-day. The great thing that they had to bear in mind in making their selection was that they should get seven candidates who would be prepared to act together on something like common lines, and whose ideas were as nearly as possible identical, and who were prepared to forward the policy of the majority of the Council, to oppose Clause 2 of the Companies Bill. Until they were agreed that the first thing that they had to do was to look after their titles and leave the matter of the actual management of their pharmacy for the moment they would not be able to go forward with any real strength. After they had got the members of the trade thoroughly united upon one point, they would be able to go on to others, and so to do something in respect of the purely trading aspect of their businesses. One of the greatest difficulties which the Council had had to deal with had been the fractious opposition of one of the trade journals, and he could scarcely believe that a man who had been the editor of the *Chemist and Druggist* could have issued such an election address as he and others had received a few days ago. They could not fail to be struck by the extraordinary difference between the views expressed by past editorials in the journal in question and those of the election address. One of the greatest objections to the present Council had been that it was not so constituted as to represent properly the views of provincial chemists. He did not think he need greatly press the point that the past editor of the journal in question could scarcely be considered able to represent the views of these provincial chemists. They had considered first of all the names of the seven retiring candidates, and had carefully searched the pages of the trade journals, so that they might become acquainted with the views of those gentlemen. Eventually they decided to recommend the adoption of Messrs. Hills, Storrar, Warren and Symes for re-election. Mr. Hills they felt they could not afford to lose, because of his long and energetic services for eighteen or nineteen years past. Mr. Storrar they regarded as representing the Scotch chemists and they gave him the preference over Mr. Currie, because, the views of the two candidates were very similar, and they preferred the one with experience. Mr. Warren had been selected for similar reasons in preference to a new candidate from London. Upon consideration of the question of the proportion in which London should be represented they formed the conclusion that eight was not really more than a proper share for London. After selecting those four retiring members, they went carefully through the new candidates with reference to the three vacancies still to be filled. The two men who they felt were most likely to do good at the moment were Mr. Taylor, of Bolton, and Mr. Gifford, of Blackburn, both being absolutely decided that the first thing that chemists should do was to protect their titles, whilst they were at one with the

majority of the present Council in that they would oppose Clause 2 *in toto*. Mr. Taylor made use of the very effective argument that the time spent before the introduction of the Pharmacy Acts Amendment Bill would not be at all wasted if they as chemists only put their shoulders to the wheel, and really did their best to cement the trade into a harmonious whole. Mr. Gifford was very much of the same opinion, and went in strongly for the protection of the professional side of their calling. That gentleman said that if the Pharmaceutical Society would do its duty in protecting his title and professional standing, he would look after his trade interests himself. There was another point, that if the Society was to retain its peculiar administrative functions they could not make it too much of a trade union. After very careful consideration they decided that the seventh to be recommended should be Mr. Cross, of Shrewsbury. He felt it was only right that he should say a little about the action of Mr. Glyn-Jones. He did not think that the action of that gentleman in addressing the members of the P.A.T.A. through their journal in regard to the election of members of the Pharmaceutical Council could be justified in any way, and he wished to offer his protest against such action. Mr. Glyn-Jones also raised the question of dispensing in doctors' surgeries. That was a great mistake. The less they heard about doctors' surgeries the better it would be at the present time. They wanted to concentrate their attention for the moment entirely upon the Companies Bill and the protection of their titles, and the introduction of such side issues was merely drawing a red herring across the track, and endeavouring to sow dissension among the members of the Society. So far as the *Chemist and Druggist* was concerned there was not a shadow of a doubt that it was a good trade paper, but they could not afford to have two leaders. They were members of the Pharmaceutical Society, and the *Pharmaceutical Journal* was the Journal of that Society. The *Chemist and Druggist* prided itself upon being the official journal of sixteen Pharmaceutical Societies in the British Empire, and he thought that, in all conscience, it ought to be satisfied and let the Pharmaceutical Society of Great Britain alone, and let it have its own Journal without attempting to lead that Society.

The CHAIRMAN said he was prepared to say "ditto" to almost all that Mr. Waddington had said, except that he thought Mr. Glyn-Jones had been somewhat hardly dealt with. Mr. Glyn-Jones was, of course, not infallible. With regard to the question of medical dispensing that gentleman was decidedly out of order in introducing it. If they were to succeed they would undoubtedly have to look for the co-operation of the medical societies. If they indulged in pin-pricks at the medical profession because of their employment of unqualified dispensers they could not do any good by it now.

Alderman DUNN expressed doubt as to the wisdom of the local secretaries in taking up this task of recommendation, and thought that Mr. Glyn-Jones had as much right to take the action which he had taken as those local secretaries had to do what they had done. He rather disagreed with Mr. Waddington's statement that experience was the most desirable thing at the present election. He thought that policy was of more importance. What they needed was not men but measures, and they should support men who would support the policy which they needed. He quite agreed that the question of medical dispensing was a side issue. The thing which concerned them in the first instance was company pharmacy. He felt, however, that they had not had full reasons given why some of the old members should be included, and others should be omitted.

Mr. WADDINGTON: These others publish no addresses, and refuse to make any appeal to the electorate. We have no means of getting to know what their opinions are.

Mr. MACKAY said it would be an advantage if the local secretaries would communicate with some other centres so that there might be effective co-operation on seven names to be jointly recommended.

Alderman DUNN also thought that unless there was concerted action with other districts, it was useless for them to attempt to accomplish anything.

The CHAIRMAN said the election would take place so soon that there was no time for such action.

Mr. WATSON said he felt some doubt whether the recommendation introduced enough of the new element, but on the whole he thought it would be well to support the names mentioned.

Mr. PICKARD said that if the meeting desired to substitute another new candidate for one of the retiring members, he could conscientiously recommend Mr. Cooper; but the local secretaries, of whom he was one, had gone into the whole matter very carefully.

Mr. MITCHELL said that among the factors which had helped them very considerably were the addresses of the various candidates.

Mr. WADDINGTON said, in answer to Mr. Marshall, that all the gentlemen who were recommended were entirely in the retail trade.

Mr. BLACK spoke strongly in recommendation of the inclusion of Mr. Gibbons' name in the list. He added that his feelings in regard to the old Council were mostly feelings of disgust, and he thought his views were shared by many thousands of others.

Mr. PARKER expressed the opinion that greater emphasis ought to be put upon the trade aspects of the chemist's business for ninety-nine out of a hundred of them had to consider those more than the professional aspect.

Mr. WADDINGTON briefly replied to the various arguments, and a show of hands was taken, with the result that it was decided to support Messrs. Gibbons, Gifford, Hills, Taylor, Symes, Storrar, and Warren.

EXETER ASSOCIATION OF CHEMISTS AND DRUGGISTS.

A meeting of the Exeter Association of Chemists and Druggists was held at the Albert Memorial Museum on Tuesday, April 24, the chair being occupied by the PRESIDENT (Mr. T. C. Milton). Apologies were received from several members, regretting their inability to be present. A discussion arose on a letter from the Federation of Local Pharmaceutical Associations in regard to

THE COMPANIES QUESTION.

The PRESIDENT expressed the opinion that the matter should be left in the hands of the Pharmaceutical Society.

Mr. J. HINTON LAKE said that, acting on the advice given by one of the journals, he wired to the member of Parliament for the city (Sir Edgar Vincent, K.C.M.G.), asking him, if the Bill came on for consideration, to vote against Clause 2, after he had given the matter his attention. The hon. member acknowledged the receipt of the telegram, and said he would give the matter his very serious consideration.

The PRESIDENT said that the hon. member would be visiting the city shortly, and the question was whether it was worth their while to obtain an interview with him and bring the subject before him.

Mr. LAKE said the question was whether it was considered advisable to oppose Clause 2 or not. It was a question of allowing companies to assume titles which should only be borne by qualified men.

Mr. E. LEMMON: But they do it at the present time.

Mr. LAKE said it was a case of making legal what was now done without the sanction of the Legislature. He, however, did not feel strongly about the matter.

The PRESIDENT agreed. He had not much interest in the subject.

Mr. D. REID thought that they ought to make the strongest effort possible to prevent new interests of the same kind being created in future. It should be illegal for those companies to use the title of chemist and druggist or pharmaceutical chemist.

Mr. LAKE suggested that they would have to sacrifice the "Widows' Clause."

Mr. D. REID: I don't think that would be very much hardship.

Mr. LAKE observed that if it was considered illegal for a company to carry on business by employing a qualified man, the Government would consider it illegal for a widow to carry on a business.

The PRESIDENT: That is a common-sense view, certainly.

Mr. LEMMON pointed out that this was not exactly the question before them. The question was whether those companies which were not qualified could call themselves by the titles of qualified men. He did not think the Pharmaceutical Society had ever fought the question. It was admitted that it must be a limited company.

The PRESIDENT said the Lord Chancellor would probably say that they themselves were not acting in a proper spirit by carrying out the "Widows' Clause"; but they should reply: "If you think it wrong, do away with it." He, however, did not think that their adopting errors should encourage them to make greater hardships.

Mr. REID remarked that if there was anything to be got by fighting Clause 2 they ought to try and get it.

The PRESIDENT: I feel very indifferent about it myself.

Alderman GADD, J.P., pointed out that the "Widows' Clause" was specially provided for by Act of Parliament. He also mentioned the case of a principal having half-a-dozen shops, and Mr. LAKE remarked that the principal saw that there was a qualified man in charge in each case.

The PRESIDENT agreed that the actual manager's or dispenser's name should appear, but he thought that it was a waste of time discussing the matter; for instance, they would not be able to prevent co-operative stores discussing the matter. They were too strong. If only they could now undo the work of the last twenty years they might be able to take action which would be for their benefit.

In the course of further discussion it was suggested that the subject should be considered at a special meeting. One member observed that he did not think the Bill would come before the present Parliament.

Mr. REID said they would find a tremendous amount of opposition throughout the country. They ought to make a stand and improve matters in the future. If they were not going to get some advantage by being qualified men, it would be better to be without the Pharmacy Act altogether.

Eventually the PRESIDENT said he would take care that the subject was placed on the agenda at the next meeting.

SUMMER OUTING.

In regard to the proposal of the Association to join the Plymouth Association in an outing during the ensuing summer, the PRESIDENT said he had placed himself in communication with Mr. Cocks, the Secretary of the Federation, and Mr. G. Breeze, the Secretary of the Plymouth Association. The members of the latter body fell in with the suggestion with very great pleasure. They suggested that the outing should take place on the Thursday in the last week of June, and that Totnes should be the meeting-place for a drive, returning for high tea. It was also suggested that members should bring their friends.

After a discussion, during which several suggestions connected with the proposed outing were made, it was decided to reply accepting Plymouth's invitation, but proposing that the outing should take place on the second or third Thursday in June, the meeting place to be arranged by the President and Secretary with the Plymouth Association.

THE B. P. CONFERENCE.

A letter was read from Mr. E. M. Holmes, enclosing particulars about the advantages of the British Pharmaceutical Conference, and asking those who were not members to join. He hoped to see in the future the 'Year-Book' made increasingly useful as a desk companion for the pharmacist; prizes offered for the best papers; and meetings of the various bodies—commercial, political, and scientific—connected with pharmacy, at the same time of the year as the Conference, so that a good and powerful organisation might be formed for protecting the interests of the profession.

ROYAL INSTITUTI N.

The Friday evening discourse on March 30 was delivered by Professor J. ARTHUR THOMSON, M.A., on

Facts of Inheritance.

The lecturer prefaced his remarks by pointing out that one of the main features in recent scientific progress has been the development of greater precision in scientific nomenclature. For example, the term specific vital force is now disowned, and force itself is described as the measure of motion. Heredity is another term which has lost its former importance. Heredity is neither a power, a principle, nor a force, but a convenient term for expressing the relation of organic or genetic continuity which binds together grandsire, sire, and son. It is well that terms such as this are now being valued at their true worth, so that the enquirer may beware of these dust particles of intellectual fog.

The facts of inheritance have recently received considerable attention at the hands of Francis Dalton and Karl Pearson from a mathematical and a statistical point of view.

The fundamental facts rest on certain physical bases. Of these the lecturer chose a few to explain some of the leading principles. Each living thing, whether plant or animal, has the elements of its life in the egg cell and the spermatozoid. In biology there is no difference, as a rule, as there is in human affairs, between an inheritance and the inheritor. The egg cell may be looked upon as representing both. The question is frequently asked "can there be room in these cells for the complexity of organisation supposed to be requisite?" Darwin considered the microscopic brain of the ant to be the most marvellous sample of the handiwork of nature. But if there are degrees in the marvellous, surely the unit that produced the ant is still more wonderful! It has been stated that the "Great Eastern" filled with a mechanism as delicate as that of the smallest watch would not be so complex in structure as a single minute spermatozoid. An ovum is a small body, but a spermatozoid averages one-hundred-thousandth of the size of an ovum. The finding of a complete answer to this question rests more with the student of physiology and embryology.

Another question that lies within the province of the student of inheritance relates to the

UNIQUE CHARACTER OF THE GERM CELLS.

"How do they develop into an organism?"

In answer various theories have been advanced. Democritus, Paracelsus, and some more modern thinkers have held that the various cells of the body give off "gemmules" which by fusion give a germ cell that is a representative sample of the organism. The latter theory of germinal continuity has, however, superseded the gemmule theory. By this theory, due to Dalton, it is held that germinal material is set apart in the parent to form the germinal reproductive cells, any one of which may become the starting point of a child.

In the process of division of the nucleus the centrosome, which is derived from the paternal side, organises the machinery of division. As far back as 1878 Huxley prophesied that every part of an organism contains elements derived from both the paternal and maternal side, just as a web is composed of warp and weft. The inheritance is therefore dual. There are known to everybody degrees of hereditary resemblance, as when a child is more like one parent than the other. Certain tendencies may be transmitted more than others, *e.g.*, certain diseases, and some subtle qualities as longevity and fecundity. The old phrase "like begets like" would better be paraphrased into

"LIKE TENDS TO BEGET LIKE."

It is probable that where a child appears to resemble one parent more than the other we fail to detect the idiosyncrasies that are present.

There are three familiar kinds of inheritance:—(i.) blended, (ii.) exclusive, and (iii.) particulate inheritance. The first is well seen in the colour of the hair, especially in hybrids; in (ii.) the paternal or maternal characters are suppressed, *e.g.*, the colour of the eyes. This is called a unilateral resemblance, as when a child resembles one parent more than the other; the third type is well seen in the colour of the hair, which resembles that of the two parents in different patches. The foal of a dark horse and a light mare would show blended inheritance if light brown, exclusive inheritance if very light or very dark, and particulate inheritance if piebald.

THE QUALITY OF PREPOTENCY

next received attention. By this is meant the quality by virtue of which the male or female contribution predominates. Thus a man generally resembles his father in stature, and the colour of a mare is prepotent over that of its sire. Prepotency is developed by the process of inbreeding. Any carefully inbred race tends to become prepotent and transmit its qualities. Thus inbreeding tends to fix characteristics in a race, as is well seen in the Jews. The people of the United States serve as an example of the opposite of inbreeding, *viz.*, cross-breeding. They thus avoid the degeneracy that follows from inbreeding, and constant variations are provoked which form the raw material of progress. An ideal race should follow generations of inbreeding with generations of cross-breeding.

Another point of interest is the remarkable stability of type from generation to generation. The proportion, *e.g.*, between the large and small men in any particular family varies so little. Children tend to differ less from mediocrity than their parents. To this tendency the name

FILIAL REGRESSION.

has been given. The theory of germinal continuity helps us to appreciate the fact that a man is not merely the product of his parents, but of all his ancestors. Calculation will show that allowing three generations per century, there have been twenty-five generations since the Norman Conquest. Working on this basis, it may be calculated that the average man now living has had 1,024 ancestors going back 10 generations, 16 millions since the Norman Conquest, and 70,000 millions of millions since the year A.D. 1. Owing to intermarriage the number is in all cases capable of great reduction. Thus, the present Emperor of Germany can name only 206 ancestors out of a theoretical 1,024. Even allowing a margin for some who may have been forgotten the number does not exceed 256. Each parent contributes one-fourth to the germ cell that will develop into the child, each grand-parent one-sixteenth, each great-grand-parent one sixty-fourth, and so on. It is fortunate for the individual that there is this tendency towards mediocrity in the inheritance, otherwise the son of a degenerate father would bear the whole weight of his parent's ill-doing. This principle of filial regression is seen in the animal world in the mule, the product of a male ass and a female horse, as well as in the vegetable world. Thus the product of two species of willow gave leaves which were a mean of the originals in size; two species of water avens produced a variety whose fruit was midway between them in size, hairiness, and other characters.

It has been shown by statistics that certain qualities are transmitted along one line more than along the other. In a family, the descendants of a colour-blind father and normal-sighted mother show even to the third generation colour-blindness in the males and normal sight in the females. The same is seen in the case of deaf mutes, and certain diseases. Dalton has done much to clear up this difficult subject in his studies of the human faculties. He has shown conclusively that inheritance is dual in respect of the father and mother, but multiple in a deeper sense.

In conclusion, the lecturer said it was necessary to warn his audience against the common fallacy that there was a fatalism connected with a man's inheritance. Though each individual has

a given inheritance, yet it is capable of modification by culture. The realms of literature, science, and art furnish means of culture which place man in a more favourable position to combat an unfortunate inheritance than is the case with the beasts that perish.

The fourth lecture of the series was given by the Right Hon. Lord RAYLEIGH, F.R.S., on Saturday, March 31, on

Polarised Light.

The lecturer showed that it is not only bodies that are subjected to mechanical stress that may acquire doubly refracting properties, but that an electrical stress may bring about the same result. The stress acts in the direction in which the electrical change of potential is fastest. An experiment was performed to illustrate this point, carbon disulphide being the substance acted upon, and a Wimshurst machine the source of the electricity. On passing a beam of light through the liquid and two Nicol's prisms reversed, so as to gain the position of maximum darkness, no light passed through; but on starting the Wimshurst machine the obscured light was seen to be renewed, owing to the carbon disulphide becoming capable of doubly refracting light on being electrically charged. It is necessary that the carbon disulphide should be dry and free from shreds, which if present would tend to aggregate between the two charged balls.

The reflection of light from a surface of glass or water was next considered, and Fresnel's formula was given for determining the amount of light reflected from the surface of a given medium. The symbol μ representing the index of refraction of the medium, the amplitude of the reflection is found from the formula—

$$\frac{\mu - 1}{\mu + 1}$$

Thus if $\mu = \frac{3}{2}$, the amount of light reflected will be $\frac{1}{5}$ of the incident light. The intensity will be the square of the amount, in this case $\frac{1}{25}$. Young devised a similar formula, and on arranging experiments so that the light falls vertically on the reflecting surface, the formula is found to be almost correct. When light does not fall vertically on the reflecting surfaces, other factors have to be reckoned with, *e.g.*, traces may remain of the material with which the glass was polished.

The reflection of light in cases when the second medium is metallic was next considered. The reflection is different at a silver surface from what it is at a surface of gold. Opacity is what causes a copious reflection of light.

Some salts show peculiarities in the way in which they reflect light. Thus, potassium permanganate has an intense absorbing power of the green rays of the spectrum. The spectrum of crystalline potassium permanganate is different from that of a solution of the salt; the dark band in the absorption spectrum corresponds with the bright band in the reflected light. Certain crystals, notably certain potassium chlorate crystals, exhibit a brilliantly coloured reflection from a thin layer in the crystals. This was observed by Sir George Stokes, who ascertained that the layer causing the coloured reflection was very thin, being only about a thousandth part of an inch in thickness. The quality of the light reflected varies with the angle of incidence; as the angle increases the amount of reflected light increases, and the colour changes from red to yellow, then to green; or from green to blue. The coloration is not seen from all positions; from two positions at right angles to each other the effect is best seen; midway between these two points it is not seen at all. Stokes thought such crystals contained a single plane, but the lecturer considered that a twin plane was present. A piece of Iceland spar often contains twin planes. If a small batch of potassium chlorate crystals be made, some of them will be found to possess this remarkable property of reflecting light of various colours.

On Saturday, April 7, Lord RAYLEIGH gave the fifth lecture of his course on

Polarised Light.

In plane polarisation the vibrations are in one plane, but there are, strictly speaking, two other kinds—*viz.*, elliptical and circular polarisation. This is best understood by regarding the elliptical polarisation as the mean. In the one extreme—*i.e.*, plane polarisation—the ellipse has been reduced to its major axis only, whereas, in circular polarisation, the other extreme, the major and minor axes are equal in length. Elliptical polarisation of light is looked upon as the general case, comprising the two extremes. It is the most homogeneous kind of light. Circular polarisation can be produced by interposing in the polarised beam a mica plate known as a quarter-wave plate, of such thickness that one ray gains exactly a quarter undulation on the other. It is interesting to note that the interposition of two quarter-wave plates instead of one produces plane polarisation.

The nature of ordinary light itself is more difficult to understand than polarisation. It may be regarded as light of which the plane of polarisation was continually shifting—in other words, as elliptically polarised light, with the direction of the major axis constantly changing. This point is not brought out in text-books.

Homogeneity in light is only found when there is an infinite succession of rays of the same wave-length, intensity, amplitude of vibration, and when there is no change of phase.

It is possible to obtain circular polarisation by means of Fresnel's rhombs. This the lecturer did, and showed Savart's bands, which afford a convenient means of detecting whether a particular sample of light is polarised or not, say in the case of light from the sky.

When a thin slice of quartz—a uniaxial crystal—is interposed between two Nicol prisms in the crossed position, a revival of light is seen. The action of quartz differs from that of other uniaxial crystals in certain respects. There are two optical varieties of quartz—one rotating the plane of polarisation to the right, the other to the left, and in nature specimens are found in which the two varieties are conjoined.

Some fluids possess a similar power of rotation—*e.g.*, oil of turpentine and sugar solutions, and while in a crystalline solid this effect may be attributed to some special character of the structure, in fluids it is only possible to suppose that the molecules themselves have something of that character. It is found that the rotation of the ray depends on the length of the column of liquid and the strength of the liquid. Poynting has devised an excellent method of polarimetry, whereby the light is transmitted through a cell so constructed that one-half of the light passes through glass, the other through strong syrup. This apparatus is known as the half-shade polarimeter.

Polarimetric determinations are, as is well known, of great importance in chemistry. This new field was opened up by Pasteur in his researches on the rotatory powers of tartaric acid. He noticed that tartaric acid was dextro-rotatory, and that racemic acid, though possessing the same chemical properties as tartaric acid, was inactive—*i.e.*, did not produce rotation. He prepared the ammonium-sodium salt of racemic acid, and on sorting out the two kinds of crystals which he observed and dissolving each kind separately, one solution produced right-handed, the other left-handed rotation. Pasteur was thus able to discover a new substance by this method. He then found that certain bacteria have the power of decomposing tartaric acid, using up one variety and leaving the other intact.

A discussion has been held as to whether the property of rotating the plane of a ray of polarised light is ever found without the intervention of life. This subject has been fully dealt with by Professor Jupp in an address before the British Association in 1898.

An interesting experiment of Faraday's devising consists in inducing in carbon bisulphide—an inactive body—this rotatory power by the agency of magnetic force.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Copaiba.

COPAIBA or COPAIVA is an oleo-resin obtained from the trunk of *Copaifera lansdorffii*, Desf. (N.O. Leguminosæ), and other species of *Copaifera*, Linn. The trees yielding it are indigenous to Brazil, Venezuela, New Granada, and other parts of Central and South America. The anastomosing, schizogenous secretion ducts containing the oleo-resin form an extensive network in each zone of the secondary wood of both stem and root, resembling in arrangement the laticiferous tissue of the dandelion. Lysigenous cavities are also found; they appear to be formed by the breaking down of cell walls, which are probably transformed into resinous or oleo-resinous substances. The oleo-resin is collected in cavities cut in the trunk of the tree near the base, and as much as 48 litres is stated to have been obtained from a single tree. The commercial varieties of the drug are named after the ports—Maracaibo, Para, Maranhã, Savanilla, Angostura, etc.—whence they are shipped. Maracaibo copaiba is most efficacious. The oleo-resin, which possesses stimulant, antiseptic, and diuretic properties, yields Oleum Copaibæ by distillation. The dose of copaiba is 0.5 to 1 fluid drachm.

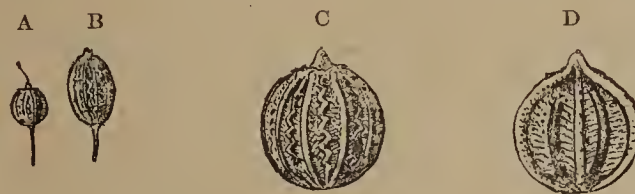
CHARACTERS.—Copaiba is a more or less viscid liquid, generally transparent, but sometimes opalescent and occasionally slightly fluorescent. It has a characteristic aromatic odour, a persistent acrid somewhat bitter taste, and a colour varying from light yellow to pale golden brown. Para copaiba is a thin yellowish liquid; the Maracaibo variety is viscid as treacle and brownish-yellow in colour. The specific gravity of the oleo-resin varies from 0.916 to 0.993, according to the proportion of volatile oil it contains; when kept it becomes thicker by resinification of the volatile oil and the specific gravity increases. Volatile oil and resin are the chief constituents of the drug, the proportion of the former varying from 20 to 80 per cent., though it is usually between 40 and 60 per cent., and should not be less than 40 per cent. for medicinal purposes. The oil should rotate the plane of a ray of polarised light from 28° to 34° to the left; it should not boil under 250° C., and its specific gravity should be from 0.900 to 0.910. Pure copaiba is entirely soluble in absolute alcohol, ether, benzene, carbon bisulphide, fixed and volatile oils; also in two parts of glacial acetic acid, and four of petroleum spirit, only a filmy deposit being yielded by the latter solution on standing.

TESTS.—Copaiba, when heated until all volatile oil is removed and then cooled, yields a hard residue which is easily reduced to powder, thus indicating absence of castor oil and other fixed oils. No odour of turpentine should be given off by the oil volatilised during the operation. The presence of turpentine (b. p. about 160° C.) also lowers the boiling point of the oil. The absence of African copaiba is indicated by the oil rotating a ray of polarised light to the left; the oil from African copaiba causes the ray to deviate to the right. If gurjun oil or "balsam" be present, a transient violet colour will be produced on dissolving two drops of the impure copaiba in 20 parts of carbon bisulphide, and adding 1 drop of a cooled mixture of equal parts of nitric and sulphuric acids, but a similar coloration is stated to have occasionally been yielded by genuine copaiba. Another test for the presence of gurjun oil is the reddish or purple colour produced on carefully adding 4 drops of the impure copaiba to a mixture of 0.5 oz. of glacial acetic acid and 4 drops of nitric acid. If a hydrocarbon oil be present as an adulterant, it will form a separate layer at the bottom of a test tube on warming therein 1 C.c. of copaiba with 4 C.c. of 95 per cent. alcohol.

NOTES.—The distinctive characters of copaiba are its odour, unpleasant taste, and its solubility in absolute alcohol and in petroleum spirit. Genuine copaiba is extremely rare. The hard, brittle, amorphous mass left after removal of the volatile oil is a mixture of acid resins—copaivic, oxycopaivic, and metacopaivic acids. A bitter principle also present in small quantity in the oleo-resin can be removed by boiling the drug with water. Though frequently termed a "balsam," copaiba cannot properly be so regarded, inasmuch as it contains neither cinnamic nor benzoic acid. Neither does gurjun "balsam," or wood oil—an oleo-resin obtained from *Dipterocarpus turbinatus*, Gaertner (N.O. Dipterocarpaceæ), which has been used to adulterate copaiba. It somewhat resembles copaiba in odour and taste, but is usually of a dark-red colour and fluorescent.

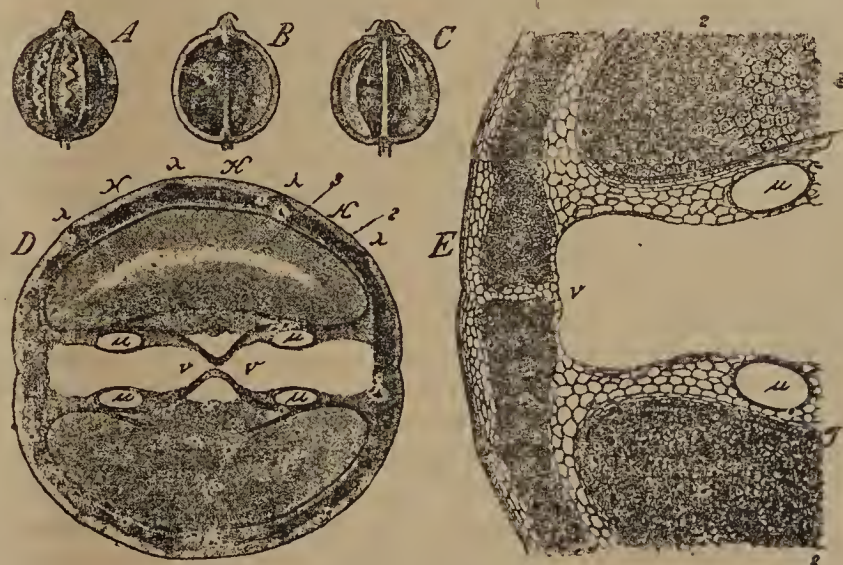
Coriandri Fructus.

CORIANDER FRUIT is the product of *Coriandrum sativum*, Linn. (N.O. Umbelliferae), an erect herbaceous annual which has been naturalised throughout temperate Europe and is cultivated in Russia, Thuringia, Northern Africa, Malta, and India. The fruit, which is collected when ripe and dried, possesses stimulant, aromatic, and carminative properties; it is used in the preparation of Confectio Sennæ, Oleum Coriandri, Syrupus Rhei, Tinctura Rhei Composita, and Tinctura Sennæ Composita; also, indirectly, of Syrupus Sennæ.



CORIANDER FRUIT.—A, English; B, Indian, both natural size; C, English fruit (cremocarp), slightly magnified; D, ditto, commissural surface of mericarp.

CHARACTERS.—Coriander Fruit is a cremocarp which is nearly globular in shape, the two mericarps of which it consists being firmly united by their margins and enclosing between them a small cavity. The fruit is about 5 Mm. in diameter, brownish-yellow in



CORIANDER FRUIT.—A, Whole fruit (cremocarp); B, commissural surface of a mericarp, showing the vittæ as dark lines; C, Longitudinal section through cremocarp, showing the endosperm and embryo; D, Transverse section, and E, part of ditto, showing vittæ u. A, B, and C magnified 3 diameters; D, magnified 14 diameters; E, much enlarged. (After Berg.)

colour, and quite glabrous. The two mericarps—each of which bears five inconspicuous wavy primary ridges, containing fibro-vascular bundles and alternating with four more prominent straight second-

dary ridges—are crowned by the remains of the calyx teeth and styles. A transverse section exhibits two vittæ on the commissural or inner surface of each mericarp, and both transverse and radial sections show a curved endosperm. The agreeable taste and the aromatic odour, which is more marked when the fruit is bruised, are due to the volatile oil present.

NOTES.—The distinctive characters of coriander fruit are the nearly globular shape, firmly united mericarps, wavy primary and straight secondary ridges, and two vittæ on each commissural surface. Indian coriander fruit is ovoid instead of globular in shape. Unripe coriander fruit and oil distilled therefrom have a disagreeable fetid odour; that disappears from the fruit as it ripens, and from the oil on keeping. The ripe fruit yields about 1 per cent. of volatile oil, which contains about 90 per cent. of coriandrol.

Creosotum.

CREOSOTE is a mixture of guaiacol, creosol, and other phenols, obtained during the distillation of wood tar. Guaiacol predominates in some specimens and creosol in others, beechwood creosote containing most guaiacol. Rhenish beech tar creosote is stated to contain guaiacol, creosol, phlorol, phenol and cresols. The drug possesses disinfectant and antiseptic properties; it is used in the preparation of *Mistura Creosoti* and *Unguentum Creosoti*. The dose of creosote is 1 to 5 minims.

CHARACTERS.—Creosote is a colourless or yellowish liquid which is highly refractive, has a strong empyreumatic odour and acrid taste, and is neutral or only faintly acid to litmus. It dissolves in about 150 parts of water at ordinary temperatures, but is more soluble in hot water, and freely soluble in 90 per cent. alcohol, ether, chloroform, glycerin, or glacial acetic acid. It rotates the plane of a ray of polarised light to the left, its specific gravity should not be below 1.079, and it distils between 200° and 220° C. Compare these characters with those of *Acidum Carbolicum*.

TESTS.—Creosote yields a green coloration, rapidly changing to reddish-brown, when a drop of test-solution of ferric chloride is added to a 1 per cent. solution in 90 per cent. alcohol, or a 0.5 per cent. solution in water. Phenol gives a deep purple colour with ferric chloride, and does not affect a ray of polarised light. Other distinctions from phenol are that creosote is practically insoluble in solution of ammonia or in diluted glycerin (3 volumes to 1 of water), and can be mixed with an equal bulk of collodion without causing it to gelatinise. Less volatile liquids than creosote leave a translucent stain when the liquid is dropped on white filter paper and exposed to a temperature of 100° C.

NOTES.—The distinctive characters of creosote are its odour, solubility, reaction with ferric chloride, and action on polarised light. Beechwood creosote dissolves in about 110 parts of water, and mixes in all proportions with absolute alcohol, 90 per cent. alcohol, ether, glacial acetic acid, chloroform, benzene, or petroleum spirit; it also mixes freely with glycerin up to 3 parts of the latter, but a further addition of glycerin renders the mixture turbid. Guaiacol is soluble in 80 parts of water, and mixes with glycerin in all proportions; creosol is soluble in 150 parts of water, but will not form a clear mixture with glycerin in any proportion. Neither pure guaiacol nor creosol has any measureable effect upon polarised light, nor have most commercial samples of genuine wood tar creosote.

Publications Received.

SQUIBB'S EPHEMERIS OF MATERIA MEDICA, PHARMACY, THERAPEUTICS, AND COLLATERAL INFORMATION. Brief Comments on the *Materia Medica, Pharmacy and Therapeutics* of the year ending October 1, 1899. By EDWARD R. SQUIBB, M.D. Brooklyn, N.Y.: 36, Doughty Street. January, 1900. From the Publisher.

UEBER DIE TOXICOLOGISCHE STELLUNG DER RAPHIDEN. Von L. LEWIN. Sonder-Abdruck aus den Berichten der Deutschen Botanischen Gesellschaft. Jahrgang, 1900. Band xviii. Heft 2. Berlin: Gebrüder Bornträger. From the Publisher.

A MANUAL OF MEDICINE. Edited by W. H. Allchin, M.D. Lond., F.R.C.P., F.R.S. Ed. Vol. i. General Diseases. Pp. x.+442, price 7s. 6d. London: Macmillan and Co., Ltd. 1900. From the Publishers.

THE QUARTERLY THERAPEUTIC REVIEW. A Record of all the Published New Remedies, Special Applications and Preparations of Medicines and of New Formulæ. No. 69. Vol. xviii. April, 1900. Price, 1s. London: Baiss Brothers and Stevenson. From the Publishers.

Obituary.

HIRST.—On April 19, Jacob Hirst, Chemist and Druggist, Bradford. Aged 69.

HYNE.—On April 6, at 175, West End Lane, West Hampstead, Emma Rebecca, the beloved wife of Harry Hyne, Pharmaceutical Chemist, and member of the Pharmaceutical Society since 1873. Aged 45.

JAMESON.—On April 22, at Baker Street, London, W., Sophia Jameson, the dearly beloved wife of Walter Carpenter Jameson, Pharmaceutical Chemist and member of the Pharmaceutical Society since 1853. Aged 77.

JONES.—On April 10, William Henry Jones, Chemist and Druggist, Caledonian Road, London, N. Aged 50.

REYNOLDS.—On April 21, at Cliff Lodge, Leeds, Frances, widow of Richard Reynolds, the distinguished pharmacist whose decease was announced only a fortnight ago. Mrs. Reynolds was the daughter of Mr. Samuel Marshall, one of the best-known Quakers in Westmorland. She never recovered from the shock of her husband's death. The funeral took place at the Friends' Burial Ground, Adel, on Tuesday, April 24. Aged 70.

SOUTHALL.—On April 17, Horace Southall, Pharmaceutical Chemist, Walthamstow. Aged 28. Mr. Southall has been a member of the Pharmaceutical Society since 1894.

THOMPSON.—On April 18, John Thompson, Pharmaceutical Chemist, Liverpool. Aged 79. Mr. Thompson, who was the oldest chemist in business in Liverpool, was a native of Sheffield, and originally intended to enter the medical profession, to which he served five years' apprenticeship with a well-known firm of physicians and surgeons in Sedgley. In 1840, however, owing to family reasons, he went to Liverpool, and in 1843 commenced business as a chemist at 54, Stanhope Street, where he soon established a large connection, which was afterwards extended to Lodge Lane and Mossley Hill. He became a member of the Pharmaceutical Society in 1845, during the presidency of the late Peter Squire. For some time he took an active interest in local politics, and for ten years was elected a member of the Toxteth Board of Guardians, to which body he also filled the office of vice-chairman. Latterly, he gave his leisure time to local archæological research, and was an active member of the "Historic Society of Lancashire and Cheshire." He was the author of several works, including 'Liverpool in the Olden Time' and 'Paris During the Commune.'

WILKINSON.—On April 19, at Solway Mount, Colne, Lancs., Anne Elizabeth Wilkinson, *née* Horsley, the loving and devoted, wife of Wm. Wilkinson, M.P.S. Interred in the Colne cemetery, April 23. Aged 62.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Bower, Brunt, Butler, Collins, Dallow, Eberlin, Ferrall, Gifford, Gilderdale, Goldsmith, Griffin, Hill, Lancaster, Lawson, Lewis, Ling, Lucas, Marshall, Mereer, Munoukurn, Philp, Price, Reynolds, Robinson, Runciman, mith, Thompson, Wardleworth, Warneford, Whineray, Zossenheim.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

FORMATION OF VANILLIN.

Behrens has already pointed out that vanillin is developed in the leaves of the vanilla plant by a ferment or by mineral acids, showing that it exists in combination with a glucosidal body. Busse has now proved that a similar combination exists in the fruit. He obtained from the Botanical Gardens at Berlin an unripe vanilla pod weighing 28 Gm. This, when comminuted, gave a faint vegetable odour, but no odour of vanillin. It was extracted with alcohol, 80 per cent., at normal temperature. The extract was treated with lead acetate, and excess of lead removed by H_2S , and the alcohol removed from the filtrate by heat at $60^\circ C$. A portion of this aqueous fluid was gently heated with 2.5 per cent. sulphuric acid, another equal portion with hydrochloric acid, and a third portion a few grains of emulsin and warmed to $37^\circ C$.; in all three cases the odour of vanillin was very strong, but accompanied by a mercaptan-like odour from the treatment with sulphuretted hydrogen. The product was purified by dissolving in ether, and washing the solution with water; on evaporation of the ether a pure vanilla odour was obtained. The melting point of the vanillin was not determined.—*Schweiz. Woch.*, **38**, 105.

ABSORPTION OF IODIDES BY THE SKIN.

An interesting series of experiments, conducted on his own person by F. Gallard, shows that the human epidermis is permeated by sodium iodide, only slightly at first, but increasing progressively until a notable quantity is absorbed, as shown by the amount of iodine eliminated by the kidneys; further, that this elimination does not take place rapidly, so that, by this means, a cumulative dose of iodine may be absorbed. The experiments were conducted by daily immersing the arms and forearms for thirty minutes in a bath containing a 5 per cent. solution of sodium iodide at $36^\circ C$. This was repeated daily for twenty days, the amount of iodine eliminated in the urine being daily determined. After the first, second, and third immersion the output of iodine amounted to 0.066 Mgm., after the fifth to 0.167 Mgm., after the ninth to 1.900 Mgm., and after the last, to no less than 3.863 Mgm. As showing the slowness with which the iodine is excreted, 1.98 Mgm. was eliminated between the thirty-sixth and forty-seventh hour after the last immersion, and 0.333 Mgm. from that time up to the seventy-second hour. A control experiment to demonstrate the amount of iodine which might be attributed to inhalation through the respiratory organs was then conducted. The experimenter inhaled the air, breathing naturally, over the same bath, but without immersing the arms. Although a faint trace of iodine was thus found to be absorbed it was very minute, the amount excreted not exceeding 0.166 Mgm. after the twentieth day. These results have considerable therapeutical significance.—*Compt. rend.*, **130**, 858.

ANIODOL.

Under this name a solution of formolic and allylic derivatives has been introduced, which is stated to be a powerful bactericide. Its germicidal power is said to be between 1:4000 and 1:5000, and, for some bacteria, as little as 1:6000 is fatal. For sterilising instruments a 1:2000 solution is recommended, in which strength aniodol is stated to be without action on the hands of the operator. For injections and dressings a 1:5000 solution is sufficient; a more, concentrated form should not be used, since, in larger doses, it has a tendency to destroy the repairing elements of wounds and thus hinder healing.—*Bull. Com.*, **28**, 132.

VOL. 64. FOURTH SERIES, VOL. 10.). No. 1558.

QUARTZ THERMOMETERS.

Taking advantage of the fusibility of quartz, that substance having been shown by Boys to assume a plastic state in the flame of the oxyhydrogen blow-pipe before melting, A. Dufour has constructed a thermometer for high temperatures which has a quartz bulb and stem. Tin is used for the liquid, since it is readily obtained in a pure condition, has a relatively low melting-point, and is not appreciably volatile below a red heat. The thermometer is filled with molten tin by aspiration. After obtaining as perfect a vacuum as possible in the stem, it is sealed in the oxyhydrogen blow-pipe. The last few bubbles of air are got rid of by melting the tin and giving the thermometer repeated shocks. If the tin forms a trace of oxide this collects in the bulb and remains there. The meniscus in the stem is always very bright, resembling that of a mercury thermometer. The bulb must be thick, otherwise the tin, in contracting, will fracture it. The author suggests that tubes of quartz are likely to prove valuable for spectroscopic work, obviating the difficulty of obtaining a pure spectrum, which is not possible under certain conditions, when glass tubes are employed. Commenting on this note, Armand Gautier states that in 1869 he succeeded in making small tubes of quartz, employed as air thermometers, and as coils for causing gaseous mixtures to circulate in unalterable capillary tubes, in the course of his researches on the influence of temperature on the combination of gases. The apparatus constructed thus of quartz was shown by him at the Universal Exhibition of 1878.—*Comp. rend.*, **130**, 775 and 816.

ACETYLENE TETRABROMIDE.

This colourless fluid, $C_2H_2Br_4$, does not crystallise on cooling to $-20^\circ C$., and boils at $137^\circ C$. The sp.g. is 3.0011; it is insoluble in water, but soluble in ether in all proportions. In consequence of its high gravity this body is a very useful separating liquid for mineral mixtures. Dissolved in ether it is employed to separate the woody parts and starch granules of plants, and possesses the advantage that it does not cause the parts to swell.—*Merck's Report*, 1900, 16.

CASSARIPE.

This name is applied to the inspissated juice of the root of *Manihot utilissima*, the bitter cassava. This root yields in the fresh condition, besides arrowroot and tapioca sago, a poisonous juice, the toxicity of which is due to the active principle, manihotoxin which, according to Peckoldt, is destroyed on heating or by fermentation. Cassaripe is non-toxic, but is an antiseptic, and is largely employed by the Brazilians as a meat preservative. According to Risley, cassaripe is useful in the treatment of diseases of the eye. A ten per cent. ointment quickly curing ophthalmia, corneal ulcers, and other similar affections. The ointment should be applied two or three times daily. Its application gives rise to no irritation.—*Merck's Report*, 1900, 47.

KOSAM SEEDS.

Heckel and Schlagdenhauffen describe the seeds of *Brucea sumatrana*, a Simaroubaceous plant, indigenous in the hot regions of China, and in India, as being contained in a greyish egg-shaped drupe. Recently Physalis and Bertrand have isolated a glucoside, kosamin, the first-named authors having previously recorded the presence of fixed oil, gum, quassin, saponin, and sugar in the fruits. Moungal has given the seeds with success in cases of metrorrhagia, dysentery, and intractable diarrhoea. The decorticated crushed seed is employed, the paste obtained being made into pills. Five seeds are given to children for the first day, six seeds for the three succeeding days. For adults the dose is ten seeds for the initial day, and twelve for succeeding days. From their marked hæmostatic properties, it is possible that these seeds may prove useful in the treatment of catamenial disorders.—*Bull. Com.*, **28**, 131.

POTASSIUM FERRATE.

BY F. H. ALCOCK.

Text-books available do not give much useful information concerning the above substance. They state that the valency of iron is variable, with which most students are familiar, but when it comes to the statement that the iron atom also exerts sexivalent activity, its proof is considered demonstrated by a reference to the ferrates. Some authorities go a step further, and something like this appears: "*It is said* that this substance may be made by," or, again, "This substance *may* be produced," and one wonders whether it really has been produced by the plan suggested. Dr. Attfield recommends a different process. Thus, he says: "Obtained on warming in a test-tube a mixture of a few fragments of solid potassium hydroxide and ferric chloride with a few drops of bromine." All this is not enough for the student, for he has a curious and variable idea of the word "fragment," and asks if the ferric chloride required is the solid or liquid (ordinary laboratory test solution), and the "few drops" is another stumbling block; so, too, the "warming." Indeed, the demonstrator himself often fails in successfully accomplishing the reaction from the instruction to the satisfaction of the student. He will try—on the assumption that a big quantity is likely to make the effect more marked and successful—melting a piece of the hydroxide about an inch long in a test-tube, which he has not been careful to dry, or, if quite dry, then in this form the moisture which it held mechanically is given off and fractures tubes without number, and eventually he tries a porcelain crucible, then platinum, then silver, gold, and, finally, wrought iron, and in each case a non-successful result is obtained.

Now all this trouble could be obviated if the books would supply students with more manipulative pabulum, and this is now supplied. Thus, weigh 5 Gm. of potassium hydroxide, powder it, and add thereto 0.10 Gm. solid ferric chloride (made by evaporation of about 1 cubic centimetre of liquor ferri perchloridi fortior, which will supply sufficient for many trials), mix well in the wedgwood mortar, when a peculiar salmon pink colour appears (quite different to the ferric oxide tint). As trituration proceeds, the mass absorbs water from the air and becomes damp. Now add, from a burette charged with bromine and contained in a fume chamber or in a good draught, a sufficient quantity (slowly, because of the great heat which is generated and evolved with a hissing sound) of this element to form a creamy consistence (2 to 3 cubic centimetres); then continue the mixing until all the surplus bromine has volatilised. Then dissolve the peculiarly tinted mass (not unlike amorphous phosphorus) in cold distilled water, when the beautifully coloured solution makes its appearance, and may be clarified by filtration through Swedish filter paper and its tinctorial power tested by allowing the liquid to drop into pure distilled water. If care be taken vortex rings form, which, as they fall, expand and finally break up with a revolving motion.

IBIT is the name given to a combination of iodine, bismuth, and tannin (bismuth oxyiodotannate), which closely resembles airol. C. Brunner and C. Meyer describe it as a greenish-grey, tasteless, odourless, and very light powder, which may be easily applied by means of a powder bellows. The colour is not affected by light, except that direct sunlight develops a brownish tint. Ibit is gradually decomposed by contact with water, moist air, or animal matter, forming a faint iodine-brown coloured body. It is insoluble in the usual solvents, forms a stable ointment with fats or vaseline, and a good emulsion with glycerin and water. Iodine is liberated on oxidation as well as by the action of concentrated acids. Ibit has a faint acid reaction and dissolves in diluted acid or caustic soda solution.—*Pharm. Centralh.*, 41, 66, after *Pharm. Post.*

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

Incoherence Run Riot.

During the many years I have been engaged in the practice of pharmacy, I have read nothing which inspired me with a more profound sense of pity than an editorial attempt in a trade journal, last week, to supply an omission, that omission being the selection of three of the old candidates for seats on the Pharmaceutical Council to add to the Glyn-Jones quartette and so complete the tale of those to be supported by the caucus. But the incoherence permeating the article in question is almost on a par with that which has characterised so many of Mr. Gifford's utterances, though Blackburn incoherence is almost necessarily a thing apart. Beginning with the statement that there is no precedent for such behaviour as that of Mr. Glyn-Jones, the writer of the article next twits that gentleman with his lack of any but provincial authority when he speaks. The authority he possesses, we are told, is derived from "frequent visits to and personal association with the people in the provinces who have opinions, and those people are not, it is easy to understand, in direct touch or even in correspondence with the central authority." The meaning of the words quoted is far from clear, but they appear to imply that Mr. Glyn-Jones is authorised by people in the provinces "who have opinions" to adopt a certain line in dealing with the affairs of a Society of which those people are not members. Policy formulated in that way is undoubtedly inimical to unanimity, and advocacy of such a policy must necessarily be fatal even to Mr. Glyn-Jones' influence on the Council. I doubt, however, whether Mr. Glyn-Jones is quite so foolish a person as the incoherent statement published by the editor of the journal in question would make it appear.

Change for the Sake of Change.

Though it is not clear to me whether the writer of the article quoted approves or disapproves of what it assumes Mr. Glyn-Jones' attitude to be, he is certainly blamed in that incoherent production for contenting himself with the recommendation of four candidates only, though the caucus nominees are spoken of as "a good quartette" with only one "weak-kneed" member. To supply the omission already referred to, what are described as "records" of retiring councillors have been compiled and, as I suggested would be the case (see *ante*, p. 420), Messrs. Hills, Storrar, and Symes are selected to convert the quartette into a septette. The so-called records make those four gentlemen appear models of what councillors should be, whilst Messrs. Bateson, Cross, Grose, and Warren are journalistically damned. Accordingly we are faced with the fact that the caucus organ recommends the members of the Pharmaceutical Society to vote for Messrs. Cooper, Gibbons, Hills, Storrar, Symes, Taylor, and Wootton, at the election for which voting papers are now being issued. The only reason urged for supporting the Glyn-Jones quartette is that the four have never been on the Council before, but that reason is not to be allowed to operate against the three stalwarts who are assumed by the caucus organ to have done most talking during their term of office. For whilst it is admitted to be sad that activity should be reckoned by speeches, experience is held to show that men who are silent when affairs are going through a crisis ought to be replaced by talkers. I fail to see the force of that argument and would suggest that the "experience" referred to cannot be worth much when it leads a writer to urge that men who possess a record for much talking should be appointed to do the serious work of the Pharmaceutical Society, in preference to others whose speech-making propensity is less pronounced. The views of candidates with regard to Clause 2 of the Companies Bill are, apparently, not taken into consideration, for the four new members whose candidature is to be supported are as

equally divided on the subject as are the four old ones who are to be opposed by the trade journal-cum-Glyn-Jones caucus. In fact, so far as I can see, we are asked to approve of unjustifiable interference in the conduct of our affairs with no other object than that of effecting change for the sake of change. But we have to reckon with the fact that the remarkable, and probably assumed, incoherence of the writer of the article I have commented upon may persuade a few voters who have no opinions that support of such change is both politic and statesmanlike.

Botany or Word-Puzzles?

The Council Prizes Examination is generally understood to be much more advanced in scope than the Major examination, but the first question in the botany paper published in last week's *P. J.*, appears to have called for the possession of linguistic knowledge which it is scarcely reasonable to expect candidates to possess. Thus the word "ecological" is not given in Murray's 'New English Dictionary,' but I find it appears in 'Webster's International Dictionary' and in the 'Century Dictionary,' in the form "œcological," i.e., "of or pertaining to œcology." The definition of "œcology" given by Webster is: "The various relations of animals and plants to one another and to the outer world." The 'Century' gives the following definition:—"œcology (Gr. οἶκος, a house, family, and -λογία). In *biol.*, the science of animal and vegetable economy; the study of the phenomena of the life-history of organisms, in their individual and reciprocal relations; the doctrine of the laws of animal and vegetable activities, as manifested in their modes of life. Thus, parasitism, socialism, and nest-building are prominent in the scope of œcology." Further, it may be noted that, in reviewing a recent American work on botany in *Nature*, Professor J. B. Farmer referred to "ecology, as it is now the fashion to designate what used to be called natural history." In that sense the word is in frequent use by American writers on botanical subjects, but as yet it is quite unfamiliar in its Americanised form in this country. No reasonable objection can be taken to the change in the initial vowel, which is convenient and simply accords with what has taken place in the case of the word "economy," but I hold that the introduction of newly coined or practically unknown words into science examination papers is distinctly unfair. A second strange word which appears in the same question in the botany paper is "perennate" which obviously means "to live perennially," though the term is very uncommon. In certain "Suggestions for those studying the life-histories of British Flowering Plants," by Professor Bayley Balfour, published in *Nature* twelve years ago, reference was made to the "perennating" parts of plants, and the term "perennation" was also used, as implying the perennial continuance of life. So far as I have been able to ascertain, however, no one but Professor Balfour has ever used the term "perennate" or any of its derivatives. It would be interesting to know whether any candidate who sat for the Council Prizes Examination made an attempt to answer the question in which the term appears.

The Milligrade Thermometer Scale.

The individual who was stated in last week's *P. J.* to have devised a thermometer in which mercury freezes at zero and boils at one thousand degrees, was anticipated by an English pharmacist exactly twenty-five years ago, the late John Williams, who was then the Pharmaceutical Society's Treasurer, having brought up the self-same idea at a meeting of the Chemical Society on May 6, 1875. In his paper he pointed out the several defects of the thermometer scales in common use, and described a scale based upon the physical characters of mercury, with one thousand degrees between the solidifying and boiling points of that metal. The melting point of ice on the Williams' milligrade scale was 100° and the boiling point of water 350°; fractions of degrees were avoided, since the degrees were so much smaller than usual;

minus degrees were abolished, while the indication of temperatures below the freezing point of water was sufficiently distinct, all numbers below 100° M. being between 0° and -40° C. It will be seen, therefore, that the whole ground of Mr. Betts' communication to the *Scientific American* was covered by Mr. Williams, and the supposed novelty is a quarter of a century old. Apparently, however, the advantages claimed for the milligrade scale were insufficient to secure its substitution for those in common use. But that is not surprising when we consider that the Fahrenheit scale still maintains its position, as against the much more rationally conceived scale of Celsius.

In Darkest Exeter.

I suppose Mr. Gifford will think that the members of the Exeter Association of Chemists and Druggists did not realise the importance of the issue raised by the question which they were called upon to consider last week. It is curious to reflect, however, that a subject which has been troubling the minds of pharmacists throughout the rest of Great Britain for many months past should affect the men of Exeter so slightly. The subject was introduced at the meeting by the somewhat belated consideration of a letter received from the Federation of Local Pharmaceutical Associations, and the chairman opened the ball by suggesting that the matter should be left in the hands of the Pharmaceutical Society—a suggestion which would have been more practical had he proposed that the action already decided upon by the Council of the Society should be approved. But, so far as those present at the Exeter meeting appeared to be aware, the Council might have done nothing whatever in the matter. Still I marvel most at the unanimity with which the leading pharmacists of Exeter seem to think that the company pharmacy problem is of but little, if any, concern to them. One "did not feel strongly about the matter," another "had not much interest in the subject," and the only explanation of such a curiously apathetic state of affairs is, apparently, the existence in Exeter of a strong disinclination to have the so-called "Widow's Clause" interfered with. Fortunately, one member of the Association was equal to the occasion, and I am glad to find that his persistence induced the Chairman to consent to put the subject down for discussion at a later date. Let us hope that, by the time the next meeting is held, the pharmacists of Exeter may have realised that the company pharmacy problem really requires solution, and that it is not too much to expect them to take their fair share in the labour of solving it.

Bradford's Choice.

I do not suppose the energetic Local Secretary for Bradford cares much for my approval, but I cannot refrain from giving expression to a lively sense of satisfaction that all our provincial talent is not restricted to Lancashire. Mr. Waddington's statement was clear, intelligible, and distinguished by loyalty to the Society of which he is far from being the least important member. I grant that it revealed strong prejudice, but, inasmuch as that is directed against outside interference in the Pharmaceutical Society's affairs, the failing is one to be encouraged. The "extraordinary difference" between the views expressed in past editorials of the trade journal referred to, and those embodied in the election address issued by the former editor of that journal—the only candidate who has called forth expression of uncompromising disapproval—could not fail to excite the interest of so keen an observer as Mr. Waddington, and it does not surprise me that the candidate in question has failed to satisfy the pharmacists of Bradford and district that he is able to represent their views. The seven candidates selected by those present at the Bradford meeting may not commend themselves as a whole to other districts, but it cannot be denied that the choice was made as the result of very careful consideration and that satisfactory reasons were advanced by Mr. Waddington for including each name in his list. It will be noted that Bradford accepts the whole of the four Lancashire

candidates and is not afraid to be represented by eight London men. If the Bradford seven should be elected, London and Lancashire will share between them thirteen out of the twenty-one seats, a fact which will not fit in with any scheme of territorial representation. But that is a matter of no consequence whatever so long as men of the right type are elected.

What Can Be Done.

I have been asked by Mr. Gifford's election committee to vote for him at the forthcoming Council election, a copy of an address signed by him being enclosed as evidence of the soundness of his views on the question of "company pharmacy." The address, unfortunately, is difficult to follow, such vague and unskillfully-selected language being employed; but Mr. Gifford appears to demand "a straight issue" which shall embody the doctrine of "no compromise." I wish he had explained how the Pharmacy Act of 1868 instituted a profession "on a sound footing" and why, that being the case, the Act is "quite inadequate in the privileges it gave to a profession of pharmacy." The second statement, taken by itself, is undoubtedly correct, but the first is not consistent with it and, in my opinion, is incorrect. I agree with Mr. Gifford that we should refuse our consent to any attempt at compromise, if our professional position is likely thereby to be imperilled and injured for all time, but I am unable to assent to his proposition that the Council of the Pharmaceutical Society can assure the future of pharmacy by bringing "strong influence" to bear upon the Lord Chancellor. No influence that the Council can exert is likely to enable the Lord Chancellor "to make effective his repeated assertion 'that company practice and personal qualification do not cohere,'" for his Lordship has long since realised the hopeless nature of the task he set himself at the bidding of Irish pharmacists and has dropped the subject. Whilst, therefore, I agree with Mr. Gifford respecting the desirability of having clear issues and practical unanimity, and of recognising that the company pharmacy problem is not a trade question, I am convinced that he is utterly mistaken in his assumption that anything the Council can do will secure what he wants. Nevertheless, let us by all means agree to pursue an active aggressive policy and educate members of Parliament and others, as Mr. Gifford suggests. It is beyond question that we have not yet exhausted the possibilities of the situation—in fact, we have scarcely sampled them—and if Mr. Gifford should be so fortunate as to secure a seat upon the Council I hope he will do all he can to secure the systematic education of pharmacists, legislators and the general public, with regard to the all-important question of the professional nature of the practice of pharmacy.

Why Not Wait and Work?

What our former perennial president said at Bristol was not new, but it was very much to the point and especially interesting as a concise exposition of his views on the company trading question. Mr. Carteighe trusts to time to remedy what legislation appears unable to touch, and I am inclined to think with him that ten years hence we may find things considerably changed for the better. The only alternative to out-and-out opposition to Clause 2 of the Companies Bill appears to be compromise of some kind, but if we can only get the use of our titles restricted to duly qualified individuals, it seems the wiser course on the whole to decline to accept any compromise. The thing to aim at is the development of the professional idea in pharmacy, so that in days to come no pharmacist will stoop to hire himself out as the servant of unqualified persons. The abolition of the inadequate preliminary examination, the changes in the qualifying examination, and the increasing necessity of a definite course of technical training and study, will all tend to make registered men hesitate before lending their qualification to those whose only object is to evade the operation of the Pharmacy Acts and make money by so doing. Ten years hence, I venture to say, such a

tendency will be very marked; it should then cost so much to tempt a pharmacist to betray his profession that but few associations of unqualified persons ought to be in a position to afford the luxury of carrying on the business of a chemist and druggist. It is only by the aid of the most varied side-lines that such companies running drug stores can make ends meet and earn profits to-day; ten years hence that difficulty will, almost certainly, be much greater. If, therefore, we cannot get what we want at present, let us, at least, refuse to entertain the notion of compromise, and wait for time's revenge, working steadily meanwhile in the direction of improving our professional position.

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, MAY 2, 1900.

Present:—

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

Messrs. Allen, Atkins, Bateson, Carteighe, Corder, Cross, Glyn-Jones, Grose, Harrington, Harrison, Hills, Johnson, Park, Savory, Southall, Storrar, Warren, and Young.

The minutes of the last meeting were read and confirmed.

Deaths of Honorary Members.

The VICE-PRESIDENT, who occupied the chair, said this was the first time during his three years' term of office that he had been called upon to take that position, and he regretted it all the more because of the reason, which was, as they knew, that the President had not been in very good health during the past few months. Under the orders of his physician, Mr. Martindale had been ordered to take a long voyage, and would probably be away for about a couple of months. He was quite sure that he was only expressing the opinion of everyone in saying that he hoped soon to see him back again thoroughly restored to health. Since the Council last met, the Society had suffered many losses by death, and he must first ask the Council to authorise him to write a letter of condolence to the family of the late Sir Douglas Maclagan, who was for many years the visitor appointed by the Privy Council to attend the examinations conducted in Edinburgh under the Pharmacy Act. He resigned the position in 1897 owing to failing health. Sir Douglas was the *doyen* of the Society's honorary members, having been elected as far back as 1852, and he had always exhibited a keen interest in the scientific and educational work of the Society. In the early days he not only read papers at the evening meetings, but frequently placed at the disposal of the *Pharmaceutical Journal* the results of his chemical and pharmacological investigations. He died on April 5, aged eighty-seven. Intimation had also been received of the death of Dr. Gustave Planchon, Director of the High School of Pharmacy of Paris, another honorary member whose loss they deplored. He died on Good Friday, aged sixty-six. The work of Dr. Planchon in materia medica and in the natural history of drugs was too well known to require recapitulation, and the fact of the Hanbury Gold Medal having been adjudicated to him in 1889 was in itself an indication of the estimation in which his classic contributions to pharmacognosy were held in this country. Some members of Council would remember the doctor coming to receive the Hanbury Medal, and would recall the charm and grace with which he acknowledged the honour paid him. As one of the delegates of the Society to the forthcoming International Congress of Pharmacy, of which Congress Dr. Planchon had been elected President, it was particularly fitting that he (the Vice-President) should be the medium for the conveyance of an expression of sympathy to the family of the deceased.

The propositions were unanimously agreed to.

The late Richard Reynolds.

The VICE-PRESIDENT next referred to the death of the late Richard Reynolds, who in his time played many parts on the pharmaceutical stage, always to noble purpose, and for the advancement of praiseworthy projects. He died on April 5, aged seventy, and those who were his personal friends, as well as those who knew him only by reputation, would equally regret the removal by death of so zealous and high-minded a worker. Probably, said Mr. Newsholme, the essential points of his career had already been made known to the Council through the medium of the pharmaceutical Press, and he need only recall him as a former member of the Council for ten years, a member of the Board of Examiners in the pre-Pharmacy Act days, and a local Secretary of the Society for very many years. He would just add that if anyone desired to obtain an idea of the versatility and zeal of Richard Reynolds they could not do better than consult the indexes to the *Pharmaceutical Journal*. He might add that, as a Yorkshireman and a neighbour of Mr. Reynolds, he knew something of the work that he had done in Leeds. As most of the members knew, Mr. Reynolds was one of the leading men of Leeds, and he did great work in connection with the Yorkshire College. He did an immense work in the foundation of that College, which must not only be of lasting benefit to Leeds, but to the country at large, because it was by the establishment of such Colleges that the country would progress. He (the Vice-President) had frequently consulted Mr. Reynolds when first he came on the Council, and had always found him exceedingly kind. Mr. Reynolds used to say that his day had gone by, and that the younger generation knew best; but the Council would all know how to estimate the value of the services which Mr. Reynolds had rendered to pharmacy. He wished also to refer to the sad fact that Mrs. Reynolds only survived her husband a few days. He begged to move the following resolution:—

“That this Council desires to record its high appreciation of the character and services of the late Mr. Richard Reynolds, of Leeds, who, as an examiner, as a member of the Council, and as a local secretary, did much good work for pharmacy and for the Pharmaceutical Society during a distinguished pharmaceutical career of nearly fifty years. The Council deeply regrets his death and tenders its sincere sympathy with his family.”

Mr. CARTEIGHE, in seconding the resolution, said he had had the privilege of the friendship of Mr. Reynolds for about forty years. Mr. Reynolds was one of a band of three who were nick-named “R. R.,” “H. B. B.,” and “M. C.” He (Mr. Carteighe) knew Mr. Reynolds in every phase of his domestic life, and as a fighter in pharmaceutical life. The attractive feature of Mr. Reynolds’ career was his zeal for education, not only in connection with pharmacy, but generally. By his life he showed how respected a pharmacist could become in a place like Leeds if he showed that he was something more than a shopkeeper, and had broad views and was high minded. He was not in strong health, and, like many other men in that condition, he liked to be in the company of those who had exuberant spirits. In addition to his purely pharmaceutical career one ought to remember, as had been mentioned by the Vice-President, that he was one of the chief founders of the Yorkshire College, that previous to the foundation of that college he was the principal lecturer on chemistry in Leeds, where there was then a school of medicine, and that throughout his life he took a keen interest in everything that was scientific. He abhorred the notion that there was any bit of science that was pharmaceutical which was not only general. He was also a distinguished member of the Society of Friends. The relationship between Mr. Reynolds and his former partner, Mr. Harvey, were probably not known to the present generation; therefore, he would refer to the fact that Mr. Harvey having inherited a small fortune, Mr. Reynolds in due course became the proprietor of the business. Mr. Brady, also a Quaker, who afterwards

became a distinguished Fellow of the Royal Society, was an apprentice to Harvey and Reynolds. Lastly, they had another generation in which they had the firm of Reynolds and Branson, of which Mr. Reynolds’ son was the managing director conjointly with Mr. Branson, whose career, as they knew, had been a highly distinguished one, and whose knowledge and power would be felt in Leeds. It was a matter of personal regret to him (Mr. Carteighe) that owing to the suddenness of Mr. Reynolds’ death he had not received information of it in time to pay his respects to the family.

Mr. ATKINS said he had known Mr. Reynolds many years, and had been much struck by his many-sidedness. He was a generous philanthropist, a thoroughly kind-hearted man, a good pharmacist, and was deeply interested in all scientific work. Some time ago he had a very pleasant testimony to his generosity which he should like to mention. A gentleman whose name was well known to many present told him that he owed everything practically in life to Richard Reynolds. He said his environment in early life was unpromising, and his apprenticeship not a very brilliant success; the first word of encouragement he had as a lad, the offer of apparatus and books, and a small sum of money, came from Richard Reynolds, and he felt that he had been his greatest benefactor in life. Last week he had a letter from an intimate friend of Mr. Reynolds, from which he would quote one sentence, “Men knew they could trust him, and they did.” The Vice-President had referred to the death of Mrs. Reynolds, and many would remember the kind and generous hospitality shown them when the Conference met in Leeds, and on other occasions he had seen the beauty of their home life. Mr. Reynolds was happy in having a wife who took a deep interest in all his best work, and one felt that as in their lives they were united, so in their deaths they were not long divided.

Mr. CORDER said other gentlemen had spoken of Mr. Reynolds as a man, but he could speak of him as a boy. In the early forties they shared the same desk in a school at Colchester, and did their Latin and sums together. After fifty years’ friendship he could say that Reynolds was as a man what he was as a boy—honest, straightforward, and true.

Mr. BATESON said he should like to bear his meed of respect and esteem for the memory of Mr. Reynolds. It was entirely owing to Mr. Reynolds that he obtained a seat on the Council. He had known him all through his public life, in connection with the Yorkshire College, and so on; and also Mrs. Reynolds, who came from his own county, and whom he knew before she was married. It might well be said that Mr. and Mrs. Reynolds were “lovely and pleasant in their lives, and in their deaths they were not divided.”

The resolution was then put and carried unanimously.

The late Augustus Bird.

The VICE-PRESIDENT then referred to the death of the late Augustus Bird, of Shepherd’s Bush, who died on April 13, aged seventy-three. He was an old student of the Society’s School and a prizeman in chemistry and pharmacy. He was for twenty years a member of the Board of Examiners for England and Wales, and though for at least thirty-five years before his death he had practically retired from pharmacy, he maintained to the last the liveliest interest in and the profoundest loyalty for the Society. For many years he had been a liberal supporter to the Benevolent Fund. Mr. Newsholme added that he heard on good authority that, though Mr. Bird was well-known for his liberality, that liberality was also shown in many ways which were not generally known. He would move:—

“That the respectful sympathy of the Council be tendered to the family of the late Mr. Augustus Bird, a former member of the Board of Examiners for twenty years, and a loyal supporter of the Society and of the Benevolent Fund.”

Mr. ATKINS having seconded the motion,

Mr. HARRINGTON said he had had the privilege of knowing Mr. Bird for some years, and now conducted the business which Mr. Bird established in 1853. He left the business some twenty years

ago or more and devoted his attention with great success to the manufacture of bricks, but he always kept a warm place in his heart for anything connected with pharmacy. About eight or nine years ago he came to see him with Mrs. Bird, and after going over the premises said the happiest years of his life were spent there, where he brought up his family. He remembered also on many occasions his saying that he had been to Bloomsbury Square, and what a pleasure it was to look in there and see his old friends, Mr. Car-teighe and others.

Mr. CARTEIGHE said he lived in the same neighbourhood as Mr. Bird, and, especially during his term of office as President, it afforded him the greatest pleasure in keeping in touch with him. Mr. Bird succeeded to a competence on the death of his father, and also to certain businesses, which were carried on on a more gigantic scale than that of an ordinary chemist and druggist. He could quite believe, as had been said, that the happiest time of Mr. Bird's life was in his early days, because he had a good business, took a deep interest in pharmacy, and, having none of the worries which some had, was able to carry it on in a satisfactory manner. The interest in Mr. Bird centred very largely in his association with the late Mr. Cracknell, whose pupil he was. Mr. Cracknell, after being at Squire's, went to Mr. Watts' in the Edgware Road, ultimately married his daughter, and became a partner in the business. His eldest son was a distinguished officer of the Western Chemists' Association, and was associated on the Committee of the forthcoming London Conference with Mr. Warren. In early days, when the Society could not afford to pay fees to its examiners, Mr. Bird, Mr. Cracknell, and some others, including himself, discharged the duties gratuitously. Mr. Bird examined in pharmacy for many years, and must have come in contact with an enormous number of candidates. He was an exceedingly conscientious man, but, like his friend Mr. Cracknell, was slightly timid of speech, and candidates often thought he was not quite as nice as he might have been; but, as he had sometimes said before, it was quite possible for examiners to be as nervous as candidates, and he was not always sure, in the case of Mr. Bird and Mr. Cracknell, whether the examiner or the candidate were the more nervous. When Mr. Bird succeeded to a large income he still retained an interest in the Society, and assisted it by liberal donations, especially the Benevolent Fund, and in a quiet, unostentatious way did much good amongst pharmacists. When he left the Board of Examiners he told him (Mr. Car-teighe) to apply to him whenever he wanted help for any case of distress. He also knew Mrs. Bird, who was a charming woman, who thoroughly delighted in her children. She predeceased her husband, much to his distress. As many knew, Mr. Bird suffered from a painful affection of the tongue, which involved the removal of about half of it some years ago, and made his speech rather peculiar; that led him to avoid general intercourse with his friends, and he saw few but his own family, who he was sure would receive this resolution with great satisfaction.

The resolution was carried unanimously.

The late John Hugill.

The VICE-PRESIDENT then said that by the death of the late Mr. John Hugill, on April 10, aged eighty-seven, the Society had lost a widely-known and respected supporter for nearly fifty years past, and one whose loss would be especially keenly felt by the many who had been assisted by his generosity and consoled by his sympathy. His appreciation of the work of the Benevolent Fund—to which he contributed both in his private capacity and as Meggeson and Co.—was manifested by a bequest of one hundred guineas to the Fund.

It was agreed to send an official letter of sympathy to the family.

The late R. J. Downes.

The VICE-PRESIDENT also referred to the death of Mr. R. J. Downes, the immediate past-President of the Pharmaceutical Society of Ireland, whose zealous services on behalf of pharmacy on the other side of St. George's Channel they all recognised and appreciated. He was sure it would be their wish that a message of

sympathy be sent to the Pharmaceutical Society of Ireland, and he therefore submitted the following motion:—

“That this Council learns with sincere regret the death of Mr. R. J. Downes, the late President of the Pharmaceutical Society of Ireland, and desires to express its deep sympathy with the Pharmaceutical Society of Ireland in the loss of so able, earnest, and zealous a leader.”

Mr. HILLS seconded the resolution. He could not claim any special or intimate acquaintance with Mr. Downes, but during the time he was President Mr. Downes favoured them with his company at one of the annual dinners, and on that occasion he had the opportunity of meeting him, and he had also had some correspondence with him. He regarded Mr. Downes as a conscientious pharmacist of a kindly nature, but could not help seeing that he did not enjoy very strong health. They regretted his somewhat early death, and their sympathy must go out to the sister Society in the loss it had sustained.

Mr. ATKINS, in supporting the motion, said few round that table knew Mr. Downes at all intimately; but in August, 1898, when spending some days in Dublin, he was taken by Mr. Wells to see Mr. Downes. The impression produced on his mind was, first, the extremely fragile state of his health; but though physically feeble, he was immensely strong mentally. Two things impressed him very strongly—his intimate acquaintance with the political side of pharmacy; there was not a clause in the Charter or the Acts of Parliament which Mr. Downes had not carefully noted and studied—in fact, he had made the study of pharmacy on its legal and political side a perfect passion. The next thing that impressed him, after an interview of three hours, was that he was an intensely good man—a true, transparent, and conscientious man.

The resolution was carried unanimously.

Diplomas.

The undermentioned, being duly registered as Pharmaceutical Chemists, were granted diplomas, stamped with the seal of the Society:—

Barnes, George Henry
Chatburn, Edwin Jordan
Collin, John Francis
Dawson, Robert Hilliard
Derbyshire, Chas. Henry
Dunford, Walter Henry
Finnemore, Horace
Griffiths, Edwin
Hardcastle, Edward
Heaton, Wallace E.

Hobbs, Hy. Allmond
Lenton, Walter Hy.
Nash, Ernest
Newton, Alfred
Pollard, Evelyn Wm.
Roy, Louis Leslie
Thwaites, Geo. Rose
Wilson, Thos. Elick
Young, Fras. Joseph

Election of Members.

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

Appleyard, Charles Percival; Bow
Arnold, William Robert B.; London
Ashford, Frederick Chas.; Northampton
Ashton, Charles Henry; St. Helens
Bayley, Leonard; Lydd
Birkett, George Noel M.; Kendal
Black, John; Aberdeen.
Blyth, Wm. John B.; Ryton-on-Tyne
Broad, Herbert Charles; Reading
Bruce, Alexander Leslie; Aberdeen
Bustard, Francis Edwin; London
Cartwright, Alfred Harry; Silverdale
Charlton, Thomas Dixon; Durban
Clark, John William; Bury
Cocking, Harold Holland; Rotherham
Connor, Thomas Haigh; Doncaster
Cran, Newell Burnett; Aberdeen
Davies, David Augustus; Clynderwen
Dent, John Wallace; Oulton Broad
Derbyshire, Charles Henry, Middlewich
Drummond, William D.; Crail
Duckworth, Arthur; Colne
Duncan, James Davidson; Aberdeen
Dyas, James Edmund; London
Evans, Robert Harold; Wilmslow
Exell, Edmund Charles; Sheffield
Findlay, Alexander; Ballater
Fisher, Percy; Leeds
Ford, Meade Leahy; Forest Gate
Green, George Winfield; London
Gribble, Edmund Arthur; Wrotham
Haigh, William; Bradford
Halket, James; Dingwall

Harris, John F.; Kingston-on-Thames
Harrison, Thos. Nicholson; Leicester
Hass, Hermann Leonidas; Limehouse
Hipperson, Charles William W.; Norwich
Hobbs, Henry Allmond; Burnham
Hooton, William Henry; Bridlington
Horsley, Percy Jas.; N. Kensington
Iving, Eldred; Liverpool
Ison, Charles Edward; London
Jackson, David; Wednesbury
Jennings, Francis Rice; Maidstone
Josty, Waldemar; Notting Hill Gate
Jull, Alfred Proctor, Hamstead
Lindsay, Robert McIntosh; Dundee
Longley, Richard Samuel; Torquay
McDougall, Daniel; Elie
McMillan, Allan; Hull
Metcalf, John Thomas; Bradford
Miller, Alfred Edward; Birmingham
Moore, Thomas Henry; London
Needham, Joseph Henry; Blackburn
Newell, William Robert; London
Noble, Harry William; Bradford
Norris, James Reginald; Sheffield
Northwood, Herbert George; Gorleston
Norweb, Arthur; Nottingham
Oddie, Major Sidney; Banbury
Palmer, Tom Clifford; Grimsby
Patton, James; Aberdeen
Pettifer, Frank; Bath
Pickard, William; Stratton
Pinchen, Colin George; London
Powell, Bertram Henry; Walsall

Price, Edwin E.; Abertillery
 Poxon, Alfred; Brownhills
 Preston, Ben Mountain; Leeds
 Rees, John; Swansea
 Rider, Ernest Alfred; Waterloo
 Ritchie, David Wilson; Kilmarnock
 Rutherford, John; Armadale
 Robb, David Wallace; Glasgow
 Robinson, Charles; Bradford
 Samuel, Henry; Leighton Buzzard
 Savage, George Smith; Bradford
 Skeates, Frank; Forest Gate
 Snook, John Francis; London
 Sowray, Walter; York

Stanley, James; Bulwell
 Suddaby, John Edw. Stephenson; Hull
 Summers, Henry Tindale; Heckington
 Tattersall, James Weaver; Accrington
 Thomson, Thomas; Anstruther
 Thorne, William Henry; Swindon
 Tibbit, Leonard Read; Upper Tooting
 Tolmie, William John; London
 Walmsley, Ernest William; London
 Wardale, Francis Charles; Barking
 Warren, Richard Bleathman; London
 White, Charles Edwin; Forest Gate
 Williams, David J.; Weston-super-Mare
 Young, Charles; Newport-on-Tay
 Youngman, W. E.; Bury St. Edmunds

Election of Student-Associates.

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

Allen, William Herbert; Kilburn
 Bartlett, Henry Walsh; Brackley
 Bateley, Spencer Robert; Gorseston
 Eadie, Walter; Doncaster
 Grainger, G. W. H. P.; Edinburgh
 Hooper, Elsie Seville; Clapton

Meek, Herbert Owen; Liverpool
 Mitchell, Godfrey T.; Accrington
 Rickard, Albert Henry; Rugby
 Verdier, Louis; London
 Welton, Charles Henry; Coventry
 Windle, Josiah Weston; Wolsingham

Restorations to the Register.

The names of the following persons, who had severally made the required declarations and paid a fine of one guinea, were restored to the Register of Chemists and Druggists:—

John Dixon Cutforth, 161, Middlegate Street, Great Yarmouth.
 Thomas Nicholson Harrison, 35a, Sparkenhoe Street, Leicester.

Library, Museum, School, and House Committee.

The report of this Committee included the usual monthly statements respecting the Society's Libraries and Museums in London and in Edinburgh, particulars of which were published in the *Pharmaceutical Journal* for April 14, 1900, page 395. Reports had also been received from the staff of the Society's School of Pharmacy, and from the Editor of the Society's Journal. Messrs. Parkinson and Sons' account for £210 3s. 3d. has been submitted, passed, and transferred to the Finance Committee. The Committee had considered a proposal by a firm of publishers to undertake the conduct of the advertisement pages of the Journal. The Editor was asked to give the proposal his consideration, and to report to the Committee thereon. The Editor reported at the adjourned meeting, and the Committee recommended that the proposal be not entertained. The Committee had received and considered tenders for the supply of paper for the Journal for the ensuing year, and decided to place the order in the hands of the present contractors. The Vice-President had submitted a draft annual report, which was considered, amended, and finally adopted for presentation to the Council. A copy of the approved draft had been forwarded to each member of the Council. The Committee had dealt with various administrative matters relating to the superintendence of the Society's School and House, and the proper and efficient conduct of the other departments of the Society placed under the charge of the Committee. The Committee had also sat as a Research Committee, and received reports from Professor Collie and Professor Greenish respecting the work in connection with Pharmacopœia standards now in progress in the Society's Laboratories. The Professors were authorised to procure certain apparatus found to be requisite for the prosecution of the investigations undertaken.

North British Branch Report.

The annual report to the Council from the Executive of the North British Branch of the Society was received. The report stated that the expenditure for 1899 was £1,366 12s. 6d., including £802 4s. 8d. in respect of the examinations, and that the slight increase was accounted for by certain refitting work that had been necessary. The library and museum had been much more utilised by members and student-associates of the Society than in previous years, and had largely served as a place of meeting for pharmacists generally. The Evening Meetings had been successful, though the attendance had not been entirely satisfactory, and the proceedings are said to have elicited evidences of appreciation from members of the Society

and others at home and abroad. The report mentions numerous routine items which have already been published by the Council from time to time, it also states that the Society's House in Edinburgh is in thorough order and repair and that the internal arrangements are satisfactory.

Mr. CARTEIGHE moved that the report be received and entered on the minutes. It was not necessary to refer to it in detail, as the work done was reported from time to time. He was glad to find that the recent alterations had made the process of carrying on the examination in Edinburgh as nearly perfect as possible. The premises had certain advantages, partly because they were specially constructed for the purpose, and partly because the number of candidates there was not so great as in England. As he was, so to speak, the godfather of 36, York Place, having persuaded the Council to purchase it, it was a great satisfaction to him to find that everything in Scotland seemed now to be going on satisfactorily, and that there was such a strong feeling of responsibility and loyalty to the Council as a whole. In times gone by the Council had been liberal to their friends in the North. It never raised the question of how many subscribers there were, but always considered that the central institution round which pharmacy circulated in Scotland should be a credit to the Society as a whole; and he believed that the respect in which pharmacy was held by the medical profession and men of science in Edinburgh was partly due to the fact that they saw that the Society was in earnest in all that it undertook.

Mr. HILLS seconded the motion with great pleasure. It was not necessary to say much, after what Mr. Carteighe had said, but having had somewhat intimate relations with the Executive in Scotland, it was only fitting that he should second the resolution. He had been sometimes a little jealous when in Edinburgh to see the completeness of the fittings and the way in which the premises had been adapted to the uses for which they were intended. A great deal of credit was due to Mr. Carteighe and to the various members of the Executive for the way in which they had altered the premises from time to time to meet the increasing needs of the Society, and their thanks were due to the members of the Executive for the intense interest they took in the work, and the way in which they looked after the interests of the Society.

Mr. STORRAR, as an old member of the Executive, thanked the Council for the appreciation it had shown of the work done. The Council had treated the North British Branch remarkably well, especially in the matter of house accommodation. Owing in great measure to this, pharmacy had taken a position in Edinburgh which it never held before, and he hoped the result would be an increased interest on the part of members of the Society in Scotland. At the same time, he did not like to see the premises in Edinburgh looked upon as a purely Scottish branch. It was the North British Branch of the Pharmaceutical Society, and embraced a much larger area than Scotland. Candidates were examined there from both sides of the Tweed, and the sooner they forgot there were two nationalities in connection with the Pharmaceutical Society the better.

Mr. JOHNSTON, as another member of the Executive in Scotland, said he agreed with what Mr. Storrar had said. The rooms in Edinburgh were second to none in the kingdom for completeness, and the candidates had every opportunity of getting through their examination if they were able to do so. The premises were much more convenient than those in London, and he thought it would be a good thing if more candidates went down there to be examined.

The VICE-PRESIDENT having expressed his satisfaction at what Mr. Storrar had said, put the resolution, which was carried unanimously.

Finance Committee.

Mr. HILLS, as Chairman of the Committee, moved the adoption of its report. He said there was nothing requiring special mention; the receipts and payments were both rather large at this time of the year. With reference to the Benevolent Fund, a sum of £32 10s. was required to purchase the fixtures at The Elms,

Strawberry Hill, which now belonged to the Benevolent Fund. The Council would recollect that a certain sum of money was voted for the purchase of this property; in order to put the house in such a condition that it could be let, it was necessary to buy the fixtures at a valuation.

Mr. HARRINGTON, in seconding the proposition, congratulated the Benevolent Fund on having obtained the property at Strawberry Hill, which he thought would increase in value, and thus greatly benefit the Fund.

The resolution was carried.

Benevolent Fund Committee.

The report of this Committee included a recommendation of grants to the amount of £33 in the following cases:—

A registered C. and D. (75). Has had a previous grant. (Caistor.)

A former Associate (81). Has had nine previous grants. (Croydon.)

Widow of a registered C. and D. who had grants previous to his death in 1892. Has herself had two previous grants. (Gravesend.)

The VICE-PRESIDENT moved the adoption of the report, which passed unanimously.

Carbolic Acid.

The VICE-PRESIDENT called attention to the following question, which had been put in the House of Commons with reference to scheduling carbolic acid:—

“To ask the Secretary of State for the Home Department if he has observed that the reports of the Registrar-General show that the scheduling of poisons has greatly diminished the number of fatalities from their accidental or suicidal use, and has not interfered with the use of potent poisons, such as arsenic and potassium cyanide, for industrial purposes, while from the Report for 1898, recently issued, it appears that the fatalities from carbolic acid alone number 206, being nearly as many as for the whole of the scheduled poisons. Whether he is aware that since he stated last session that the Privy Council are prepared to consider whether carbolic acid can be advantageously dealt with in some way, but cannot take any step except on the resolution of the Pharmaceutical Society, the Council of that Society has passed a resolution declaring that carbolic acid in crystal, commercial carbolic acid, and liquids containing more than 3 per cent. of phenol are to be deemed poisons, and added to the second part of Schedule A of the Pharmacy Act. Whether, although that resolution was communicated to the Privy Council in July last, it has not yet sanctioned the resolution. And, whether he will represent to the Privy Council the expediency of at once giving effect to it, with the view of preventing many cases of suffering and death.”

The answer was given by the Home Secretary as follows:—

“I think that there is no doubt that the number of deaths caused by carbolic acid is deplorably great, and shows that some remedy is desirable. I am informed that the Pharmaceutical Society have passed a resolution on the subject, but I must explain that the matter is by no means a simple one. It is, however, now under the active consideration of the Departments concerned, in consultation with the Society, with good prospects, I hope, of steps being taken in the direction desired.”

He thought it well to call attention to the matter, because statements were constantly being made to the effect that nothing was being done by the Council, though it had done all it could.

Mr. GLYN-JONES said that the Home Secretary had stated more than he knew as a member of the Council, viz., that a responsible Department of the Government was in consultation with the Society on this question. It would be helpful if they had some explanation of that statement, because it was difficult to imagine what negotiations could possibly pass between the Society and the Government other than the resolution which had been passed. As he understood it, the Council was not to blame for any delay that there had been in the matter.

Mr. BATESON was also disposed to think that the Council was not to blame in the matter, and thought that they might congratu-

late each other that the matter of scheduling carbolic acid had advanced so far.

Mr. GLYN-JONES said he should like to put it as a definite question whether any communication had come from the Government other than what the Council already knew, as might be gathered from the report of the Home Secretary's answer.

Mr. CARTEIGHE said the reported statement was incorrect to that extent, but probably it was not correctly reported. The matter was not in the Home Secretary's Department. It was a fact that the Government had acknowledged receipt of a communication from the Society. The spirit in which the Home Secretary appeared to speak was very satisfactory as far as the report went.

Mr. HILLS said it was well to remember, in the absence of the President, that it was quite possible that there had been communications not altogether official, by means of the President.

Naval Dispensers.

Mr. HILLS read a letter which he had received from the Admiralty since the last meeting of the Council, forwarding him a copy of the new regulations for dispensers in Naval hospitals, and thanking him for his attendance at the committee which sat to consider the matter. He had done what he did as the mouthpiece of the Council, which in its turn was the mouthpiece of the Society, and it would have been equally well done by any President for the time being. Attention had already been called to the new regulations in the Journal. It was obvious that certain advantages were offered to Naval dispensers, especially with reference to remuneration, and there were also other advantages or improvements which were not so obvious, and improvements which he ventured to hope the representations that he had made to the committee might help to bring about. The more their representatives, whether it were the President or any individual member of Council, were brought into direct and intimate communication with official representatives of public Departments the better it would be for the individual dispensers in every Department, and the better would be the position which their members would hold in the future. Public opinion moved slowly, and although it was easy to talk to men of enlightenment and public knowledge, it was not always so easy to get public bodies which were not so highly educated to see the advantage of having a high qualification and to give proper remuneration and position to those who held appointments as dispensers in public Departments of the State. The more opportunities they took as representatives of that Society of meeting the heads of Departments the better it would be for the members of their calling, and he was sure the Council of the Pharmaceutical Society was in a position, through its officers, to do a great deal of good for its members, and he did not hesitate to say that its President would always be glad to undertake any such duty.

The VICE-PRESIDENT said that thanks were due to Mr. Hills for the trouble he had taken in the matter. They were sometimes told that the Council did not do much for the craft, but he thought this was an instance to the contrary.

Mr. PARK said that, having come in contact with many Naval dispensers, he was sure he would only be giving expression to their feelings if he tendered their thanks to Mr. Hills for the trouble he had taken on their behalf. The dispensers in the Navy were only a small body and could only approach headquarters through their superior officers, who probably had not much sympathy with them. They felt that they were greatly indebted to the Council for the action that had been taken by their past-President in this matter, and they would recognise that it was only a step to benefit them more in the future. He was sure the Council would do all it could to back up any just demand that they might make.

Reciprocity with the Colonies.

The VICE-PRESIDENT announced that a letter had been received from Mr. Arthur B. Chater, thanking the Council for the kind con-

sideration of the proposal which he had put before them for the acceptance by the Society of the diplomas granted in the Australian Colonies, and asking that a resolution might be passed confirming the desirability of that. Mr. Chater had had an informal meeting with the Council on this subject. He should like to point out to Mr. Chater that there existed at present no reciprocity between the different provinces of Australia. It was impossible to compare examinations so far apart as those of Great Britain and Australia; therefore, without some evidence of a curriculum, it would not be easy to do what Mr. Chater desired. He would move the following resolution:—

“That this Council sympathises with the desire for reciprocity between Great Britain and her Colonies in regard to qualifying pharmaceutical certificates, but is of opinion that this can only be accomplished on the basis that a qualification for registration in this country must rest on satisfactory evidence of technical training, and be associated with a definite curriculum in a public University or kindred institution, in addition to any statutory qualifying examination.”

Mr. HILLS said he had taken a great interest in this subject. Mr. Chater represented the Queensland Board of Pharmacy, and was in a position, more or less officially, to speak for other bodies in Australia. He met the Council a month ago, when the matter was talked over. This was a specially good time for Mr. Chater to press this matter, as they were all imbued with an Imperial spirit. In various ways their great Empire was being drawn together, especially at this particular time, when their soldiers were fighting side by side with the Colonists. There were great difficulties in the way of what was suggested by Mr. Chater; even between their own examinations, conducted in Edinburgh and London, comparisons were sometimes drawn, to the effect that one was easier or more difficult than the other; but when they came to examinations conducted some 10,000 miles away, then it would be very difficult, even on the same schedule, to determine that the results of the examinations should be the same both here and in Australia. He thought that by the resolution which was proposed the Council had come to a very wise decision, because he thought to arrive at a practical solution of the question they should have a compulsory curriculum, which would be an evidence of technical training for their own men. That would not only be an advantage from their own point of view, but it would also enable the chemists in the Colonies to have a standard which they should try and attain. Mr. Chater's reply to the observation of there being no reciprocity between the different provinces of Australia was that they were rather looking to the Mother Country to set before them a standard to which they should attain. As being profoundly interested in education, he hoped every opportunity would be taken of pressing upon the powers that be the great necessity there was that their men should be obliged to go through a certain amount of training in some university or public institution. He hoped the letter that the Council was going to send would help to advance their own educational condition, and at the same time to show their sympathy with their colonial brethren, and in that way help to bind the Empire together even more closely.

Pharmacy in New Zealand.

The SECRETARY read a communication which had been received from the Colonial Office, enclosing a copy of an Act of the Legislature of New Zealand, duly sanctioned, amending the Pharmacy Act of 1898. The Bill contained only one clause, and had the effect of restricting the registration of persons under the Act without passing an examination to those who had previously been in business, as principals or managers, in New Zealand, instead of in the Australian colonies generally, as before.

Doncaster Chemists' Society.

The SECRETARY read a letter from the Secretary of the Doncaster Chemists' Society, enclosing a resolution to the following effect:— “That this meeting is of opinion that Clause 2 of the Companies Bill, being a departure from the principle of the Pharmacy Act of

1868, passed in the interest of public safety, should be strenuously opposed, and this meeting furthermore pledges itself to co-operate with the Council of the Pharmaceutical Society in preventing this clause becoming law.”

It was resolved that this communication be referred to the Law and Parliamentary Committee.

The Research Laboratory.

The VICE-PRESIDENT said he had received a letter from Mr. Butt, enclosing a requisition, duly signed, for a special general meeting of the Society. He would therefore move that a special general meeting of the Society be held on May 16, at the conclusion of the annual meeting, to take into consideration the future working of the Research Laboratory of the Pharmaceutical Society.

Mr. CARTEIGHE seconded the resolution, which was agreed to.

General Purposes Committee.

The report of this Committee included the results of the competition for the

PEREIRA AND COUNCIL PRIZES.

Professor J. Bayley Balfour, Dr. L. Dobbin, and Mr. Peter Boa, who had been appointed to conduct this examination, had reported that eleven candidates had entered for the competition, and that two had obtained the requisite standard of efficiency for the awards. The envelopes bearing the mottoes of the successful candidates having been opened were found to contain the names of—

FRANCIS JOSEPH YOUNG

and

EDWIN GRIFFITHS.

None of the other candidates reached the required standard.

The following are the mottoes of the remaining competitors who completed their papers. The mottoes are arranged in order of merit:—

3. Imperial.
4. Sapientia industriam coronat.
5. Per aspera ad astra.
6. Student.
7. Praemia virtutis honores.
8. Disce ant discede.

The following awards were therefore made in accordance with the report of the Examiners:—

- 1st.—Pereira Medal (Silver) and books, value £5, presented by the late Thomas Hyde Hills.
- 2nd.—Pharmaceutical Society's Medal (Silver).

The VICE-PRESIDENT moved a vote of thanks to Professor Balfour, Dr. L. Dobbin, and Mr. Peter Boa for conducting the examination, which was carried unanimously.

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

The Jacob Bell and Manchester Scholarships.

Mr. Peck and Mr. Pinches were appointed to conduct the examination for the Jacob Bell and Manchester Scholarships in July next.

The Annual Report.

The Council went into committee to consider the draft annual report. A few verbal alterations having been made, the Report was adopted, and is printed at page 472.

Report on the Examinations.

The following report on the examinations was presented:—
April, 1900.

England and Wales:—

	Candidates.	Passed.	Failed.
Major	36	19	17
Minor	363	100	263
	<hr/> 399	<hr/> 119	<hr/> 280

Scotland:—

Major	1	—	1
Minor	117	33	84
	<hr/> 517	<hr/> 152	<hr/> 365

FIRST EXAMINATION.

Forty-five certificates of approved examining bodies were accepted in lieu of the First Examination.

First Examination.	Candidates.	Passed.	Failed.
April, 1900	705	334	371

The Board of Examiners, having carefully considered the application of the Welsh Central Board and the report of the College of Preceptors thereon, recommended the Council to add to the list of Certificates of approved examining bodies contemplated by Bye-Law 11, of Section X., the Junior, Senior, and Honours Certificates of the Central Welsh Board. The Board of Examiners had also considered an application remitted to it by the Council for the acceptance of certain Leaving Certificates of the Scotch Education Department. The Board decided that the certificates could not be accepted in lieu of the First Examination as they had not been obtained at "one annual examination."

The VICE-PRESIDENT moved that on the recommendation of the Board of Examiners, the Junior, Senior, and Honours Certificate of the Central Welsh Board be added to the list of certificates to be recognised after August, 1900, in lieu of the "First" Examination.

ANNUAL REPORT OF THE COUNCIL.

The candidates for the "First" examination during the year numbered 1,530, of whom 723, or 47.26 per cent., were successful, and 807, or 52.74 per cent., were rejected. These figures show an increase over the year 1898 of 181 in the number of candidates, but the percentage of rejections has remained practically stationary. The large increase in the entries for this examination is probably due to the fact that after August next a more stringent test of preliminary training will be required of persons desirous of qualifying as chemists and druggists. For the Minor examination 1,816 candidates presented themselves—an increase of 137—and 552, or 30.39 per cent., passed. The pass percentage for the previous year was 31.89. For the Major examination there were 103 candidates, of whom 50, or 48.54 per cent., satisfied the examiners.

These departments have been steadily developed during the year, and their usefulness has been increased by many important additions. Donations of books and specimens have well supplemented the purchases authorised by the Library Committee. The additions to the Libraries and Museums are published month by month in the *Pharmaceutical Journal*, and the donors receive the official thanks of the Council at the time of publication. In consequence of the Library and Museum in London not having been used in the evening by the Members and Student-Associates of the Society, for whose exclusive advantage these departments are maintained, the Council has deemed it inexpedient to keep the premises open after 6 o'clock p.m.

The fifty-eighth session of the School of Pharmacy was inaugurated in October, when a very interesting and instructive address to the students was delivered by Dr. D. J. Leech, Professor of Materia Medica and Therapeutics at Owens College, Manchester, and Chairman of the Pharmacopœia Committee of the General Medical Council. On the same occasion the Hanbury Gold Medal, which had earlier in the year been awarded to Professor Albert Ladenburg, of Breslau, was presented, Baron von Mirbach, of the German Embassy, attending as the official representative of the absent medallist. The Council has the gratification to report that the School is now part of the London Teaching University, its Professorial Staff having been recognised by the London University Commission as teachers of the University.

Reference was made in the last Annual Report to the appointment, on the invitation of the General Medical Council, of two pharmacists to represent the Society at the meetings of a Conference convened for the purpose of discussing matters in regard to Pharmacopœia standards and processes. It has now to be reported that the General Medical Council has asked the further co-operation of the Society in determining certain chemical and pharmaceutical problems requiring elucidation. The Council of the Society readily agreed to afford the assistance desired, and the necessary work is now in progress in the laboratories of the Society, under the direction of the Professor of Chemistry and the Professor of Pharmaceutics, who report from time to time to the Research Committee.

The following lectures have been given and papers read at the Evening Meetings in London:—"The Biology of Yeast," by Professor J. Reynolds Green; "Some Relations of Water to other Substances," by Professor J. Millar Thomson; "Aromatic Spirit of Ammonia," by Mr. Edmund White; and "The Commerce of Drugs," by Mr. E. M. Holmes. Mr. J. S. Ward and Mr. J. C. Stead also contributed interesting notes. In Edinburgh the Session was opened by an interesting address by Mr. P. Boa, and subsequent papers were contributed by Dr. Dobbin, Messrs. T. Dunlop, G. E. Merson, J. Lothian, J. Tocher, A. Currie, and J. R. Hill.

In view of the statement made in the House of Commons by the Home Secretary that the Government would be prepared to consider any resolution passed in accordance with Section 2 of the Pharmacy Act, 1868, in regard to the scheduling of carbolic acid as a poison, the Council, at its June meeting, again formally resolved that carbolic acid ought to be deemed a poison. The resolution was duly forwarded to the Privy Council, which Department is now in consultation with the Board of Agriculture on the subject.

The income from subscriptions during the past year shows a slight diminution, whilst the expenditure for grants and annuities continues to increase. From the details given in the Balance Sheet it will be noted that the Council is practically spending each year, in the relief of necessitous chemists and druggists or their widows, the whole of its income. Four additional annuitants were elected on the Fund in December last, and there are now forty-four persons receiving annuities from the Fund.

At the April meeting of the Council, Edwin Bennett, the orphan child of a member of the Society and subscriber to the Benevolent Fund, was selected for admission to the London Orphan Asylum.

One thousand pounds having been left to the Society by the late Mr. E. Waterall, of Nottingham, subject to certain conditions securing priority of claim for necessitous chemists resident in that city, the Council has created a new Fund, to be called the "Waterall Legacy Fund," and has adopted a scheme for the administration of the Fund in pursuance of the wishes of the testator. The scheme was published in full in the *Pharmaceutical Journal* for March 10, 1900.

The Lord Chancellor's Pharmacy Bill and Companies (Medical Profession) Bill, to which allusion was made last year, were not proceeded with; but before the end of the session they became incorporated, with a slightly altered form of wording in the case of the Pharmacy Bill, in the Board of Trade Companies Bill, which had long been under the consideration of a Select Committee of the House of Lords. This Bill, as amended by the Committee, passed

GENERAL FUND.

REVENUE ACCOUNT, 1899.

EXPENDITURE.		£	s.	d.
To Annuities		500	0	0
Carriage of Books and Parcels.. .. .		13	8	6
Certificates of Death		22	4	7
Examinations:—				
Minor and Major:—				
Fees to Examiners and Travelling Expenses	England and Wales.	£	s.	d.
Refreshments		1949	10	4
Apparatus, Drugs, Chemicals, Printing, and sundry charges		91	7	6
Scotland.		£	s.	d.
.. .. .		45	13	10
.. .. .		455	10	9
.. .. .		83	19	10
.. .. .		2496	8	7
.. .. .		802	4	8
.. .. .		2495	8	7
First Examination:—				
Fees to Superintendents, Hire of Rooms, and other charges		327	10	9
Fees to College of Preceptors		198	12	0
.. .. .		526	2	9
.. .. .		3824	16	0
Fixtures and Fittings		180	4	0
Gas, Water, Coal, Cleaning Materials, etc.		348	5	4
House Servants—Wages		299	7	8
Journal: Balance of account		1675	19	7
Law Costs		463	13	3
Library:—				
Librarian's Salary		275	0	0
Purchase and Binding of Books		98	6	1
Library Association Meeting		10	10	0
.. .. .		383	16	1
Museum:—				
Curator's Salary		400	0	0
Assistant's Wages and Sundry Expenses for Bottles, etc.		130	11	11
.. .. .		530	11	11
North British Branch:—				
Assistant Secretary—Salary		250	0	0
Taxes and Insurance		59	16	9
Members of Executive—Travelling Expenses, etc.		50	14	7
Fuel, Light, Water, Cleaning, Service, and Miscellaneous Expenses		466	19	4
.. .. .		827	10	8
Evening and other Meetings		47	11	1
Postage:—				
General		241	16	0
Journal		873	17	2
.. .. .		1115	13	2
Register—Balance of Account		8	3	1
Rent, Taxes, and Insurance.. .. .		759	16	5
Premium on Leasehold Redemption Policies		128	2	6
Repairs and Alterations		714	16	3
Electric Service and Fittings		299	9	0
Salaries:—Secretary and Registrar, and Clerks		1770	12	6
School of Pharmacy:—				
Stipends of Professors and Share of Fees		1475	7	6
Lecturer, Assistant Lecturer, and Demonstrators, and Wages of Porters		559	7	0
Apparatus, Chemicals, Specimens for Lecture Classes, Prize Medals, Certificates, and printing and posting prospectuses		442	14	10
.. .. .		2477	9	4
Stationery, Engraving, Printing and Office Expenses		280	15	10
Expenses in connection with the Pharmacy Act, 1898.. .. .		122	19	6
Calendar		91	14	0
Sundries		12	11	9
Travelling Expenses—Council and Committees		452	8	8
Refreshments for Council		37	4	9
London and Westminster Bank—Interest on Advance		14	12	7
.. .. .		17403	18	0
Balance Transferred to Accumulated Funds		1943	12	2
.. .. .		£19,347	10	2

INCOME.		£	s.	d.	£	s.	d.
By Examination Fees:—							
1711 First Examination		2944	15	0			
1850 Minor		7297	8	0			
106 Major		289	17	0			
1 Modified		1	1	0			
.. .. .		10,533	1	0			
Restoration Fees		15	15	0			
Registration Fees		7	7	0			
.. .. .		10556	3	0			
Interest on Investments:—							
Ground Rents		149	16	8			
Rent of 15, Bloomsbury Square		187	10	8			
.. .. .		337	7	4			
School Fees							
.. .. .		1582	15	10			
Subscriptions:—							
5462 Members		5735	2	0			
884 Student-Associates		464	2	0			
Life Subscriptions		672	0	0			
.. .. .		6871	4	0			

BALANCE SHEET, DECEMBER 31, 1899.

LIABILITIES.		£	s.	d.	£	s.	d.
Sundry Creditors		2210	5	10			
Examination Fees in Advance		2095	1	0			
School Fees in Advance		915	18	0			
Cash—Due to Treasurer.. .. .		1	5	5			
Accumulated Funds as on December 31, 1898		32424	2	2			
Add Balance of Revenue Account as above		1943	12	2			
.. .. .		34367	14	4			
.. .. .		£39,590	4	7			

ASSETS.		£	s.	d.	£	s.	d.
By Freehold Ground Rents at Paddington Green, at cost		5551	5	6			
Freehold House in Edinburgh		1931	10	0			
" " Additional Building		3111	4	9			
*Leasehold Premises:—							
Galen Place.. .. .		10606	10	2			
15 and 16, Bloomsbury Square.. .. .		9527	5	3			
17, Bloomsbury Square and 72 and 73, Great Russell Street, valued at		5000	0	0			
.. .. .		35727	15	8			
Sundry Debtors		2896	16	2			
Cash:—							
London and Westminster Bank		836	10	0			
Chairman of Executive in Scotland		79	2	9			
.. .. .		965	12	9			
.. .. .		£39,590	4	7			

The above assets are exclusive of a Museum and a Library, as well as Furniture and Fittings, in London and Edinburgh. The copyright of the PHARMACEUTICAL JOURNAL is also not included.

* NOTE.—The leases of these properties are insured under a Capital Redemption Fund for £25,000.

BENEVOLENT FUND.

REVENUE ACCOUNT, 1899.

EXPENDITURE.		INCOME.	
	£ s. d.		£ s. d.
To Annuities	2096 5 0	By Subscriptions	1723 13 7
Grants	730 0 0	Ground Rents	1013 2 0
Interest on Loan from the Orphan Fund	35 0 0	Dividends	185 5 0
Stationery, Printing, and Postage	37 13 9	Donations	155 13 0
Surveyor's Fees	15 15 0		
	2914 13 9		
Balance transferred to Accumulated Funds	163 4 10		
	£3077 18 7		£3077 18 7

BALANCE SHEET, DECEMBER 31, 1899.

LIABILITIES.		ASSETS.	
	£ s. d.		£ s. d.
To Loan:—		By Freehold Ground Rents at:—	
Orphan Fund.. .. .	1000 0 0	Strawberry Hill at cost..	102 12 6
Sundry Creditors	32 6 0	Battersea	12213 0 0
	1032 6 0	Broomwood Park	7454 7 10
Accumulated Funds as per Balance Sheet, December		West Kensington	5809 2 1
31, 1898	34191 12 9		26497 2 5
Add Balance of Revenue Account	163 4 10	£7000 2½ per cent. Consols	7658 4 9
	34354 17 7	St. Paul, Minneapolis, and Manitoba Railway 4 per	
		Cent. Bond	100 0 0
		Chemists' Aerated and Mineral Waters Association,	
		Limited, fully-paid up £1 Shares	100 0 0
			34355 7 2
		Sundry Debtors	350 17 5
		Annuities paid in Advance	530 0 0
		Cash:—	
		London and Westminster Bank—Current Account	140 4 8
		Treasurer	10 14 4
			150 19 0
	£35,387 3 7		£35,387 3 7

ORPHAN FUND.

(FOUNDED BY THOMAS HYDE HILLS, 1891.)

Balance, Jan. 1st, 1899:—London and Westminster Bank	£ s. d.	209 5 9	Balance, December 31st, 1899:—London and Westminster Bank..	£ s. d.	272 6 9
Subscriptions		18 6 0			
Interest on Invested Capital		9 15 0			
Interest on £1000 lent to the Benevolent Fund		35 0 0			
	£272 6 9			£272 6 9	

The Capital Account of this Fund consists of:—

Two and three-quarters per cent. Consols.....	£ s. d.	355 0 0
Amount lent to the Benevolent Fund		1000 0 0

AUDITORS' REPORT.

We, the undersigned Auditors, have examined the foregoing accounts of the Pharmaceutical Society of Great Britain, and find them correct. We have inspected the Deeds relating to the House Property and Ground Rents, and also find that there were standing to the account of the Society at the Bank of England, and in the hands of the Society's Bankers, on December 31, 1899, the several securities named in the Balance Sheet of the respective accounts.

In addition to the above, the following Securities were standing to the credit of the Society on December 31, 1899:—

Pereira Memorial Fund.....	} Two and three-quarters per cent. Consols	£	100 0 0
Bell Memorial Fund			2050 0 0
Hanbury Memorial Fund.....			400 0 0
Redwood Memorial Fund.....	Great Indian Peninsula Railway Stock	£	400 0 0
Hills Prize Fund	Russian Bonds		316 8 0
Manchester Pharmaceutical Association Scholarship Fund....	Manchester Ship Canal Co. 4 per cent. Debentures....	£700 0 0	
	Two and three-quarters per cent. Consols	52 4 6	
			752 4 6
John Cripps Legacy Account—India 3½ per cent. Stock			1702 10 0
The Burroughs Scholarship.....	4 per cent. New Zealand Consolidated Stock		720 0 0

EDWARD N. BUTT
F. HARWOOD LESCHER
CHARLES UMNEY
FRANCIS YATES

Auditors.

the House of Lords, but the lateness of the session, coupled with the probability of strenuous opposition, rendered its introduction into the House of Commons inexpedient, and the Bill lapsed. The Council, conceiving its duty to lie in resisting all attempts to remedy company law anomalies by sacrificing the essential principle of the Pharmacy Act, had already made arrangements to oppose the pharmaceutical clause of the Bill. During the long recess efforts were made to impress upon the Government—and more especially the President of the Board of Trade, who was expected to take charge of any Companies Bill introduced into the House of Commons—the objections which chemists and druggists throughout Great Britain entertained to the proposal contained in the Lord Chancellor's clause. These efforts, however, met with scant success, for the Bill that passed the House of Lords last session was introduced into the House of Commons at the beginning of the session, and no evidence was forthcoming that the representations made to Mr. Ritchie had been considered. The Council subsequently ascertained that the view of the Minister in charge of the measure was that the clause to which objection is taken is an insertion by the Lord Chancellor, and that the Government could accept no amendment thereto. In view of this declaration on the part of the Minister in charge of the Bill, the Council deemed it wisest to oppose Clause 2 of the Companies Bill. The Bill has not yet reached its second reading; when this stage is reached the Local and Divisional Secretaries and the members generally will receive due notice.

LEGAL.

The number of alleged infringement cases reported to the Registrar and investigated during the year was 276, which is a considerable decrease on those reported in recent years. A very large proportion of the offenders did not attempt to contest their liability, but paid the penalties claimed without going into Court. A report has appeared in the *Pharmaceutical Journal* of each contested case, and the only one to which attention need be directed is that of a seedsman at Worcester, who was sued for a penalty under Section 15 of the Pharmacy Act, 1868, for selling weed-killer containing arsenic. At the hearing of the case it appeared that defendant did not stock the weed-killer, but took orders for it, which orders he transmitted for execution to a limited company at Liverpool. It was admitted that he gave a receipt for the purchase money on a bill-head bearing the name of the limited company, and that he received 25 per cent. commission on each order. He also had in his shop price-lists of the weed-killer bearing his name and address as agent. The County Court judge came to the conclusion that this did not constitute a sale by the defendant within the meaning of the Pharmacy Act, 1868, but leave to appeal was given. This appeal was heard before Justices Grantham and Channell, and resulted in the appeal being dismissed, but with liberty to go to the Appeal Court. Having regard to the grave issues involved in the case, and acting on the advice of counsel, an appeal has been entered accordingly, but it is not expected that the case will be reached until after the Long Vacation.

LOCAL ORGANISATION.

During the year the Council has again had its attention directed to the need for improving the local organisation of the Society. Without in any way minimising the value of the excellent services rendered by a number of the Local Secretaries throughout the country, it has been suggested that it might be possible to exert a much more potent political influence, both in the promotion of desirable legislation and opposition to objectionable measures, if the Society possessed a competent representative in every Parliamentary division in Great Britain. The subject was discussed at the October Council, and the proposal of Mr. Cross, that a meeting of local officers should be convened during the meeting of the British Pharmaceutical Conference in London this year, was adopted. This meeting will take place on Friday, July 27, and it is hoped that beneficial results may ensue from the associa-

tion, in the Society's House, of local officers with the executive body which appointed them. The Council at its April meeting appointed a small Committee to investigate and to report on the desirability of re-arranging upon a Parliamentary basis the districts for which local secretaries are at present appointed. The Committee will also consider, in connection with any possible re-arrangement, the expediency of making a change in the duties of local representatives.

NAVAL DISPENSERS.

The Council is glad to be able to record that its efforts for some years past to improve the status of dispensers in Naval Hospitals have borne some fruit, many of the suggestions submitted by the President of the Society in 1898 to the Admiralty authorities having been recently adopted. The new regulations were published in the *Journal* for April 14, 1900.

NORTH BRITISH BRANCH.

The Report of the Executive of the North British Branch was presented to the Council at its May meeting. The work of the Society in Scotland is efficiently conducted.

OBITUARY.

The following deaths have to be recorded:—Sir Edward Frankland, Dr. von Waldheim, Dr. K. L. Dey, Sir Douglas MacLagan, and Professor Gustave Planchon—Honorary Members; Dr. Adolphus Ernst and Dr. Yatabe—Corresponding Members; T. Greenish—a former President of the Society; J. G. F. Richardson, J. Watt, R. Reynolds, and Daniel Frazer—former members of the Council; Augustus Bird—formerly a member of the Board of Examiners for England and Wales; Wm. Burley—a member of the Executive of the Society's North British Branch; E. C. Cortis Stanford, formerly Demonstrator in the Society's Laboratory, and a well-known manufacturing chemist; and the following local officers:—R. U. Clark (Jarrow), C. F. Bevan (Harwich), T. W. H. Hodson (Hoxton), G. Lines (Hertford)—a founder of the Society.

LETTERS TO THE EDITOR.**The Council Election, 1900.**

As a member of Council who is seeking re-election, it is but right that I should thank the members of the Society who have voted for me on former occasions, and in seeking the votes of the members, I would state that the policy I should advocate would be to protect our titles in the fullest manner possible. I hold that our titles are personal, therefore should not be assumed by unqualified capitalists. I do not think the Council can expect to restrict the freedom of trade in drugs which are outside the poison schedules. I do not think the Council should in any way attempt the suicidal policy of regulating limited companies; if the Legislature undertakes that task, chemists must do their best to defend their lawfully acquired privileges from being interfered with. I would also hail with pleasure a project to divide the Minor Examination, with adequate precautions. I am also of opinion that the time has come when all who pass the qualifying examination should have the title of pharmaceutical chemist. I see that one of the trade papers says I have occupied a seat on the Council of the Pharmaceutical Society four years, and that I have not spoken once. I am not an orator, and when my views have been ably expressed by more than one member, I do not see the use of occupying the time of twenty other gentlemen to hear the same thing over again. I do not think that I have missed any meetings of the Council except through sickness in my family, and I have always attended the Committee meetings on the day before the Council meeting.

Swansea, May 1, 1900.

N. M. GROSE.

As a country chemist with an ordinary intelligence I would respectfully urge my brother pharmacists that they be not misled by the electioneering addresses of various new aspirants for

Council honours. We are threatened with two dangers. First, Mr. Wootton—in the guise of an astute sophist—has, whilst editor of the *Chemist and Druggist*, consistently opposed every measure that had for its object the raising of the status and the welfare of chemists. It will be remembered that he made a great cry of “guineas” when the Society was last amending its bye-laws. In the Society’s efforts to render more efficient the coming pharmacist, he only detected a sinister desire on the Council’s part to feather its own nest, etc., *ad nauseam*. The other danger we are confronted with is the candidature of a gentleman from Lancashire, with a high-sounding name, whose chief qualification can best be described in the somewhat inelegant term—windbag. I have carefully read the deliverances of both gentlemen for the last year or two and I hope I shall find some support when I say that the Council can very well be spared the services of these candidates. It is in the highest degree important that in the present crisis we should have level-headed and well-balanced men whose loyalty to the craft is above suspicion and whose influence and experience of affairs pharmaceutical must conduce to the success of the struggle with the enemy.

Cockermouth, April 27, 1900.

W. S. SCOTT.

It is too often assumed that the amount of interest aroused by a given Council election may be gauged by the number of candidates newly put forward for the contest. A moment’s reflection is enough to show that this criterion would of itself prove oftentimes quite fallacious—that it is only when the election is over, when we know the proportion of those that have actually voted to the whole number of the electorate, that a due estimate on this point can be formed. Last year’s contest is a case in point. It was taken for granted, at the outset, that an unusual amount of interest would be excited, because, forsooth, six outside candidates were standing, in addition to the seven retiring members of Council, to fill the seven vacant seats. The result, however, showed a lamentable lack of concern amongst the members generally and a result that was most unsatisfactory, 5,468 voting papers being issued and 3,733 only being returned.

What can be the cause and what the remedy, for such a lamentable waste of power as we have seen hitherto? I think procrastination is the thief that steals away our best force on these occasions. Why not ask members to return the voting papers, properly and leisurely dealt with, as soon as possible after receiving them?—to do this in advance, whether it be a man’s intention to be present at the annual meeting or not. The “new blood” proposed to be pumped into the Council this time beats all record as to its heterogeneous character. There is too much of “Shake the mixture”—too much agitation required to keep up the semblance of a presentable article; in fine, it is not pharmaceutical enough to get through even the Glyn-Jones’ new patent transfusion apparatus at all kindly.

Mr. Wootton seems to have degenerated somewhat from what he was as editor of the *Chemist and Druggist*. Some little while ago, before relinquishing that post, he spoke out in plain English that his periodical had for years done what it could to get as much as possible “out of” the vast wealth and resources of the Society for the benefit of the trade—*i.e.*, for the benefit, I presume, of the two-thirds who refuse to join its membership. Had he much succeeded the Council would certainly have wanted “new blood” by this time; but he did not succeed to any appreciable extent, in spite of a deal of real talent wasted which might have been employed to nobler uses. From Mr. Wootton’s address, now before me, he seems to be relinquishing the manly style of the old *C. and D.* whilst he was its editor, and descends to a rather Pecksniffian level. “I regret,” says he, “to believe”—*régret* to believe! why believe it, then? Would I regret any one of my beliefs? Oh! throw away such vain regret, and beliefs, too. But does he regret to believe? Was it not originally meat and drink, and wine that made the heart glad,

to force into the minds of men certain dogmas connected with the assumed shortcomings of the Council and the Society? And now, as a candidate for the suffrages of the members of the same Society that he spent thirty years in slandering, on bended knee he craves admission and regrets to believe that things are so bad as to warrant the election of himself and colleagues for setting straight such a lot of crookedness!

Mr. Taylor wants to get on the Council to gain experience—cart before the horse. Another, Mr. Currie, protests that the Society ought to look better after those who pass its examinations. Is it not the end of education to fit a man to take care of himself? And are not the statutory examinations to serve as a criterion who is or is not thus capable to conduct what he himself has chosen as the business of his life? Another says that “the commercial side of pharmacy has been entirely ignored.” One would think the commercial side of our calling differs so much with each individual that it is much better left to oneself, that each one may cut out his own garment according to the amount of stuff at his disposal, and see that he does not in any matter “over-reach the constable” or make his horns too ramifying for going in and out with comfort. Mr. Gifford says, sensibly enough, that his trade interests are his own affair, and that “if the Pharmaceutical Society becomes to any extent a trade union (forgetting that to some extent it is such already) the propriety of its administering the Pharmacy Acts would rightly be called in question.” What say the other new-blood men to this? “Yet,” says he, “we ought to combine with all the weight of an organised trade,” whilst we are but about 15,000 at the most, all told.

Viewing the whole question comprehensively, we must come to the conclusion that the one principle of union amongst these people is hatred of the Pharmaceutical Society as to its highest and best endeavours. It would seem as if concession has been carried much too far already. The fact that the benefits of the Benevolent Fund have been generously extended to friends and foes alike—that special openings have been made at times in the inclosure for the admission of any, however sulky or faint-hearted they may have been—any who could produce the shred of a claim for consideration—all has been interpreted as merely an indication of weakness instead of sturdy benevolence. The result has been to further demoralise the chronic outsiders, who seem to think that this state of things will go on for ever and that new blood is going to lead to a general trade victory over the ruins of a Pharmaceutical Society. Let them be awakened from their wild dreamings by members all rising to the urgency of the present moment and showing, by their universal interest in this election, that the time is over for making bargains with imbecility and crippledom, either on the score of assumed right or of policy. It is now more than ever urgent for members to save their own by coming forward in full strength with a candid enforcement of the lesson of consolidation, that the 5,000 or so who have seen the wisdom of union, on educational principles, refuse to be the tools of those who would perpetuate the indefinite attenuation of the Society’s best energies.

London, April 30, 1900.

J. C. HYSLOP.

I hereby beg to convey my thanks to the candidates for their prompt and courteous replies to queries sent.

St. Andrews, Fife, May 1, 1900.

W. R. KERMATH.

The P.A.T.A. and the Council Election.

In last week’s issue Mr. J. F. Eardley, after mildly rebuking me for enclosing my circular letter to the members of the Pharmaceutical Society in the *Anti-Cutting Record*, asks, “To whom does the *Anti-Cutting Record* belong, and who pays the postage?” To both enquiries the answer is—

London, May 1, 1900.

W. S. GLYN-JONES.

Mr. Cross and the Council Election.

I am obliged to Mr. Cross for kindly drawing the attention of your readers to the letter in which I ask them to vote for Messrs. Cooper, Gibbons, Taylor, and Wootton. He states that the matters therein dealt with are capable of being represented in quite a different light. First, Mr. Cross points out that I was incorrect in stating, in reference to the question of dispensing in doctors' surgeries, that the Council had done absolutely nothing. He says that the matter was carefully considered, and that a conclusion was unanimously arrived at that it was not the province of the Council to interfere. (Mr. Cross is so used to thinking of unanimity in connection with the Council's decisions that his slip in using it in this connection is excusable.) It therefore appears that I ought not to have said that the Council had done nothing, but that it considered and came to a conclusion not to do anything, and had carefully adhered to its decision. I am afraid the correction will not console those of our members who want to see our qualification recognised as that of a pharmacist—a dispenser of medicines—not merely that of a vendor of poisons. On the company question Mr. Cross says that I know it is "because the Government is determined not to accept any amendment of the clause that a practically unanimous decision has been arrived at to oppose the Clause altogether." I know that Mr. Ritchie, who is not the author of the clause, and who personally does not like its being in the Bill, declined to amend it at the first time of asking by the President and Mr. Carteghe. But I did not expect Mr. Ritchie would have said: "Certainly, gentlemen, how would you like it amended?" The Government does not usually capitulate at the first sign of opposition from interested quarters, but it often does give way to pressure brought to bear upon it in Parliament. Mr. Ritchie's answer amounted to a refusal to voluntarily amend the clause. But it is Parliament and not Mr. Ritchie that will ultimately decide what clause, if any, shall become law. And it is because the Council has shirked placing the issue before Parliament that I complain. I would not be justified in using your space to reply to Mr. Cross's pleasant little sarcasms at my expense, except to say that when he suggests it is a large order to give me the controlling power of the Society all at once, I believe the four new candidates we are recommending will agree with him and that, if elected, they will do what they can to make impossible in the future what it is alleged has existed in times past—viz., one man rule at "the Square." This I suggest as another reason why your readers should vote for them.

London, May 1, 1900.

W. S. GLYN-JONES.

A Pharmaceutical Caucus.

As I did not vote for Mr. Glyn-Jones at the last Council Election, and as I do not agree with his agitation against medical dispensers, but fully agree with the views of Mr. H. G. Rogerson (see *ante*, p. 457), I nevertheless give a few reasons why I intend to "plump" for the caucus candidates. (1) While (as Mr. Glyn-Jones pointed out some time ago) men who are members of limited companies have seats on the Council, no hope of doing anything in the company question can be expected. (2) In my humble opinion, the "swell" chemists, not being in touch or understanding the position and the struggle which their poorer brethren have to keep their heads above water (and who undoubtedly are greatly in the majority), are not the ones to assist the poor ones in their daily struggle for a bare existence; therefore, more men like Mr. Glyn-Jones (who understand and sympathise with the position of the poorer members of the craft) should be installed in their places.

Liverpool, April 30, 1900.

A POOR CHEMIST (30/7).

The quotation from my letter published on April 21, upon which Mr. Glyn-Jones bases his reply, is of itself almost sufficient to disprove the argument he has deduced from it. At the risk of reiteration, however, and because I wish to make my protest perfectly understood, it appears necessary to repeat that I

have no objection to a "caucus" when it is composed of members of the Society outside the Council. My sole reason for protesting against the movement which Mr. Glyn-Jones has initiated lies in the fact that he is a member of Council. I should be sorry indeed if I felt that any difference of opinion upon questions which present themselves for debate could influence my conduct so as to provoke me to obvious insincerity. If it be true that my former letter affords "strong evidence that new men are wanted on the Council," it is fortunate that the members of the Society will be able to exercise a clear discrimination.

I hold that loyalty to conviction, duty to constituents, or loyalty to colleagues ought on no account to imperil the dignity of the Society itself, and that it would be absolutely impossible for its Council to command the respect of the members of the Society—to say nothing of departments and institutions in close association with its work—if in a few years the twenty-one representatives who compose it became separated into sections, easily identified by the efforts which their stronger colleagues had made to secure them. Surely it is not too much to say that, in such a case as the present, the honourable position of a Councillor would become an intolerable one. The general arguments advanced by Mr. Glyn-Jones lead away from the principle which forms the real issue, and I am quite content to allow my fellow-members to determine whether they wish to create a precedent by justifying the action which Mr. Glyn-Jones has taken.

Kilburn, N.W., May 1, 1900.

CHARLES B. ALLEN.

The Companies Bill.

There seems to be some doubt as to whether or not I have changed my views with regard to company pharmacy, as expressed in my paper "The Outlook in Pharmacy" (see p. 148 *ante*), and the letters I have since written in connection with the Companies Bill and my candidature. I have not changed my views. With regard to my being on the ticket of the so-called "caucus," let me say I have given no pledges as to the Bill or company pharmacy to the gentlemen who have initiated that movement. Nor have they attempted to interfere with my freedom of judgment or action. Consequently, if I am elected to the Council, I can enter on its duties free to act as my convictions dictate.

Bolton, May 1, 1900.

JOHN TAYLOR.

Gelatinised Tincture of Kino.

I desire to tender grateful thanks to the following gentlemen, who have forwarded specimens of gelatinised tincture of kino in response to my request:—Mr. J. Balcomb, Cheltenham; Mr. H. Barton, St. Ives (Hunts); Mr. A. W. Hudson, Cranbrook; Mr. F. J. Muskett, Rochester; Mr. Jas. Robb (Messrs. Frazer and Green), Glasgow; Mr. J. Wild, Manchester; Mr. W. Wilkinson, Manchester; Mr. J. Williams, Notting Hill. The specimens already received will probably be sufficient for the purposes, but any information concerning them will be of interest (in those cases in which none has been sent), in respect of exposure to light, time that elapsed before gelatinisation took place, possibility of evaporation of spirit, and date of preparation.

E. M. HOLMES.

17, Bloomsbury Square, W.C., April 21, 1900.

What is Ecology?

I notice in the questions set for the Council Prizes Examination (see *ante*, p. 443), a reference to the "ecological significance" of the "perennation" (if I may venture to coin a word) of flowering plants. If you or any of your readers can refer me to any text-book or dictionary in which "ecology" is discussed or defined I shall feel greatly obliged.

April 30, 1900.

Kpovos (29/49).

** The word "œcology" will be found defined in standard dictionaries of recent date, such as the "Century"; also "perennation," which appears to have been coined by Professor Bayley Balfour, about twelve years ago. See the remarks of "An Ordinary Pharmacist" on this subject, at page 465. [Ed. P.J.]

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LONDON: SATURDAY, MAY 5, 1900.

THE COUNCIL MEETING.

IN the absence of the PRESIDENT, who has, in compliance with medical advice, gone on a voyage for the benefit of his health, the chair was occupied last Wednesday by the VICE-PRESIDENT, who explained the reason for occupying that position and expressed a hope that Mr. MARTINDALE would soon return thoroughly restored. That wish met with a hearty response from the members of Council and, after the minutes of the previous meeting had been confirmed, the VICE-PRESIDENT proceeded to speak of several distinguished members of the Society who have died since the last meeting, viz., Sir DOUGLAS MACLAGAN, Dr. GUSTAVE PLANCHON, RICHARD REYNOLDS, AUGUSTUS BIRD, and JOHN HUGILL, resolutions being passed authorising official letters of sympathy and condolence to be sent to their respective families on behalf of the Council (see page 466). Reference was also made to the death of Mr. R. J. DOWNES, the late President of the Pharmaceutical Society of Ireland, and a resolution was passed to be sent to the Council of the Irish Society.

The additions to the Society comprised 95 members, 12 student-associates, and several restorations. See page 468.

A summary of the annual report of the North British Branch of the Society was read by the SECRETARY and, before the report was ordered to be inserted in the minutes of the Council proceedings, it gave rise to an interesting discussion. Mr. CARTEIGHE, in moving the adoption of the report, expressed satisfaction at hearing that the establishment at 36, York Place was so useful and so much appreciated, because he had been, in a way, its godfather and had endeavoured to give practical effect to the idea that the establishment in Scotland should be a credit to the Society, enabling it to command the respect of the medical profession and of scientific men in the metropolis of the North and to be regarded generally as the official representative of British pharmacy. Mr. HILLS, in seconding the motion, also expressed satisfaction at finding that the provision made for the local requirements of the Society in Scotland were so zealously

utilised and supported by the members of the North British Executive, and Mr. STORRAR, referring to the assistance that had been given as having been in great measure the means by which pharmacy has taken its present position in Edinburgh, remarked that the North British Branch should not be looked upon as purely Scottish; but as representing a much wider area than Scotland and as being, in the spirit of the late JOHN MACKAY, "part and parcel" of the Society, so that the sooner they forgot there were two nationalities the better. Mr. JOHNSTON supported these remarks.

The report of the Finance Committee was adopted and gave rise to no comment, the only point to which special attention was directed by Mr. HILLS, in moving its adoption, being an unusual item charged against the Benevolent Fund Account for the repairs of the recently acquired property at Strawberry Hill, an acquisition on which Mr. HARRINGTON said the Society might be congratulated.

On the recommendation of the Benevolent Fund Committee three grants, amounting to thirty-three pounds, were ordered to be paid.

The report of the House Committee was also adopted without comment.

Attention was directed to the question asked by Sir JOHN LENG in the House of Commons, on Monday, in reference to carbolic acid, and to the answer given by the HOME SECRETARY on that occasion. See page 469.

Mr. GLYN-JONES remarked that he had learnt more from the HOME SECRETARY than he knew as a member of the Council and he thought some explanation of that, apparently unintelligible position, was needed. Mr. BATESON held that the Council is in no way to blame for the delay in placing carbolic acid on the Schedule, but it might be congratulated that the matter has now been advanced somewhat. Mr. GLYN-JONES then put the definite question whether any communication had come from the Government other than that the Council has already been made aware of? Mr. CARTEIGHE said that as the matter is not in the HOME SECRETARY'S department, the published report was probably incorrect and that it should not be taken too literally, but the spirit of the reply appeared very satisfactory. Mr. HILLS added that, in the absence of the PRESIDENT, the Council might not be fully informed of what has taken place, not altogether officially, but by personal communication.

In reference to a letter from the Admiralty on the new regulations for naval dispensers, Mr. HILLS said he had received it since the last Council Meeting and proceeded to explain what has been done in consequence of his representations in that connection. That, he said, might well have been done by anyone else representing the Society, in the position of PRESIDENT, and he thought the more the officials of the Society were brought into communication with official representatives of public departments, the more they would be able to be of benefit to those they represented. The VICE-PRESIDENT said that thanks were due to Mr. HILLS for the trouble he has taken in the matter of Naval dispensers and the same feeling was expressed by Mr. PARK on behalf of the naval dispensers with whom he is in the habit of coming in contact. See page 470.

In mentioning a letter received from Mr. CHATER, of New Zealand, on the subject of reciprocity of pharma-

ceutical qualification, the difficulties surrounding it were pointed out by the VICE-PRESIDENT and, on his motion, it was resolved that the Council should express its sympathy with the desire for reciprocity, provided it could be effected on the basis of systematic education, in a public university or other satisfactory public institution, as well as a statutory qualifying examination.

Mr. HILLS said he thought that the present time was favourable for pressing this matter forward, but it was surrounded with difficulty, for even in connection with the Society's present examinations comparisons are sometimes made with the view of showing the existence of inequality between them.

On the recommendation of the Board of Examiners, the Council resolved to add the junior, senior, and honours certificates of the Central Welsh Board, to the list of certificates to be recognised in lieu of the first examination.

A letter from the Colonial Office, relating to an amendment of the Pharmacy Act, 1898, was read. See page 471.

Another letter was from the Secretary of the Doncaster Chemists' Society, forwarding a resolution that Clause 2 of the Companies Bill should be opposed and pledging the Society to support the Council in any action taken with that object: it was referred to the Law and Parliamentary Committee.

A duly-signed requisition for the holding of a special general meeting in reference to the Research Laboratory having been submitted by Mr. BUTT, the VICE-PRESIDENT moved that the meeting be called; Mr. CARTEIGHE seconded the motion, and it was carried.

In that part of the report of the General Purposes Committee relating to the award of the Pereira Medal and Council prizes and, on recommendation of the examiners, FRANCIS JOSEPH YOUNG and EDWIN GRIFFITHS were declared to be the only successful candidates. A vote of thanks was passed to the examiners. See page 471.

After consideration of the legal part of the report resolutions were passed authorising the Registrar to take proceedings in various cases.

The Council then considered in committee the draft of the annual report, and after making some verbal alterations, it was adopted and ordered to be printed. See page 472.

THE ALLEGED CHEMISTS' MONOPOLY OF THE SALE OF DRUGS.

THE plea put forward by Mr. JESSE BOOT and other unqualified persons—connected with companies keeping open shop for the sale of poisons and using the title of chemist and druggist or pharmaceutical chemist, regardless of the provisions of the Pharmacy Act—is entirely without foundation. They allege, in attempted justification of their procedure, that the effect of the Act is to create a monopoly of the sale of drugs and medicines, operating to the advantage of a special class and interfering with freedom of trade prejudicially to the general interests of the community. That specious plea has met with some acceptance in influential quarters. In order, therefore, to show how little ground there is for it, a list of the drugs and medicinal preparations

—chemical and pharmaceutical—of the British Pharmacopœia, that are poisons within the meaning of the Act, has been drawn up and will be found at page 478. Those articles are 120 in number, while the total number of articles included in the Pharmacopœia is 817, so that the sale of only about one-seventh, or less than 15 per cent. of the whole number, is subject to the provisions of the Act. That in itself should be sufficient to show that the alleged chemists' monopoly is imaginary.

But in addition to the evidence thus furnished, consideration of the nature of the articles which are included in Schedule A of the Act, shows still more convincingly that the restriction of their sale to properly qualified persons is not of the nature of monopoly. Only ten drugs are in the schedule, seven of them official, three non-official, and reference to the list at page 478 should convince any sensible person that none of those drugs are of a nature to be indiscriminately saleable in a fancy bazaar, the shop of a grocer, or together with the quack medicines and packed goods which are lawfully the stock-in-trade of a company's drug store.

The thirty official and three non-official chemical preparations, the sale of which is subject to the provisions of the Pharmacy Act, are of a still more deadly and dangerous nature than the scheduled drugs already mentioned. So far, therefore, from the restriction of their sale, to persons properly qualified to deal with them, being a provision entailing privation upon any members of the community—whether poor or rich—it will more probably appear, to sensible persons, that the statutory restriction is to be regarded as a wise and salutary safeguard that should be maintained.

Of the eighty-three pharmaceutical preparations named in the last section of the list there are not more than two or three which are articles in ordinary demand and are used—often very unwisely—as domestic remedies. Very largely on account of such misuse, of those very articles, and from consideration of the fatal consequences that sometimes resulted from their improper use, the Pharmacy Act was passed, to impose restrictions on the sale of those and similar articles, as some means of affording protection to the public against itself. The remaining articles in the list are all of a poisonous and in some instances very deadly nature; they belong especially to the province of the pharmacist; as medicinal preparations they are for the most part fit only to be supplied under directions of a regular medical practitioner in cases for which they are applicable. Certainly not any of them are proper articles of ordinary trade, to be sold in shops or stores where food materials, household commodities, confectionery, etc., are sold.

The sale of the remaining 697 official drugs and medicinal preparations is absolutely free from restriction, though many of those articles are of a very poisonous nature, and the use of them as medicine is often attended with danger. As an instance, carbolic acid may be cited, which has for years past been the cause of more deaths than any other article included in the Poison Schedule. These are facts which prove that the alleged chemists' monopoly of the trade in drugs and medicines is non-existent. They also demonstrate that the Act of 1868 is not in any sense an Act to protect chemists or the practice of Pharmacy; but that it is one entirely for public protection.

ANNOTATIONS.

PUTTING COMPANIES IN THE SAME POSITION—under the Pharmacy Acts—as individuals, is the point on which there is such a wide difference of opinion among chemists and druggists. Some consider—like Mr. Gifford—that a company, being necessarily an unqualified person, should be subject to all the provisions of the Act; while others take the view that companies which have kept open shop for the sale of poisons, etc., in opposition to the manifest intention of the Act, have thereby acquired a vested interest, and must be allowed to continue the practice, under such restrictions as the Lord Chancellor has proposed, viz., employment of qualified persons to conduct their business and the exhibition of those persons' names, as the managers.

MR. GIFFORD'S LOGIC is indisputable—and he is so entirely possessed by the conclusions he has arrived at that he evidently thinks every other body—who is sane or rational—must necessarily agree with him. Those who have come to that state of mind are apt to believe they have attained to perfect infallibility. Such belief begets bigotry and a condition like that of the two knights in the fable, who each saw only one side of the shield over which they disputed. In like manner Mr. Gifford overlooks the very important consideration that for a sound logical conclusion to be accepted, the premisses from which it is deduced must be thoroughly understood and fully appreciated: that they must also be free from improper association of unconnected ideas. That a qualification implies corresponding privilege and that maintenance of the value of qualification, either to its possessor, or for those it is intended to benefit, involves exclusive exercise, by qualified persons, of such privilege as it confers, are propositions which in themselves could scarcely fail to command general acquiescence.

IN THE APPLICATION OF THOSE ALMOST SELF-EVIDENT PROPOSITIONS to the business of a chemist and druggist, as regulated by the Pharmacy Act, persons imperfectly acquainted with the circumstances of the case are, however, apt to be influenced by a discordant idea introduced by the assumption that the privileges—conferred by qualification under the Act—of selling poison or keeping open shop for its sale, partake of the nature of trade monopoly. Then since all trade monopoly is held to be bad and since companies have been held, by the House of Lords' decision, to be outside the operation of the Pharmacy Act, the fallacious conclusion has been arrived at that there is no inherent impropriety in a company doing what no member of it could lawfully do as an individual. That position has some superficial plausibility; but it rests upon the false premiss that qualification under the Act gives a trade monopoly. Even Mr. Jesse Boot and the other promoters of companies, acting in opposition to the intention of the Pharmacy Act, have come to perceive that it is politic to cover their legal nakedness by employing legally qualified persons to conduct the business of selling poisons, though, according to the House of Lords' view that companies are outside the Act, companies are under no obligation to do that.

THE LORD CHANCELLOR—worried by Irish chemists—has gone further than that, and, as a lawyer—perceiving the legal anomaly, "contrary to common sense," of seven unqualified persons being able to do with impunity what no one of them can lawfully do—has proposed to bring companies within the operation of the Act, by subjecting their carrying on the business of chemists and druggists to restrictions, viz., necessity of employing legally qualified persons to conduct the business, conspicuous exhibition of those persons' names and making companies liable to penalties for offences under the Act in the same manner as individuals. That proposition, considered together with the accompanying provision

—that it shall be unlawful for a company to carry on the profession or business of a physician, surgeon, dentist, or midwife—points to the assumption of essential difference between the qualifications for those occupations and the qualification for carrying on the business of a chemist and druggist. Here again comes in the influence of the incoherent idea that the privileges of selling poison and keeping open shop for that purpose, conferred by qualification under the Pharmacy Act, amount to the grant of trade monopoly. Under the misleading influence of that idea the fallacious conclusion is arrived at that legislative regulation of the business of a chemist and druggist is to be carried out on a different line to that appropriate in the case of the other occupations. Here is a striking instance of that "wrong and unnatural" association of "incoherent ideas" which, according to a great thinker, is the source and foundation of the greatest errors in the world, since it "hinders men from seeing and examining" while it "fills their heads with false views and their reasonings with false conclusions."

THE ASSUMED DIFFERENCE of qualification under the Pharmacy Act from the other qualifications is however non-existent. They are all equally qualifications indicating scientific knowledge and technical skill, as well as certifying the possession of those requirements for the performance of certain duties. The common object of all of them is protection of the public interest. Consequently, exclusive exercise by qualified persons of the privileges conferred by any one of those qualifications is essentially necessary for the maintenance of their value in connection with the object for which they are required. The right to use statutory titles denoting the respective qualifications is one of those privileges; but in the case of chemists and druggists no greater reason can be urged for the exclusive exercise of that privilege than for exclusive use of any of the other privileges conferred by qualification. The Lord Chancellor's proposal to authorise a company—which cannot possibly be qualified—to use the titles reserved by the Pharmacy Acts to legally qualified individuals is therefore in itself a most cogent demonstration that his proposed plan of bringing companies within the operation of the Pharmacy Act is a mistaken one. The simple fact to be considered in that respect is that companies of unqualified persons—selling poisons or keeping open shop for that purpose and using titles denoting statutory qualification—are acting in direct opposition to the intention of the Pharmacy Acts, defeating their public object and improperly interfering with the privileges of legally qualified persons. The equally simple remedy would be to make companies liable under the Act, as individuals are, and nothing short of such a legislative provision can satisfy the requirements of the case.

SUCH AN ENACTMENT need not interfere with legally qualified persons, or prevent them from availing themselves of the advantages offered by the law of limited liability. Seven registered chemists and druggists might form a company, if that were desirable, to carry on business, say, as the Birmingham Drug Company of Registered Chemists and Druggists, Limited. Such a company—by reason of the qualification of its shareholders—would not be inconsistent with the object of the Act, would not violate its provisions, or be contrary to its intention, though it could not, as a person, call itself a chemist and druggist. The real and only objection to companies carrying on the business is when that is done by unqualified persons through misapplication of the Companies Acts. Even pharmaceutical chemists might carry on business as a company in the same manner and it is difficult to perceive why seven legally qualified medical practitioners might not carry on their practice, in the same way, as a Medical Aid Company, Limited.

ONE EFFECT OF CLAUSE 2 of the Companies Bill, if it were passed, would be to alter the significance of "keeping open shop" for the sale, etc., of scheduled poisons. Instead of the meaning—un-

doubtedly intended—that the person required to be qualified should be the proprietor of a business; that he should be responsible for the conduct of his business and for the actions of his assistants—whether qualified or not—greater significance would be given to the interpretation of the Pharmacy Act by the House of Lords; the legally-qualified person actually conducting the sale or dispensing of poisons—whether master or servant—would be regarded to a much greater extent as the keeper of a shop for all the purposes of the Act. In the eye of the law the proprietor of a business would be, to a great extent, a person of comparatively little importance so far as the public were concerned. Should that ever come to be the case there would be need for additional means of ensuring due regard for the requirements of public safety that would be specially adapted to such conditions and much more effectual than any now existing. At present it is almost impossible to ascertain whether the requirements of the Act are complied with in shops carried on by companies, or whether the dispensers or sellers of scheduled poisons, in such shops, are qualified.

THAT IDEA OF PLACING COMPANIES under the same legal conditions as individuals is the most mischievous delusion of all. Though some excuse may be made for such a notion being entertained by the Lord Chancellor, its adoption by chemists and druggists is quite inconceivable unless indeed they are hopelessly infatuated by the "Widow's Clause." If, for the sake of obtaining full advantage of that clause, unqualifiable persons, *i.e.*, companies, were placed in the same position as qualified persons, on condition of their employing qualified assistants or managers to conduct their business, necessary qualification of the proprietor of a business—the principle of the Pharmacy Act—would be sacrificed. There would then be no maintainable reason for objecting to any unqualified person carrying on the business of a chemist and druggist on the same condition.

EDUCATION OF THE PUBLIC in regard to all the points above mentioned is urgently needed in order to correct and remove erroneous impressions. Members of Parliament, Government officials, magistrates, medical men and a great majority of the public require to be instructed as to the intention, object and operation of the Pharmacy Act, as a measure having only the object of providing for public safety. As pointed out last October in an article defining "the task to be accomplished" every person registered under the Act, who is represented by a member of Parliament, should exercise his influence in that direction, either individually or in concert with others. Even among his own local colleagues ample opportunity might often be found for awakening in them more reasonable appreciation of the true meaning and intention of the Pharmacy Acts.

THE CARBOLIC ACID QUESTION has again come up for consideration in the House of Commons, Sir John Leng having asked the Secretary of State for the Home Department if he has observed that the Reports of the Registrar-General show that the scheduling of poisons has greatly diminished the number of fatalities from their accidental or suicidal use, but has not interfered with the use of potent poisons, such as arsenic and potassium cyanide, for industrial purposes, while from the Report for 1898, recently issued, it appears that the fatalities from carbolic acid alone number 206, being nearly as many as for the whole of the scheduled poisons. Sir John also asked whether the Council of the Pharmaceutical Society had passed a resolution declaring that carbolic acid in crystals, commercial carbolic acid, and liquids containing more than three per cent. of phenol should be deemed poisons and added to the second part of Schedule A of the Pharmacy Act, and whether, although that resolution was communicated to the Privy Council in July last, it had not yet received

the sanction of that body. In reply, Sir Matthew Ridley said he thought there could be no doubt that the number of deaths caused by carbolic acid is deplorably great, and shows that some remedy is desirable. He was informed that the Pharmaceutical Society had passed a resolution on the subject, but he must explain that the matter was by means a simple one. It is, however, he asserted, now under the active consideration of the departments concerned, in consultation with the Pharmaceutical Society, with good prospects, he hoped, of steps being taken in the direction desired.

AT THE ANNUAL MEETING on May 16, Mr. F. T. P. Wells intends to propose the omission from the pages of the *Pharmaceutical Journal* of everything that a large proportion of our readers consider to be most interesting. The terms of the notice he has sent in will be found in the advertisement columns of the Journal this week, and members of the Society may be able to judge from that what kind of periodical Mr. Wells would like the official organ to be. It is difficult to conceive, however, why he should wish to go back ten years to initiate the change he proposes, nor is it easy to imagine why he should have thought it necessary to emphasise his objection to reports of the Chemists' Defence Association by referring to that body twice in the notice. But, taking the notice as it stands, Mr. Wells apparently desires to destroy the value of the Journal as a means of conveying news and useful information of various kinds to his fellow-members, since he proposes that all such matter should be omitted from our pages and printed in a non-existent supplement. Possibly the whole thing is meant as a joke, though Mr. Wells is not usually regarded as other than a very austere-minded person.

A SPECIAL GENERAL MEETING is to be held at the conclusion of the business of the annual meeting, for the purpose of considering the manner in which the Society's Research Laboratory is conducted, a requisition to that effect, signed by members of the Society, having been received by the Council. The matter to be discussed will be introduced by Mr. E. N. Butt, who has given notice of his intention to propose: (a) That the Research Laboratory of the Pharmaceutical Society of Great Britain be reconstituted and placed under the control of a Special Committee, consisting of the President, the Vice-President (*ex-officio*), and two members of the Council, four Pharmaceutical Chemists not being members of the Council, and the Professors of Chemistry, Botany, and Pharmacy in the School of the Society; (b) That the Research Laboratory be used for the purpose of pharmaceutical investigations and research only, and be placed under the direction of the Professors of Chemistry and of Pharmacy; and (c) That the Special Committee shall have absolute power in selecting the Research workers, the subjects for investigation, and control the publication of the results of their investigations. All such workers should preferably be pharmacists and if necessary may be subsidised.

THE METRIC SYSTEM AND ITS COST is the subject of a recent article quoted by the *British Journal of Photography* from an American magazine, in which it is pointed out that more than twenty years ago it was reported to the Franklin Institute that, according to calculation, in a well-regulated machine-shop, thoroughly prepared for doing miscellaneous work and employing 250 workmen, the cost of a new outfit, adapted to new measures, would not be less than £30,000, or £120 per man. If new weights and measures were to be adopted all the scale beams in the country would have to be regraduated and readjusted, the thousands of tons of brass weights, the myriads of gallon, quart, and pint measures, and every measuring rule and rod of every description throughout the land would have to be thrown aside, and others, which the common mind cannot estimate, substituted. The great mass of English technical literature would become almost useless, and would have to be translated, so far as

weights and measures were concerned, into a new tongue which is strange to most English-speaking people. "To the teacher, to the closet scholar, to the professional man, to those who never handled a rule or a measure, but use weights and measures only in calculation, it may seem merely a matter of legal enactment; but to the worker, the dealers in the market-places, to those who produce the wealth and prosperity of the land, the question is a most serious one. Altogether, the ultimate benefits of the change proposed would be of less value than the damages during the transition. Those who choose to do so can use the metric system, and no one can object to it; but for the Government to require its people to use that, and no other, would be an arbitrary measure, which they would be neither willing nor able to bear."

A GUIDE TO THE DRUG TRADE, supposed to be contributed by a chemist, appears in the supplement to the *Grocer* for April 28. The writer suggests that, "within certain limits," a tradesman should allow his customers to decide what class of articles he shall sell them, but he advises the grocer to leave the drug business alone where possible. Continuing, he says: "If he touches it at all there are two ways of taking it up. He may take out a patent medicine licence and sell proprietary medicines and a few packed drugs, or he may go the whole hog—in other words, open up a drug department." The village grocer who has no chemist neighbour is told that he may be consulting his own interests and meeting a public want in adopting the first-mentioned course, and, as he is not likely to have to meet keen competition, he is promised an all-round profit of 20 per cent. on the medicinal articles he sells. But he is warned of possible troubles which may arise if the Pharmacy Act be infringed, and that his difficulties under the Sale of Food and Drugs Acts, Merchandise Marks Acts, and Excise laws will increase tenfold. The "cutting" of prices is not recommended, as it no longer "draws." Moreover, "If the grocer happens to be in a district where there is no cutting, and starts it, he will find that he will be immediately followed by some one or more of his neighbouring chemists, and, beyond being a game two can play at, the grocer will find that it is a game the other fellow has much better facilities for playing than he has."

A PROPERLY EQUIPPED DRUG DEPARTMENT, the grocer is informed by the candid chemist, is a very different thing to run, particularly if poisons are to be dispensed and sold. "In order to evade the law it is necessary for the grocer to become 'a limited company,' and, whether or not he is ethically justified in seeking to evade the law, he must consider beforehand whether or not it is worth his while to convert himself into such a company. "Taking it for granted that he has decided to do so, the company will find it necessary to employ a qualified chemist as salesman—not necessarily manager—for its drug department. The 'company' is under no legal obligation to do this, as companies are outside the Pharmacy Act, but any of its unqualified assistants who sell poisons may be prosecuted for the recovery of penalties at the rate of £5 a time." The strange anomaly is commented on, that an errand-boy may, without breaking the law, dispense a bottle of medicine containing strychnine or any other virulent poison, but the man who hands the medicine over the counter and takes the cash for it—that is, sells it—must be a qualified chemist. The fact is insisted upon, however, that it is selling, not dispensing, which constitutes the offence. In order that the law should be properly fulfilled it is recommended by this candid chemist that more than one qualified assistant should be employed, as one man cannot be in attendance at all times. "Of course, where only one qualified man is engaged poisons can be refused in his absence—an alternative which is anything but satisfactory." At the same time, it is remarked, since a qualified chemist can command a salary of £150 per annum outdoors, and his market value is increasing yearly, the drug department will be an expensive one to run. "It will be a department where more risks will

be run of breaking the excise, adulteration, and other laws than any other. The provisions for labelling and registering the sales of certain poisons will have to be carefully carried out, and within the last year or two stringent regulations for the storing and selling of poisons have come into force." In more ways than one, therefore, it is thought that the drug department is likely to prove to the grocer more a source of worry than of profit.

THE IDEA OF AN INTERNATIONAL PHARMACOPŒIA is not likely to be realised for some time to come, but the useful suggestion comes from Canada that some arrangement might be made to secure agreement between the standards of the British and United States Pharmacopœias. As the *Canadian Pharmaceutical Journal* points out, many similar preparations official in the two Pharmacopœias differ considerably, and an element of danger is thus introduced when persons travelling from Canada to the United States, or *vice-versâ*, carry with them prescriptions which they may require to have dispensed. "Accustomed in one country to have preparations of a certain strength, they find in the other that they are either very much stronger or weaker than those which they are accustomed to use at home." Thus, the strength of tincture of aconite, B.P., is 1 in 20, whilst that of the U.S.P. preparation is 1 in 2.75, and in the case of other potent preparations there are differences almost as great. Thus, considerable variation exists in the respective tinctures of belladonna, cannabis indica, cantharides, cimicifuga, colchicum, digitalis, gelsemium, hydrastis, hyoscyamus, opium and strophanthus, as well as in the case of certain potent extracts. The difficulty does not appeal to British pharmacists so forcibly as to their Canadian cousins, but it does not appear unreasonable to ask that, so far as regards the strength of potent drugs and preparations at least, the pharmacopœias of the English-speaking peoples should fall into line.

ELECTRIC LIGHT WIRES, according to Mr. A. A. C. Swinton, who writes to *Nature* on the subject, collect much more dust when the switch is in the negative conductor than when it is in the positive one. He therefore attributes the collection of dust upon electric light wires and fittings to electrostatic attraction rather than to air currents due to thermal causes, as in the case of hot water pipes. The negative conductor of a street supply tends always to earth itself, whereas the positive may be nearly 200 volts above the potential of the earth. When the switches are on all the wires are under similar conditions, but when they are off the conditions differ greatly, wires which have the switch in the negative being nearly at 200 volts potential above the earth, and it is then that the accumulation of dust appears to take place. In the case of electric light cords under the same conditions, except that some had the switch in the negative and the rest in the positive conductor, the latter remained practically clean after a few months' use, whilst the others gathered dust to an extraordinary degree.

THE JOURNAL ACCOUNT for the past year compares very favourably with that for the previous twelve months, the net cost to the members of their official organ for 1899 being £1,675 19s. 7d., as against £2,252 3s. 10d. for 1898, *i.e.*, a saving of £576 4s. 3d. on the year's working, or, including the postage, of £499 12s. 10d. That result is the more satisfactory because the number of subscribers to the Society, to all of whom the Journal is sent week by week, was 6,410 last year, as against 5,402 the year before. A large number of copies are also sent every week to honorary and corresponding members, learned societies, etc., but the net cost of the Journal for the past year to each subscriber to the Society was less than eight shillings, including postage. For the year 1898 the net cost per head was eleven shillings and fourpence, or nearly forty-two per cent. more than last year. It is not always advisable to prophesy, but it is safe to say that the financial position for the current year will be quite as good as last year's, and the probability is that it will be much better.

POLITICAL GOSSIP.

SIR JOHN LENG, as befits a man of enterprise, does not readily acquiesce in the cult of *festina lente*, as practised in Departments of the State. Hence his interrogation of the Home Secretary on Monday concerning the delay in scheduling carbolic acid as a poison. The reply is printed at page 470 of the present issue, and is of a satisfactory nature, since it indicates a desire on the part of the Government to deal with the indiscriminate distribution of this dangerous substance by making use of the restrictive machinery provided by the Pharmacy Act, 1868. Sir John has obviously been inspired by a registered person who imagined the Pharmaceutical Council had gone to sleep on the question, and Sir Matthew Ridley's answer is very valuable in revealing the fact that the Council is quietly doing its duty, and is quite in touch with the Privy Council and the Board of Agriculture. So far one may thank Sir John Leng, and entertain a feeling of modified gratitude for his pharmaceutical prompter, but there is a depressing aftermath of reflection that the affairs of pharmacy cannot be in a way to flourish to any appreciable extent whilst evidences of a lack of confidence in the Council crop up from time to time. In Parliamentary matters, at any rate, chemists have everything to lose and nothing to gain by dissociating themselves from their executive body. As the Home Secretary said, the task of settling the carbolic acid question is by no means simple, and the majority of registered persons do not realise, and cannot be expected to realise, the difficulties which those at the head of affairs are called upon to surmount.

THE REGISTRATION OF FIRMS BILL, after many vicissitudes, secured a second reading on Wednesday afternoon. To briefly recapitulate, the objects of the measure are to secure the systematic registration of the names and addresses of persons in business who do not trade under their own names, and also to provide for a cheap and ready means of inspecting the Register so formed. As a means of promoting commercial honesty and of discouraging the Fregoli-like permutations of shadowy adventurers, there is nothing like a judicious application of publicity, and that is just what Mr. Emmott's Bill provides. It might almost be called a measure for enabling traders to give credit safely. There appeared to be no opposition to the Bill, and it received even the blessing of the President of the Board of Trade, but that Minister impressed upon the House the necessity for examining closely the possible effects of the proposed registration, and talked so effectively about temporary ventures, the law of partnership, goodwill, and the cost of working the Register, that the Bill was eventually referred to a Select Committee instead of going to Grand Committee in the ordinary way. The member in charge of the Bill (Mr. Emmott) agreed—he could hardly do otherwise—but he expressed the hope that the proceedings of the Committee might be expedited so that a reasonable chance of passing the Bill this Session could be afforded. We share that hope, but, knowing the ways of Select Committees, are not sanguine.

IN CONNECTION with this Bill, it is interesting to note that the Vice-President wired to Mr. Emmott on Wednesday, to the effect that the Pharmaceutical Society, which was charged with statutory duties in the interests of public safety, desired to express the opinion that, apart from its commercial value, the Registration Bill would facilitate the administration of the Pharmacy Act and similar salutary statutes. That action will no doubt commend itself to a good many pharmacists throughout Great Britain.

THE COMPANIES BILL is not yet in sight of its second reading. Last Thursday week it was on the paper for the consideration of the re-assembled House, and was put down again on the following Monday, only to be postponed till May 7. Mr. Swift MacNeill evidently means to take a prominent part in the debate when it arrives, and meantime he is preparing himself for action by inter-

rogating Mr. Balfour on the subject of company directors who are also members of the Cabinet. As we go to press the ubiquitous member for South Donegal is due to point out that eleven members of the present Cabinet hold seventeen directorships, and that fifteen other Ministers hold twenty-five directorships among them. He will ask whether this is quite the proper thing, seeing that some of the companies thus represented are or might be carrying out Government contracts. Other signs of activity have been afforded by Mr. Kimber, who has tabled a notice opposing Clause 27 of the Companies Bill and has held an influential meeting in the House to further his views, and also by a petition from Birmingham for alteration of some of the clauses. Mr. Faithfull Begg's Companies Acts Amendment Bill is still opposed, and though it stood for hearing on Wednesday, it could not be taken.

PHARMACEUTICAL SOCIETY.

"FIRST" EXAMINATION RESULTS.

A meeting of the Board of Examiners for England and Wales was held on Tuesday, May 1.

The report of the College of Preceptors on the examination held on April 10, was received. 705 candidates had presented themselves for examination, of whom 371 had failed.

The following 334 passed, and the Registrar was authorised to place their names upon the Register of Apprentices or Students:—

Aitken, Arthur Campbell; Edinburgh	Cope, Arthur Geo.; Congleton
Amundsen, John I.; Sunderland	Coulthard, George; Dumfries
Andrews, Arthur; Billingham	Couper, John McD.; Edinburgh
Ashforth, Frank P.; Whitley Bay	Couper, Robt. Jno. A.; Glasgow
Ashworth, Wilfred; Blackpool	Cowie, Alexander; Buckie
Atkinson, Wm. A.; Grimsby	Cresswell, Hy. Edwin; London
Badgett, Thomas John; London	Crisp, Edward; Cambridge
Bagshaw, Harold; Oldham	Crompton, Alexr.; Ashton-under-Lyne
Baker, E. H. T.; Newcastle-on-Tyne	Daniel, Edwd. Walter; Swindon
Baker, Henry; Didsbury	Davies, Francis W.; Carmarthen
Balch, Stanley S.; Chippenham	Davies, Wm. J.; Ton Pentre
Barnaby, Charles Hy.; Nottingham	Davison, Wm. Edwd.; Morpeth
Barr, Geo. Hamilton; Greenock	Dean, Arthur A.; Warwick
Barrett, William; Torquay	Deeth, George; Kirkcaldy
Bedell, Margaret I.; Sandgate	de Faye, Geo. K.; Jersey
Beilby, Cyril; Nottingham	Dewhurst, Joseph; Preston
Bell, Matthew Wm.; Stockton-on-Tees	Dickinson, David T.; Chester
Bell, Sydney; Brigg	Dickson, Robert; Glasgow
Betts, Frank E. J.; Herne Bay	Doel, Geo. Tilling; High Wycombe
Beveridge, Alexr.; Kinross	Dwyer, Ernest; York
Binnall, Alfred A. B.; Tunstall	Dyson, Joseph; Ashton-under-Lyne
Blair, John; Millom	Edgar, Duncan, J.; Lenzie
Blenkinship, Francis T.; Appleby	Edis, Sarah W.; Liverpool
Blunt, Thomas Saml.; Coventry	Elson, Thos. Geo.; Tiverton
Bodley, Wm. Geo. Price; Simpson	English, Geo.; Huddersfield
Bolus, Gerald; Derby	Entwisle, Herbert A.; Wakefield
Boon, Francis Wm.; Fenny Stratford	Ethierington, Leonard; Royton
Brander, Bruce M.; Banff	Evans, Arthur; Wrexham
Brennan, Dorothea W.; Derby	Evans, Percy; Carnarvon
Brooks, Frank; Salisbury	Evans, Robt. A.; Denbigh
Brooks, Thomas; Sheffield	Evetts, Ellen E.; Birmingham
Brown, Richd. R.; Padiham	Ferguson, Peter B.; Port Bannatyre
Brown, Thos. McM.; Dumfries	Field, Ernest H.; Cambridge
Brown, Wm. Wilson; Buckpool	Finlayson, James; Alness
Brown, Winifred M.; Langley	Fordyce; Effie Ker; Edinburgh
Browning, A. W. B.; New Brompton	Fox, Chas. Wm. N.; Woodford Green
Bull, Edwd. Regd.; Newport Pagnell	Francis, Wm. D. C.; Llanelli
Burt, May; Croydon	Froggatt, Ernest S.; Buxton
Byers, Robert; Felling-on-Tyne	Fyfe, Hugh McG. F.; Glasgow
Byth, John; Aberdeen	Fyfe, Peter G.; Aberdeen
Callen, John; Partick	Gadsby, James; Nottingham
Campbell, Flora; Birmingham	Galbraith, Thos. H.; Glasgow
Camplin, Harold R.; Southampton	Gardner, Albert E.; Lancaster
Cartledge, Percy C.; Newark-on-Trent	Garner, John W.; Horncastle
Cashmore, Frank Guy; Warwick	Gelling, Edwd. C.; Douglas, I.M.
Caulton, John S.; Marehay	Gibbons, Charles; Liscard
Chandler, Francis Le C.; Pendleton	Gilliatt, Alice; Boston
Chapman, Charles N.; Grimsby	Glass, Henry D.; Edinburgh
Chapman, James E.; Brumby	Glenny, Sophia G.; London
Chase, Annie Selina; Birmingham	Gordon, Wm. A.; Aberdeen
Cheesman, Clifford G.; Bridlington	Gower, John; Burry Port
Cheshire, John; Grantham	Grange, Hy.; Northwood
Chipp, James; London	Grant, Alfred E.; Frome
Clark, Alexander; Fraserburgh	Gray, James O. W.; Strichen
Clark, Daniel; Glasgow	Gregg, Wm. Hy.; Barnoldswick
Clark, Wm. Davie; Portsoy	Gregory, Brooke Wm.; Kings Lynn
Clarke, Frank E. S.; Windsor	Gunn, John; Duns
Clarkson, Ellen Lucy; Putney	Hague, Harry P.; Birmingham
Cochrane, James A.; Leith	Hall, Thos. Hy.; Bath
Cockeram, Arthur H.; West Malvern	Halley, James; Kirkcaldy
Cockroft, Mildred C.; Manchester	Hamblin, Walter J.; Trowbridge
Coe, Percival H.; Buxton	Hambling, Annie B.; Eltham
Cooper, Sydney H.; Birmingham	Hamer, Thomas; Heywood

Harden, Ernest C.; Newton Abbot
 Hardingham, Arthur F.; London
 Hardwicke, Eva E.; Bury St. Edmunds
 Hartley, Tom H.; Burnley
 Haughton, Cyril F.; Blackburn
 Haworth, Dionysius; Burnley
 Hay, James Jno. G.; Lerwick
 Hayes, Percy W.; Preston
 Henderson, Christina McL.; Montrose
 Henshaw, John L.; Alsager
 Herville, Douglas; Parkstone
 Hill, Albert F.; London
 Hobson, Joseph J.; Blackburn
 Hedkinson, R. G.; Newton-le-Willows
 Holmes, Ernest S.; Hull
 Holmes, Richd. A.; Maryport
 Homer, Katherine M.; London
 Hughes, Charles L.; Bristol
 Humpherys, S. E.; South Norwood
 Hunter, James G.; Maxwelltown
 Innes, Alexr.; Musselburgh
 Ismay, Stanley; Newcastle-on-Tyne
 Jacques, Percy; Blackley
 Jepson, Evelyn Mary; Durham
 Jones, David G.; Blaenau Festiniog
 Jones, Hugh O.; Landrindod Wells
 Jones, Thos. E.; Penmaenmawr
 Jones, Wm. Jno.; Carnarvon
 Kearsley, Jonathan O.; London
 Kelsey, Wm.; Coleshill
 Kemp, Harry; Stafford
 Kemp, Joseph A.; Glasgow
 Kennedy, Alexr. T.; Edinburgh
 Kenney, James P.; Greenock
 Kibble, Caroline B.; London
 Kimbell, Dorothy A.; London
 King, Thos. E.; Perth
 King, Thos. Wm.; Fordingbridge
 Kneale, Arthur M.; Douglas, I.M.
 Laing, Pat R. G.; Port Gordon
 Lee, Ernest B.; Darlington
 Lee, William; Nottingham
 Leeming, Alfred John; Durham
 Lewis, Llewellyn U.; Pyle
 Lewis, Susan F.; London
 Lindsay, Mary H.; Sunderland
 Llewellyn, Alfred E.; Codnor Park
 Lochhead, Gavin W.; Brighton
 Logan, John; Beith
 Loxley, Fredk. L. K.; Oxford
 Luck, Edmund J.; Margate
 Lyall, Lucy Kate; Wellington, Som.
 Lyne, Wm. F.; Newton Abbot
 MacBeih, Hugh A.; Glasgow
 McDonald, Angus; Birkenhead
 McDowell, Henry; Leeds
 McFall, Sydney; Alford
 Macfarlane, Meta; Blackford
 McGregor, Charles S.; Glasgow
 MacGregor, Donald; Stirling
 MacGregor, Jessie B.; Charleston
 Mackay, John W.; Glasgow
 MacLeod, David; Partick
 McPhail, Dugald A. W.; Glasgow
 McPhee, Wm. Hy.; Dumfries
 Macrae, Roderick; Dingwall
 Main, Wm.; Forres
 Maine, Hy. W.; Halifax
 Manuel, James; Linlithgow
 Markham, Wm. E.; Doncaster
 Marriott, Charles E.; Heckmondwike
 Martin, Wm. H.; Eastbourne
 Massey, Wm.; Northwich
 Meek, Wm.; Linlithgow
 Metcalfe, Wm. B. W.; Harrogate
 Mildred, Hilda G.; London
 Miller, Frank C.; Waddon
 Milne, Lionel A.; Peterhead
 Mitchell, Robt. L.; Glasgow
 Moffatt, Irving P.; Camborne
 Montefore, Charles; Windsor
 Morris, Richd.; Blaenau Festiniog
 Morrison, Albert G. F.; Insch
 Morrison, John; Stenhousemuir
 Moss, Harry P.; Pendleton
 Mousley, Harold T.; Exeter
 Muston, Samuel H.; Brighton
 Newill, Ethel C.; Birmingham
 Nichol, Thomas B.; St. Boswells
 Nichols, Edgar R.; Middlesborough
 Nichols, Emily G.; Lewisham
 Nicholson, John T.; Penrith
 Nicol, Wm.; Glasgow
 Oldham, Arthur N.; Towcester
 Page, Edgar; Hertford
 Parker, Richd. W.; Hoylake
 Garry, Daniel H.; Blaenau Festiniog
 Pattison, Wm.; Aberdeen
 Payne, Alice E. A.; Hitchin
 Peach, Charles W.; Oadby
 Peacock, Wm. J.; Edinburgh
 Peacock, Wm. L.; London
 Pearson, Joseph; Stanley
 Penfold, Fred; Benwell

Penn, John W.; Nottingham
 Phillips, James G.; Glasgow
 Philpot, Philip H.; Walsall
 Pickering, Thos.; Oldham
 Pickett, Thos. W. H.; Oxford
 Pocock, Arthur W.; Newbury
 Podmore, James W.; Hull
 Pratt, Arthur; Woodstock
 Pridham, Dorothea C.; Plymouth
 Quaas, Gustav M.; Glossop
 Rayner, Wm.; Uxbridge
 Reid, Wm. B.; Buckie
 Reid, Wm. F.; Carlisle
 Richards, Grace I.; London
 Riches, Walter J.; London
 Roberts, Frank; Cupar, Fife
 Robinson, Alfred; Durham
 Robinson, Walter L.; Manchester
 Rogers, Hy. J.; Christchurch
 Rowlands, Robert A.; Bardney
 Rufflead, Harold E.; Olney
 Russell, Robert F.; Govan
 Salt, Bruce; Buxton
 Sampson, Howard A. C.; Barnet
 Sanderson, Joseph R.; Whitley Bay
 Savage, Edwd. J.; Southampton
 Savage, Wm. Jones; Caergwle
 Sawyer, Hubert B.; Folkestone
 Shee, John F.; Liverpool
 Shelton, Bernard T. R.; Bristol
 Sherren, Algernon B.; Epsom
 Silver, Robert D.; Brechin
 Simpson, James; Keith
 Simpson, Wm.; Kirkcaldy
 Sinclair, Jas. S.; Strichen
 Smith, Fredk. Jno.; Liverpool
 Smith, James; Glasgow
 Smith, Sydney D.; Glasgow
 Smith, Ralph P.; Bootle
 Snow, Wm. G.; Birkenhead
 Southern, Matthew; Nottingham
 Spence, Geo. L. S.; Aberdeen
 Spencer, Robinson; Manchester
 Stafford, James; Hull
 Stazicker, Thomas; Preston
 Stevenson, Robt. Love; Glasgow
 Stewart, John; Alva
 Sutcliffe, Robt. V.; Halifax
 Sutherland, Fredk.; South Shields
 Swan, Andrew; Dabeattie
 Tannahill, Alexr.; Paisley
 Taylor, Evelyn B. C.; Sandgate
 Teale, Wilfred W.; York
 Tebbit, Wm. H.; Cambridge
 Thain, James; Buckpool
 Thomas, Edwin; Bury
 Thomas, Thos. G.; Carmarthen
 Thompson, Ernest H.; Birmingham
 Thompson, Etheldreda; Rhyl
 Thomson, Geo.; Keith
 Thursby, Arthur E.; Stamford
 Tickell, Regd. T. S.; Bodmin
 Tilsley, Ethel M.; London
 Tomlin, Edwd. G.; Brighton
 Tout, Wm.; Broadclyst
 Trafford, Frank; Leek
 Turner, Gledstone; Keighley
 Turner, Jno H.; Lowestoft
 Turner, John McK.; Greenock
 Turton, Winifred C.; Lymington
 Tyler, Albert T.; Brighton
 Upham, Harold; Brixham
 Uttley, Walter; Manchester
 Vincent, Ernest; Elgin
 Wade, Hy. Q.; Douglas, I.M.
 Wainwright, Frank; Marchington
 Wales, Harry; Hemsworth
 Walker, Margaret K.; Glasgow
 Walker, Robt.; Manchester
 Walker, Wm.; Edinburgh
 Walklett, Jno. C.; Oxford
 Walliss, Allan; Hull
 Warren, Margaret G.; Catford
 Waterhouse, Harry; Dewsbury
 Watson, Lundie; St. Andrews
 Webb, Stanley; Luton
 Weir, James R.; Attleborough
 Westbrook, Fred. A.; Elsecar
 White, Chas. Hy.; Harrogate
 White Cyril; Cuckfield
 Whitley, James B.; Warrington
 Whyte, James S.; Galashiels
 Widgery, Alfred E.; Tamworth
 Wiles, Gordon G.; Cambridge
 Wilkie, Robt. M.; Dundee
 Will, Chas. A.; Fraserburgh
 Williams, Morgan Wynne; London
 Williams, Walter D.; Penarth
 Wilson, James; Carlisle
 Wood, Alexr. B.; Brentford
 Wrigley, Alfred W.; Norwich
 Yates, Fred; Horwich
 Yates, John; Blackburn
 Young, Chrstr. H.; Tayport

Certificates by approved examining bodies were received from the undermentioned in lieu of the Society's Examination:—

Dixon, Charles Herbert; London
 Gardner, William Temple; Bournemouth
 Hooper, Elsie Seville; London
 Weston, William K. S.; Exmouth

The questions set at the First Examination were published in the *Pharmaceutical Journal* for April 14, p. 396.

The following is a list of the centres at which the examination was held, showing the number of candidates at each centre, and the result:—

	Candidates.				Candidates.		
	Examined.	Passed.	Failed.		Examined.	Passed.	Failed.
Aberdeen.....	36	20	16	Lancaster	9	4	5
Birmingham	30	15	15	Leeds	27	10	17
Brighton	12	6	6	Lincoln.....	14	4	10
Bristol	10	6	4	Liverpool.....	44	20	24
Cambridge	9	7	2	London.....	92	38	54
Canterbury	7	4	3	Manchester	59	31	28
Cardiff	15	5	10	Newcastle-on-Tyne	29	14	15
Carlisle.....	17	9	8	Northampton	5	3	2
Carmarthen	8	2	6	Norwich	8	3	5
Carnarvon	8	5	3	Nottingham.....	28	15	13
Cheltenham	3	1	2	Oxford	11	6	5
Darlington	11	3	8	Penzance	2	1	1
Dundee.....	18	7	11	Peterborough.....	5	1	4
Edinburgh	39	19	20	Plymouth.....	11	3	8
Exeter	14	6	8	Sheffield	11	3	8
Glasgow	57	33	24	Shrewsbury.....	4	4	0
Hull	18	11	7	Southampton	17	9	8
Inverness.....	9	4	5	York	8	2	6

NORTH BRITISH BRANCH.

A meeting of the Executive of the North British Branch of the Pharmaceutical Society of Great Britain was held in the Society's House, 36, York Place, Edinburgh, on Friday, the 27th inst., at 11.30 a.m., Mr. PETER BOA in the chair.

Present: Messrs. Ayre, Boa, Bowman, Cowie, Currie, Fisher, Gilmour, Henry Johnston, Kerr, McLaren, Mitchell, Russell, Storrar, Strachan, and Tocher.

The CHAIRMAN referred to the loss sustained by the Executive in the death of one of their number, Mr. Burley, in March. It being so near the end of the Executive's year of office, no steps had been taken to fill the vacancy. He also referred to the deaths of Sir Douglas McLagan, Mr. Daniel Frazer, and Mr. James Watt. He proposed that they record an expression of regret in their minutes. This was seconded by Mr. JOHNSTON and unanimously agreed to; as was also a proposal that an excerpt be sent to Mrs. Burley.

The report of the General Purposes Committee dealing with some repairs and payment of accounts was read and adopted.

The Executive then went into committee to consider the Annual Report to the Council, which was adopted and ordered to be forwarded to the Council, on the motion of Mr. KERR, seconded by Mr. RUSSELL. It was also resolved to reserve for consideration a suggestion by Mr. Gilmour that one of the sessional scientific meetings might be held in the forenoon, when country members could attend.

It was moved by Mr. BOWMAN, and seconded by Mr. McLAREN:—

That the next election of Executive take place on Friday, June 22, 1900, and that the Chairman and Vice-Chairman act as Scrutineers of the voting papers, with power to add to their number.

Mr. CURRIE moved that the election take place on June 15, 1900. This was not seconded, and the first motion was agreed to.

Mr. COWIE moved:—

That a second teaching examiner in chemistry should be elected on the Board of Examiners for Scotland.

He made this motion on principle and without any reference to individuals. Teaching examiners being always engaged in the

special work of the examination were in a much better position to do the work than any person engaged daily in another occupation. He had been told that day that teaching examiners would examine candidates in glass-blowing, but they need have no fear that they would be competent to examine according to the syllabus. No matter how great the ability of an ordinary pharmacist might be they were at a great disadvantage, for it could not be expected that they would keep themselves abreast of all the advances in chemical science. All admitted that the appointment of teaching examiners had been a great advantage. But having a teaching examiner and a pharmacist both examining in chemistry made the position such that candidates were apt to be examined in two different ways. Candidates declared that this was so, and that they much preferred to be examined by a teaching examiner even though they failed. Mr. Carteighe had recently said, it was alleged, that teaching examiners were harder on students; but that was the very opposite of the fact. He agreed with that, and thought teaching examiners were easier with candidates. They had two teaching examiners in London, and he thought they ought to have the same in Edinburgh. He only wanted this to hold in regard to chemistry. In the case of materia medica and pharmacy they could only have ordinary pharmacists. In botany the examination was carried through satisfactorily by one teaching examiner. He emphasised the point that there were two teaching examiners in chemistry in London and only one in Edinburgh, and hence there must be a difference in the examination in Scotland. If this proposal were carried out it would be of benefit to the Society as well as to the candidates.

Mr. RUSSELL in seconding the motion, said he did so on principle with a view to securing uniformity in examination. Chemistry and botany being scientific subjects, a teacher was a better examiner than a chemist engaged in business. He made no reflection on any pharmaceutical examiner, but rather the contrary. It was highly creditable to any ordinary pharmacist if he could come anything near the standard of a teaching examiner. As to the teaching examiner being harder than the pharmaceutical examiner opinion was quite the other way. Students preferred a teaching examiner and complained especially of the examination in organic chemistry. He desired to see uniformity in the examination, and he thought they were called upon to give heed to the feeling among students that there is a difference in the examination as it is at present conducted.

Mr. FISHER moved :—

That the existing arrangement for appointment of examiners in chemistry be retained.

He did not think any adequate reason had been given for the proposed change. They should not extend the plan of teaching examiners, else they would remove the inducement which prompted men to take the higher pharmaceutical qualification in anticipation of filling the office of an examiner some day. He did not think teaching examiners were easier, and the examinations were being made so stiff that it was almost impossible to get apprentices. If they went in the direction of the motion they would not get young men to enter the profession at all.

Mr. KERR seconded the amendment, and said he agreed with what Mr. Fisher said.

Mr. CURRIE said this was a matter of great importance, and he favoured the motion of Mr. Cowie. In doing so, he made no reflection on any examiner. There was no fear of taking away the inducements mentioned by Mr. Fisher for passing the Major. He would not say a teaching examiner was easier, but he had a broader grasp of the subject, and could thus better test a student's knowledge. He hardly thought it possible for a pharmacist engaged in business to keep ahead of chemical knowledge. They heard on every occasion that students complained of a difference in the two examinations. Of course, it did not do to attach too much

importance to what candidates said. He thought it would improve matters if two teaching examiners were appointed.

Mr. GILMOUR said he would have liked to support Mr. Cowie but he thought they could not do much in that direction till they had a compulsory curriculum. Mr. Cowie rather gave away his case by saying he was content with non-teaching examiners in other departments. A pharmaceutical chemist ought to be competent to examine in chemistry. It was all very well to have the University side of chemistry in the examination, but they were training men to dispense, and must not miss altogether the pharmaceutical side. The teaching examiner alongside of a pharmaceutical examiner, was, he thought, the proper plan in the present position of matters. It was better and safer to have both sides. They in the country had experiences of incompatible prescriptions written by graduates who had only got the scientific side. He supported the amendment.

Mr. BOWMAN said he could have supported Mr. Cowie if he had said "scientific" instead of "teaching" examiner, but he could not support the motion as it stood because it excluded pharmaceutical chemists.

Mr. HENRY said he could not support Mr. Cowie's motion. The subject should be looked at in a wider light. He had every sympathy with students. On this question, however, their opinions should not affect the decision. Students had likes and dislikes, and a "cranky" teaching examiner might be appointed, and at once there would be a demand for a pharmaceutical examiner. He was glad to hear the present teaching examiners were appreciated by the students. He was averse to the control of the examinations passing out of the hands of the Society, and this policy might have that result, as it might be said a certificate from these examiners would be enough. Too much of the teaching element might make the questions more scientific and technical than was required. The examination was intended to test a man's capacity to conduct the business of a chemist and druggist. They were not training iron smelters, gas engineers, or glass manufacturers. He thought pharmaceutical chemistry should not be lost sight of, and therefore he thought a pharmaceutical examiner in chemistry was necessary.

Mr. MITCHELL said he thought they could easily get pharmacists in England who could examine in chemistry, and some Scotch pharmacists should also be elected on the London Board. The present unsatisfactory state of things were due to mushroom schools where no chemistry is really taught. Any pharmacist who had had a proper training and a regular course of chemistry, such as a Bell or Manchester scholar, would make an efficient examiner in chemistry.

Mr. TOCHER said, until the institution of a compulsory curriculum they must stick to the present plan.

The CHAIRMAN said he might be allowed to say that to hand over chemistry entirely to outside examiners would remove that pharmaceutical element which maintained a certain amount of sympathy, and that was undesirable. It prevented the examination getting into a rut to have a teacher and an ordinary pharmacist associated in the chemical work of the examination. The obvious reply to the reference to there being two teaching chemistry examiners in London was that the board there was twice the size of the Scotch board. Candidates' preferences had to be regarded with a certain amount of caution. Both teaching and pharmaceutical examiners kept strictly by the syllabus. Several pharmacists were engaged in teaching candidates for examination, and he thought a pharmacist was as competent to examine in as he was to teach chemistry.

Mr. COWIE having replied, a vote was taken, when twelve voted for the amendment, and three for the motion.

The amendment was therefore declared carried.

CHEMISTS' ASSISTANTS' ASSOCIATION.

On Thursday, April 26, a meeting of this Association was held at 73, Newman Street, London, W., the PRESIDENT, Mr. F. W. Gamble, in the chair. There was a larger attendance than usual, the attraction being a paper by Professor H. G. GREENISH, F.I.C., F.L.S., Professor of Materia Medica and Pharmacy to the Pharmaceutical Society of Great Britain, which will be published in full in an early issue of the Journal. The subject was—

PHARMACOGNOSY—SCIENTIFIC AND APPLIED.

In introducing the subject, Professor GREENISH stated that a short time ago a well-known lecturer on pharmacology, finding it necessary to distinguish between pharmacology and pharmacognosy, defined the latter thus:—

By pharmacognosy we mean the recognition of drugs by their physical and chemical characters with the detection of adulteration. It means practically the same thing as "spotting specimens," an expression in common use among students.

That definition exhibited such an ignorance of what pharmacognosy really is, that, believing a similar impression of the nature of pharmacognosy to be by no means unusual, he sketched an outline of a paper on the subject which, unfortunately, had to be set aside to make room for other more pressing duties. About the same time, and a little later, several addresses and papers bearing on the subject were published, mostly in German works and journals. The present occasion having afforded him an opportunity of taking up his deferred sketch, he had incorporated some of the observations of other writers and now offered it as an expression of his views on the subject. He then quoted Professor Flückiger's definition of pharmacognosy as:—

The simultaneous application of various scientific disciplines with the object of acquiring a knowledge of drugs from every point of view.

He thought that definition might be accepted as correct and proceeded to deal with the scientific disciplines necessary to aid the pharmacognosist in acquiring a complete knowledge of drugs, arranging the requisite steps in the order of their importance, and considering each step from a scientific as well as from a practical point of view, in order to make clear what knowledge it is desirable to acquire and how that knowledge can be made useful in the daily life of the pharmacist or druggist. He dealt first with the examination of drugs, as being of primary importance, because without careful examination it is impossible to become familiar with a drug so as to describe it properly and thus render the labour of the pharmacognosist useful to others. Not only must the macroscopical characters of the drug be carefully ascertained, but the minute structure must also be investigated by means of the microscope, the classical researches of Schleiden, Berg, Vogl, Tschirch, and others being mentioned, as showing how much is to be learnt in that way. After dealing with the scientific investigation of the drug, Professor Greenish went on to show that a knowledge of the anatomy of drugs is necessary from a practical as well as from a scientific point of view, as being the only definite means of identifying powdered drugs and foodstuffs and of ascertaining their purity. He then referred to the method of description so that a worker's results may be available to others, and went on to discuss the investigation of drugs with a view of isolating their chemical constituents. The botanical source of drugs was next considered as contributing to a complete knowledge of a drug and also as affording an indestructible criterion to which reference can always be made when the question of identity is raised. The geographical source was also considered, the difficulties of ascertaining the true geographical source being pointed out. The production and preparation of drugs and the many commercial varieties and methods of cultivation then came under consideration; also the history of drugs. In concluding his paper, Professor Greenish said it was the duty of the pharmacist to remember that of all persons he alone is qualified from the outset to deal with the problems of scientific and applied pharmacognosy.

His scientific training in chemistry, botany, and pharmacognosy, and the technical training that is coupled with the daily handling of drugs, fits him as no other is fitted to undertake such work. Neither the chemist nor the botanist is a competent expert in pharmacognosy. The field is the pharmacist's; chemistry, botany, geography, and all the sciences and disciplines serving as means to enable him to cultivate it. He found himself in complete sympathy with Professor Tschirch and other Continental authorities in advocating that pharmacognosy should occupy a much more important position in the education of the pharmacist than is at present the case.

The PRESIDENT, commenting on the paper, said that what they had heard that night emphasised the regret some of those present felt that the course of lectures on pharmacognosy, which was at one time proposed, had to be abandoned. He thought at the time the proposal was made that it was an admirable move on the part of the authorities; he was sure all present would regret that the lecture they had listened to was not to be followed by others. Speaking of the literature of pharmacognosy, the President said it was curious that so little has been done by English workers; so far as he knew, Professor Greenish was the only Englishman who has taken up the subject thoroughly in recent years. He certainly thought it should be taken up more by English pharmacists. Professor Greenish had referred to the study of commercial varieties of drugs; he (the speaker) had seen the papers set for the Pereira Medal examination, and he was surprised to see that one of the questions dealt with the different varieties of liquorice root. The President went on to speak as to the terms used in botany, and entered a mild protest against the introduction of so many different and, to his mind, needless terms. He thought it would be a slighter tax upon the memories of all students of botany if such terms, for instance, as "ecological significance"—a term used in one of the Council prizes examination papers—were deleted from the botanist's vocabulary. He then referred to the controversy respecting the active principles of such substances as digitalin and digitoxin, scopolamine and hyoscyne; he thought that perhaps such difficulties would have been avoided if the study of pharmacognosy had received more careful attention. He felt that he was expressing the feeling of the meeting in saying that all present were much obliged to Professor Greenish for his valuable and extremely interesting paper.

Mr. J. A. DEWHIRST said that the paper raised many interesting points; one was in regard to the functions of alkaloids in plants and the opinion of some botanists that they are simply the excreta of the plant for which it has no further use. He was inclined to think that plants are not in the habit of making things they have done with into complicated molecules, as is the case in cinchona bark. He thought that the alkaloids are of great use to the plant. He then instanced a case which had occurred with himself during the week showing the necessity for careful observation. He had under examination a piece of horseradish root with young leaves very finely divided; at first, he thought he had discovered a new alkaloid, but on closer examination he came to the conclusion that it was probably choline—a basic substance that occurs in a few plants but lacks some of the characters of an alkaloid.

Mr. T. MORLEY TAYLOR echoed the President's regret that the proposed post-graduate course of lectures on pharmacognosy had fallen through for want of support by the authorities. It seemed to him that Professor Greenish's subject was a very suitable one for a post-graduate course.

Professor GREENISH, in replying to the President's remarks, agreed that there is no necessity for many of the terms employed in botany and pharmacognosy. In regard to the post-graduate course of lectures, the matter had been discussed by the staff at the "Square," and it was decided that for the present it was not advisable to establish them. As to there being so few English contributors to the literature on pharmacognosy in recent years, he attributed the cause to the fact that in England the microscopic work has not been taken up by investigators; it is only within

the last few years that English botanists had devoted their attention to botanical anatomy. He believed it would be taken up more in the future. As a matter of fact, he understood that the forthcoming German Pharmacopœia proposes to give more details to the structure of drugs, so that the pharmacist who buys powdered drugs may be able to recognise them. With regard to digitalin and digitoxin, hyosine and scopolamine, he did not know what to say. They could only watch the controversy and be of the opinion of the last speaker. In accepting the statements of the different workers, they did not know whether they might not be controverted. As to the alkaloids in cinchona bark, he thought an interesting point for investigation would be to ascertain the amount of alkaloids in the dead portions of bark and leaves. Mr. Dewhurst's remarks about horseradish emphasised the necessity for careful systematic examination and the necessity for making a drawing of sections; it also showed the value of making good use of one's eyes and systematising the isolated observations.

Mr. C. MORLEY, in proposing a hearty vote of thanks to Professor Greenish, strongly objected to the definition of pharmacognosy as "spotting specimens."

Mr. H. HYMANS seconded the motion, and added his protest to the use of long and antiquated words.

The vote of thanks was accorded by acclamation, and Professor GREENISH having replied, the meeting adjourned.

ROYAL INSTITUTION.

A discourse was given on Friday evening, April 27, by the Right Hon. Lord KELVIN, whose subject was:—

NINETEENTH-CENTURY CLOUDS OVER THE DYNAMICAL THEORY OF HEAT AND LIGHT.

The following are brief notes of the discourse. There are only two clouds which obscure the beauty and clearness of the dynamical theory of heat and light. This dynamical theory holds that heat and light are modes of motion and are subject to the laws of force and matter in virtue of matter being set in motion by force.

The first cloud came into existence with the undulatory theory of light, and received the support of Fresnel and Thomas Young. It involved the problem—How could the earth move through an elastic solid, such as the luminiferous ether was supposed to be, far more easily and freely than the wind through a grove of trees?

This cloud hung heavy and undispersed, largely through the work of Michelson and Morley, co-workers with Lord Kelvin in this field of research. Michelson made a beautiful experiment to find whether the ether passed through the earth and whether the earth passed freely through the ether. The results of the experiments, contrary to what Lord Kelvin had hoped, showed clearly that the one does not pass freely through the other. There seems, therefore, no way of escape from this cloud.

The second cloud over the dynamical theory was the Maxwell-Boltzmann doctrine of the partition of energy. In this case the outlook is less sombre, since the fact that the doctrine does not derive support from mathematics proves it to be untrue. Lord Kelvin did not know of anyone besides himself who had attacked it; on the other hand, his own views had been attacked by Poincaré, Lord Rayleigh, and other distinguished mathematicians, though none of his assailants had proved the proposition.

Lord Kelvin proceeded to give some illustrations of the doctrine by means of balls connected by elastic and suspended in the air. He emphasised the labour and difficulty of putting the doctrine to experimental tests. Its mathematical consequences, indeed, sometimes appeared to be contrary to common sense, but that was not conclusive, for, said the lecturer, "mathematics must never be judged by common sense; the imagination is no guide."

Paley, in his evidences, remarks that in mathematics if a simple case be taken to prove a theory and it be found to hold good that

does not prove the theory, whereas if a simple case does not hold good it at once disproves the theory.

In spite of the difficulty of the subject Lord Kelvin has recently, with the aid of one of his secretaries, worked out a large number of cases, indeed, many hundreds, and has obtained results that do not agree with the Maxwell-Boltzmann doctrine. The simple way, therefore, to destroy this second cloud over the dynamical theory is to drop the destructive general conclusion of the Maxwell-Boltzmann distribution.

Lord Kelvin brought forward some speculations as to the structure of atoms, upsetting the notion that an atom is indivisible by supposing that atoms belied their name by being composed possibly of thousands of minute particles.

In conclusion the probable nature of the ether received attention; it is regarded as a true imponderable outside the law of universal gravitation. It may have mutual gravitation between its parts, and is considered to be perfectly homogeneous.

LIVERPOOL CHEMISTS' ASSOCIATION.

A good attendance honoured the last meeting of the winter session of this Association, held at the Royal Institution on Thursday, April 26. The chair was taken by the PRESIDENT, Mr. A. S. Buck, and four new members were elected—viz., Messrs. C. A. Maries, J. A. Thomas, W. H. Clubb, and J. T. Birchall.

The frequent acidity of samples of crystallised ammonium benzoate was alluded to by Mr. R. C. COWLEY, who accounted for it by the well-known fact that solutions of ammonium salts, particularly those of organic acids, were apt to become decomposed, or, rather, dissociated, even when every care was taken in their crystallisation and concentration. Some remarks were offered by Mr. A. C. ABRAHAM in confirmation of this, and Mr. H. WYATT, jun., said that the colour of a sample of ammonium benzoate was an indication as to the acidity and insolubility to be expected—the darker the colour the more insoluble the salt.

The PRESIDENT then called upon Dr. Symes to open a discussion on

COMPANIES AND PHARMACY.

Dr. SYMES said that the subject on which he had been asked to open a discussion had received considerable attention of late, and so much had been said and had been written on it in the journals devoted to pharmacy that scarcely anything new could be added. He felt, however, that it was quite right that an important body like the Chemists' Association of Liverpool should hold a meeting for the purpose of enabling its members to record their views on this vexed question. He took considerable interest in the Pharmacy Act, 1868, at the time of its passing, and he could assert, without fear of contradiction, that its original intention was to provide for the personal qualification of everyone who should carry on the business of pharmacy on his own account. The object of the Government was to restrict the sale of poisons, and that of pharmacists to advance pharmaceutical knowledge, both with the object of protecting and benefiting the public by means of qualification of those who should enter into the calling and conduct or control the sale of these dangerous substances scheduled as poisons. As is well known, companies were never contemplated or thought of in drafting the Bill which subsequently became the Pharmacy Act. He then went on to point out that the Act had been considerably modified by certain legal decisions—notably, that in which the Pharmaceutical Society instituted proceedings against the London and Provincial Supply Association, in which the decision in the House of Lords held companies to be outside the Act and unaffected by it except Section 17. The Wheeldon case, in which it was decided that except in Section 17 the seller was the person who handed over the poison to the customer. This was a decision in favour of the Pharmaceutical Society, who prosecuted, and many similar cases have been successfully prosecuted. But this difficulty

had always presented itself to his mind. If a qualified assistant was the responsible person in every particular except the name of the label, where did the personal qualification of the responsible proprietor, which was the undoubted intention of the Pharmacy Act, come in? The Piper case was also an important one, but the two decisions previously mentioned sapped the very foundation of the Pharmacy Act and re-established to a great extent "free trade in poisons." By the original omission and then subsequent decisions, companies of unqualified persons had assumed and maintained a right for many years to carry on the business, and the vested interest had become so great there seemed no hope of being able to re-establish the original intention of the Act. He thought possibly a case would lie against an unqualified individual who, converting himself into a company, used as a director his name in conjunction with the title which could only be acquired by examination. But in the case of a company which had a registered chemist as part of its name this would probably fail. He looked on Clause 2 of the Companies Bill as one which must be thoroughly opposed, as it was unjust to pharmacy and dangerous to the public weal. He said some eighteen months ago that the Council of the Pharmaceutical Society drafted suggestions for an amended Pharmacy Bill, and sent it to the Lord Chancellor in the hope that he would see his way to adopt it, or some modification of it, as the basis of a Bill to be introduced by the Government. If this Bill had been accepted and had become law, it would have placed pharmacy on a sound basis, and would have given it a position equal to that held in any Continental country. Those suggestions for a Bill had been published, and yet it had been said that the Council had done nothing at this critical period for the interests of pharmacy. No reply whatever had been received, but instead of the "bread" which had been asked for a "stone" had been offered, and that "stone" had been refused. He did not think that any satisfactory modification of Clause 2 could be obtained, and he felt it would be better to get it deleted and go in, at an early date, for an amended Pharmacy Act. The essential thing was, Mr. A. C. ABRAHAM opined, to get to know what the Pharmaceutical Council intended to do, and until this was definitely known it was of little use to pass any resolutions of confidence, or the reverse, at similar meetings to the present one. Many of the members of the Council seemed to want the moon, and were not, apparently, prepared to take anything less, and, moreover, a certain section had frittered away to no purpose a considerable amount of the Council's valuable time. What was wanted was a strong Council with a firm belief in and a clear understanding as to what it wants, and one which will not ask things of an impossible or Utopian nature, but will show an absolutely united front and be determined to work hard to attain its carefully considered ends. He sincerely hoped the election which would soon take place would provide them with such a Council. The opinions he held regarding the subject of discussion were definite, and he was prepared to state them, but not at the present juncture.

Mr. JOHN SMITH then rose and said that, in his opinion, they had first to support the Council in its opposition to Clause 2 of the Companies Bill, and to do what they could to assist the Council in making its opposition effective. There were, however, several points which it would be well to bear in mind when considering the matter. The Act of 1868 was really a Poisons Act, and it must be the aim of the chemist to get a true Pharmacy Act through Parliament. Since for years companies of unregistered persons had been selling poisons in the shape of compounds of a so-called patented nature, or other packed goods, it would be useless at the present time to contend that the safety of the public requires that such undoubted malpractice should be stopped, and therefore the purely professional operations would gain by separating from them those of an entirely trade nature—the sale of the aforesaid packed goods, for instance. The dispensing and correct compounding of poisons as ingredients in medical prescriptions are operations of a purely professional character, and as such should only be per-

mitted to persons who are competent to perform such special work, and it should be rendered illegal for such operations to be carried on except under the supervision of owners who have themselves had the training demanded and who are acquainted with the properties of the drugs handled and competent to estimate their value. This latter is a point of importance when the ineffective working of the Sale of Food and Drugs Act as regards pharmaceutical preparations is taken into account.

Mr. T. F. ABRAHAM was strongly of the opinion that the safety of the public demanded that any individual should be able at a glance to determine whether a man keeping what was ostensibly a chemist's shop was a qualified man or not. We should be able, and we have a right, to prevent persons using a title to which we alone have the right by virtue of training and examination. The men on the Register who had never passed an examination, but were there purely by inscription, were fast disappearing, and examined men were consequently becoming more valuable. When in course of time our body shall consist of examined men alone, it would be an unheard-of thing to lessen the stringency of the personal qualification now demanded, so that Clause 2 of the Bill should be unhesitatingly rejected.

Mr. PROSPER H. MARSDEN quite thought that in reference to this Companies Bill the Pharmaceutical Council had made a great mistake in not trying to persuade the Medical Council to throw in its lot with the Pharmaceutical Society in opposing Clause 2. Such a combination would have been a very powerful weapon, and would have been advantageous to all parties concerned.

The illegalities complained of had been allowed to exist and to be committed for such a length of time without let or hindrance that Mr. H. WYATT, jun., thought there would be a considerable amount of trouble in persuading Parliament that the present system was not conducive to the safety of the public. So long as each branch shop kept open by a limited company was in charge of a duly qualified manager, and in addition these managers were under the direct control of a qualified general manager or director, the public would take a great deal of convincing before they arrived at the conclusion that proper care was not being paid to their safety. As a pharmacist he was not sanguine that the trade in drugs or even poisons could be kept entirely to qualified men, but as regards dispensing of medical prescriptions and such operations as demanded that skill which a pharmacist alone possessed, he hoped a strong stand would be made and no concessions allowed.

In this he was supported by Mr. HORNBLLOWER, who considered the Food and Drugs Act guaranteed to a large extent the purity of drugs, no matter by whom they were sold.

The PRESIDENT gave instances showing that the present Pharmacy Act was not sufficient protection to the public.

It was then proposed by Mr. T. F. ABRAHAM "that this meeting of the Liverpool Chemists' Association desires to uphold the action of the Pharmaceutical Council in their rejection of Clause 2 of the Companies Bill."

This was seconded by Mr. J. SMITH, and passed unanimously, and the Secretary was desired to write to the Pharmaceutical Council bringing the resolution to their notice.

Mr. PROSPER H. MARSDEN then proceeded to give a paper on

THE APPLICATION OF THE ROENTGEN RAYS IN DENTISTRY, which will appear in the Journal later.

A vote of thanks to the lecturer was proposed by Mr. T. F. ABRAHAM, seconded by Mr. H. WYATT, jun.

A visitor, Mr. JONES, a dental surgeon, referred to the assistance the Roentgen rays would undoubtedly be in many cases to dentists if their application was at all simple. There were many instances where a large amount of pain might be spared patients if a skiagraph of the mouth were made before operation.

The vote having been passed, the proceedings closed after a few remarks by Mr. MARSDEN.

LANCASTER CHEMISTS' ASSOCIATION.

A special meeting was held at the King's Arms Hotel, Lancaster, on Thursday, April 19, Mr. W. ARKLE presiding. There were present Mr. Tibbits (Secretary), Mr. Vince, Mr. Barker, Mr. Troughton, Mr. Simpson, Lancaster; Mr. Birkett, Morecambe; Mr. Shattock, Lancaster; Mr. Bateson, Kendal, and Mr. Gifford, Blackburn.

The CHAIRMAN made a few remarks as to the object of the meeting, and said the greatest good would come from it if they, as members of an important trade, were more united. Unity was strength, and if the 15,000 members of the trade acted in unity, whatever reasonable thing they were anxious for they would be able to acquire.

Mr. BATESON, member of Council of the Pharmaceutical Society, who had been invited to address the Association on

LIMITED COMPANIES,

dealt with his subject at considerable length. He said it was evident the limited companies which they saw around them had come to stay. These were in almost every town and had an enormous amount of capital behind them, even the Lord Chancellor and, he dared say, a great number of members of Parliament being shareholders. The preservation of title was as dear to him as to Mr. Gifford; the protection of it constituted the main work of the Pharmaceutical Council. Prosecutions were constantly taking place all over the country, and in nearly all cases they were successful and penalties obtained. That which had cost them so much would be lost in a great measure if companies were to be allowed to use the title. They must be brought into a line with all of us, and possess the same qualification that we have. He hoped ere this that carbolic acid would have been added to the Poison Schedule, and now there seemed to be a near prospect of it. The question of jury service was also an important matter, and he saw no reason why the pharmaceutical chemist should have exemption and the qualified chemist and druggist should not, as their services were alike important in business, so far as the safety of the public was concerned. He thought that London should be more fully represented on the Council, because he believed such an arrangement would be for the benefit of the trade as a whole. What they wanted was a good working Council in touch with the trade throughout the country.

Mr. GIFFORD, in a comprehensive address, pointed out that the result of the pending

COUNCIL ELECTION

meant infinitely more than the mere return, as members of the Council, of seven gentlemen who would help to manage the affairs of the Society for the next three years. Were the members of the Pharmaceutical Society satisfied that the Pharmacy Acts should continue to be trampled under foot? Were they satisfied to acquiesce in the cruel mockery brought about by the decision of the House of Lords twenty years ago? That decision had now brought the law to such a state of absurdity that the Lord Chancellor had said it must be amended. They as chemists had protested, and the Council had protested, against the injustice and incongruity of the interpretation of the law, yet chemists had on their side kept to the spirit of the Pharmacy Act. The standard of qualification had been raised and when the application of the law was concluded to be improper they were entitled to say that unqualified persons should be outside the Act, and that there should be no means for them to get in. Repeal the Act if they liked, rob them of their legally-earned privileges, confiscate their rights, do anything; but do not degrade their qualification. That, he submitted, was the question to be faced. Waiting and patience spelt acquiescence and that was fatal. The Council had repeatedly tried to alter the interpretation of the law, and therefore had never acquiesced, but the Lord Chancellor had altered the situation entirely and given them no option but to fight. Mr. Gifford, turning to his candidature, said he had always fought for the old position, against giving away any privi-

lege, and that policy was the only practicable one. Qualified chemists were united for insistence upon having their rights, and the Council was at one with them.

Mr. SHATTOCK and Mr. VINCE asked several questions and a discussion followed, the meeting terminating with an expression of thanks to Mr. Bateson and Mr. Gifford for their addresses.

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION

At a meeting of this Association held on Monday, April 30, Mr. W. STEAD presided, and stated that he had been instructed by Miss Foster and Mrs. Blackburn to convey to the Association their thanks for the vote of condolence passed with them on the death of Mr. A. Foster, late President of the Association.

Reference was next made by the PRESIDENT to the election of members of the Council of the Pharmaceutical Society. He was not going to exercise any undue pressure upon the members of the Association as to whom they should support, but he wanted them to have an unbiassed discussion of the merits and demerits of the candidates. Seeing there were so many candidates, they would have to be careful how they voted. There had been a great deal said *re* the introduction of new blood into the Council. He thought they would be wise in confining their votes to three or four men.

Mr. J. DAY (Savile Town) moved that five candidates be supported, and that those be the men brought out by the P.A.T.A. They ought to have an entire change in the constitution of the Council.

Mr. J. RHODES (Mirfield) seconded the motion; but Mr. G. N. GUTTERIDGE (Dewsbury) moved that four candidates be voted for, the amendment being seconded by Mr. A. B. BARKER (Heckmondwike). The latter remarked that their influence would not be felt unless they went for a small number of candidates.—The amendment was carried.

Mr. R. BROADHEAD (Batley) remarked that they had committed themselves to support Mr. Gifford in his efforts to make the Pharmacy Act operative. That, he thought, was a forlorn hope. Still, they would obtain the views of other candidates regarding the old Pharmacy Act, which had been described as a miserable Poisons Bill, or, as Shakespeare would say, "a damnable iteration of exemptions." As to the candidates suggested by Mr. Glyn-Jones, he only objected to Mr. Wootton. Many persons had been influenced by Mr. Wootton, and they held aloof from the Society. Those who did not follow his advice, but became members of the Society, were now asked to vote for him. He (Mr. Broadhead) had been connected with the Society twenty years, and he felt more misgiving about this election than any other. He had always looked upon the Council as being composed of the best men connected with pharmacy. The *Pharmaceutical Journal* had suggested that the idea seemed to be to revolutionise affairs and turn the Council Chamber into a bear garden. He did not believe such a thing would occur. They would be sorry to see the Council sink to the level of the House of Commons.

After further discussion it was decided to vote for the following candidates:—Messrs. R. L. Gifford, Blackburn; W. Gibbons, Manchester; W. Hills, London; and J. Taylor, Bolton.

PUBLIC AND POOR-LAW DISPENSERS' ASSOCIATION.

A meeting was held on Wednesday, April 24, Mr. HEWITT in the chair. The usual preliminary business having been despatched,

Mr. FORSTER, Secretary, informed the meeting that Mr. J. Langford Moore had been appointed senior dispenser to St. Bartholomew's Hospital, which was received with acclamation.

It was proposed and carried unanimously that Mr. Moore should have a letter of congratulation from the Association.

An animated discussion was raised by Mr. CLARK, who read a paragraph from the *Daily Telegraph* stating that a lady who had been appointed a dispenser in a Poor-law institution had informed the Guardians that it had only taken her nine months to qualify for the post. At the close of the discussion,

Mr. W. DUFF, Banstead, gave notice that he would bring the subject before the next meeting, with a view of preventing inexperienced persons from holding such responsible positions.

A lecture was then delivered by Mr. J. NOAD CLARK, President of the Association, on

PRACTICAL PHOTOGRAPHY,

illustrated with specimens of his work, together with examples of faulty negatives, brought in order to demonstrate the difficulties which the beginner usually experiences.

Commencing with the collodion process, the lecturer explained in a practical manner every stage to the production of a finished photograph, including the action of light on the sensitive plates, the construction of the camera, the use of the lens, tips in development, and subsequent process referring to the bromide and platinotype process, and the production of lantern slides.

Mr. Clark is a very old amateur photographer, having commenced work in the wet collodion days, but more recently has taken up photo-micrography as a special study in connection with entomology. He pointed out the advantages of photography to pharmacists, who, he considered, ought to excel by reason of their scientific training. He said photography had been rightly termed the handmaid of science, and there was scarcely any branch where its use was not of great assistance, particularly so in botany, histology, and pathology. At the conclusion, Mr. Clark promised to give a lecture on photo-micrography at a future date which would be illustrated with a lantern.

In the discussion which followed, it was stated that some public dispensers have photography included amongst their duties.

After some interesting remarks from Mr. Welford, Colney Hatch; Mr. Lindsey, Camberwell; Mr. Hewitt, Holborn; Mr. Turner, St. Pancras, and others, a hearty vote of thanks to Mr. Clark for the trouble and pains he had taken, and the interesting manner in which he had handled the subject before them, brought a very profitably-spent evening to a close.

NOTTINGHAM AND NOTTS. CHEMISTS' ASSOCIATION.

A meeting of this Association was held on May 2 at the Albert Hotel, Derby Road, for the purpose of considering Clause 2 of the Companies Bill, and to hear an address from Mr. GLYN-JONES (a member of the Council of the Pharmaceutical Society) on the scheme of the Chemists' Defence Association, Mr. C. A. BOLTON presiding.

THE COMPANIES BILL.

Mr. EBERLIN, having explained the effect of Clause 2 of the Bill, said whatever they might think about the case of selling poisons—that was to say, whether an unqualified company shall have the right to deal with poisons—at any rate, he thought there was no division of opinion on this, that a company of unqualified persons should not have the right to rob chemists of their titles. They knew the Pharmaceutical Council, after considerable hesitation, debate, and procrastination, had at last come to a decision that it would oppose Clause 2 with all its power, but they did not propose any amendment. That was the point which, at any rate, concerned them most that night—as to whether the Pharmaceutical Council ought not to have drafted an amendment and tried to get it inserted in the Bill. Of course, there were differences of opinion as to how the thing could best be accomplished—whether it would

not be best to have a new Pharmacy Act. One had to bear in mind that a new Pharmacy Act had been required since 1868 and, for this reason, he might not be supported by a single member present; but his private opinion was that the former Act was never drafted with any sincere intention to confine the sale of poisons to qualified persons. The Bill was drafted by people whose portraits hung in prominent places, whose names were household words, and who were as insincere as could possibly be. He was speaking of an actual fact. A gentleman who sat upon the Pharmaceutical Council for many years, and was upon it now, had a branch shop, which was his main business, and for years he never had a qualified assistant at all. Yet they were told that this was the crux of the whole matter—that a branch shop must be under a qualified assistant. It certainly looked as if the Pharmaceutical Council—or, at any rate, some members of it—were suffering from senile degeneracy. They were degenerating, at any rate, and they did not seem able to touch these questions with anything like vigour. The question was one of supreme importance—whether they ought to allow this opportunity to slip by and do nothing, or whether they ought to try to get some amended clause inserted in the Bill. For his part, he thought that a new Pharmacy Act would not come for many years; possibly many of those present would not then be interested in it and therefore he would prefer that some effort should be made to safeguard their titles. This was an opportunity of a lifetime. He therefore begged to propose—

That this meeting of the Nottingham and Notts. Chemists' Association, while giving its support to the Pharmaceutical Council in opposing Clause 2 of the Companies Bill, regrets that the Council has not seen its way to endeavour to obtain some amendment inserted in the Bill safeguarding the rights and titles of chemists.

Mr. GASCOYNE seconded. He said it was one of the most hopeful signs that he had seen for many years that some of the staunchest supporters of the Pharmaceutical Council were becoming alive to the fact that it was not doing its duty. He must confess, however, that the position in which the Council was placed was somewhat difficult. There had been opinions expressed from all parts of the country which were as wide asunder as the poles, and it was not easy to reconcile them. Men who had studied pharmaceutical politics had come to the conclusion that company pharmacy had come to stay and that no Bill that would seriously affect the conduct of company pharmacy would get a single supporter in the House of Lords. The scheme which seemed to have taken the fancy of most members throughout the country was that of a qualified directorship. He was sure they could get that and the demand was consistent as well as logical. He believed every member of Parliament would be bound by common justice to agree with chemists that their titles should not be borne by men who had not gained them in a personal sense—who had simply bought them by employing qualified men. Although the Bill was introduced by a responsible Minister of the Crown, it was not a party question and pressure, he thought, could be brought to bear inside the House of Commons, upon the President of the Board of Trade, to amend the Bill in such a way that if it did nothing else it would preserve to chemists their titles which had been won by examination, and not give them away wholesale.

Mr. MIDDLETON, who thoroughly supported the proposition, asked if the deletion of the clause would not secure the very thing they wanted?

Mr. GLYN-JONES said Mr. Ritchie had said that he would not accept an amendment. The mere deletion of the clause would leave them in their present position, which was not satisfactory.

Mr. SARGEANT said he wished the Association would give its entire support to the Pharmaceutical Council without expressing regret, for the sufficient reason that Mr. Ritchie had said definitely that it was either Clause 2 or nothing. When they got down to that, he did not think they could go much farther. He thought the President and Mr. Carteighe had done their part. They had paid more than one visit to the House of Commons and threshed the matter out with people there. He gave his support to the deletion

of Clause 2. He thought they should be in a much worse position if the clause was passed. Therefore, he would move, as an amendment, to strike out of the resolution the words expressing regret, etc. If Mr. Gascoyne and his friends would put their shoulders to the wheel and give their guineas and support to the Council, it would probably be able to do very much more for them.

Mr. GLYN-JONES again briefly spoke, remarking that he hoped it was not too late even now for the Council to make an attempt to obtain an amendment of the Bill.

Mr. BEILBY thought it would be a bad policy to leave the expression of regret out of the resolution. The position taken up by the Pharmaceutical Council, of mere opposition to the clause, was not likely to be successful.

As no one seconded Mr. Sargeant's amendment, it fell through, and the resolution was carried, the CHAIRMAN, in putting it, remarking that things were looking brighter for chemists in connection with the forthcoming election.

Subsequently Mr. GLYN-JONES delivered an address on the "Chemists' Defence Association," and a discussion followed.

ENGLISH NEWS.

ABSENCE OF AN ASSISTANT WITHOUT LEAVE.—At Marylebone County Court, on May 1, before Judge Stonor, William Henry Hern sought to recover £3 from Mr. Edward Taylor, pharmaceutical chemist, 12, Richmond Road, Bayswater, W., the claim being for two guineas as a week's salary in lieu of notice and 18s. for a week's board and lodging.—The Plaintiff stated that he had been engaged by the defendant, who came to him one Saturday morning, and without any proper cause informed him that his services would no longer be required. He (plaintiff) accordingly paid himself up to that day and left, and now sued for a week's remuneration in lieu of proper notice. He was the only qualified chemist left in the shop, and it was true that he had absented himself from business without his master's permission, but he did so for the purpose of attending his medical adviser. There had been a previous complaint about his leaving the shop without permission on a bank holiday. On the occasion that he left the shop to visit his medical man he said nothing to anyone, but just went, and he afterwards wrote offering to resign his position if necessary. Evidence having been given to show that the resignation was accepted, the Judge said that was quite sufficient. The assistant said that he would be pleased to resign, and the master accepted the resignation. The defendant was evidently quite justified in acting as he did, particularly as the assistant left the shop without permission. For any assistant to do such a thing would be very wrong, but for a chemist's assistant to do so, leaving no qualified chemist upon the premises, was most irregular. He, therefore, found for the defendant.

SULPHURIC ACID IN VINEGAR.—At Marlborough Street Police Court on Thursday, April 26, Messrs. Robert and Norbury Pott, vinegar brewers, Sumner Street, Southwark, were charged, on an adjourned summons, with selling vinegar with a false warranty.—The evidence showed that the public analyst to the St. James's Vestry certified that a sample of the vinegar contained a certain proportion of sulphuric acid. The defendants absolutely denied that sulphuric acid had been added to the vinegar, stating that the only substance added was calcium sulphate or gypsum, a neutral substance used to bring the water to a standard of hardness more suitable than ordinary drinking water for the brewing of vinegar, and that the vinegar was pure and properly warranted pure and free from added acid.—The case was originally adjourned for a sample to be sent to Somerset House, whence a certificate was now produced stating that the vinegar contained 0.133 per cent. of "chemically combined sulphuric acid."—Mr. Fenwick (magistrate), in deciding the case, took the view that sulphuric acid was formed in the vinegar by the addition of calcium sulphate, but the prosecu-

tion had failed to prove that the defendants had been guilty of a breach of their warranty. The summons would therefore be dismissed, and the prosecution would have to pay a guinea, the fee due to the authorities at Somerset House.

POISONING BY PRUSSIC ACID.—At Birmingham, on April 27, an inquest was held concerning the death of William Taylor (49), described as a medical dispenser. According to the evidence, deceased was found dead in bed at his lodgings in Aston Road on Thursday, April 26, and with him a bottle which had contained prussic acid. It was stated that he had been in ill-health for some time past, and was in the habit of taking prussic acid for his nerves.—A verdict of "Death by misadventure" was returned.

CAMWAL, LIMITED.—At a statutory meeting held in London on May 1, it was stated that the re-construction has gone through successfully, the shares having been more than subscribed for. The share certificates were very numerous, and would be got out as quickly as possible. The two branches, Manchester and Birmingham, were rapidly increasing their business on paying lines.

DEFECTIVE SPIRIT OF NITRE.—At Pontypridd Police-court on Wednesday, April 25, Jenkin W. Davies, chemist and druggist, Gilfachgoch, was charged with selling sweet spirit of nitre deficient in nitrous ether "to at least 10 per cent."—The defendant raised an objection to the analyst's certificate on the ground that the actual percentage was not stated.—The Bench upheld the objection and dismissed the case.

EXTRACTS FROM CONSULAR REPORTS.

THE UNITED KINGDOM IS NOT THE ONLY PLACE, apparently, where associations of persons can do what individuals are prohibited from doing. According to a recent report on the foreign trade of Japan, foreigners are debarred from the ownership of real estate in Japan. The Tokio Chamber of Commerce and other associations have expressed themselves in favour of the concession being made, but it is stated that there is hardly any prospect that the right of owning land will in the immediate future be granted to other than Japanese subjects. Aliens have consequently to be content with acquiring "rights of superficies" over land, which, for whatever period procurable, cannot be regarded as a satisfactory substitute for ownership. Yet it would appear that "juridical persons"—associations or partnerships composed of foreigners and constituted conformably to Japanese law—may acquire the right to own land.

FURTHER, NO FOREIGNER IS ALLOWED to engage in the mining industry, or to be the holder of shares in mining undertakings. It was hoped that an amendment of the Mining Law, which came before the Diet at a recent session, would remove this disability, but the amendment proved to be merely of a technical nature and to have no reference to foreigners at all. However, since then, the House of Representatives has adopted a representation in favour of granting to "juridical persons" of which foreigners may be members, the right to engage in mining enterprise in Japan, and this proposal was subsequently endorsed by the House of Peers.

AN UNPRECEDENTED ACCUMULATION OF ALCOHOL is reported to be now held in Japan, the bulk of it obtained from Germany. Most of the alcohol imported during 1899—valued at £210,405—passed into the country before August 15, when a high *ad valorem* duty of 250 per cent. came into force. The quantity imported during the whole year, however, did not equal that of the preceding year—value £275,623—when unusually large shipments of alcohol were imported in order to evade a duty of 0.036 yen per 1½ lbs.—2s. 0½d. = 1 yen—which came into force on January 1, 1899.

Obituary.

CONSTANCE.—On April 16, Edward Constance, Pharmaceutical Chemist, late of London. Aged 88. Mr. Constance had been a member of the Pharmaceutical Society since 1848.

MATHER.—On April 23, at Claremont Road, Birkdale, Southport, James Mather, Chemist and Druggist, late of Bolton. Aged 67. Mr. Mather formerly conducted a druggist's business in Kay Street, Bolton, and was well known in the town, though he never held any public office. He was a director of the Farnworth Spinning Company, and was looked upon as a shrewd man of business, being a considerable property owner in Bolton. He retired to Southport a few years ago on account of ill-health.

SMITH.—On April 22, George Smith, Pharmaceutical Chemist, East Dulwich. Aged 50.

TAYLOR.—On April 20, John Taylor, Chemist and Druggist, Baker Street, London, W. Aged 75. Mr. Taylor had been a member of the Pharmaceutical Society since 1880.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

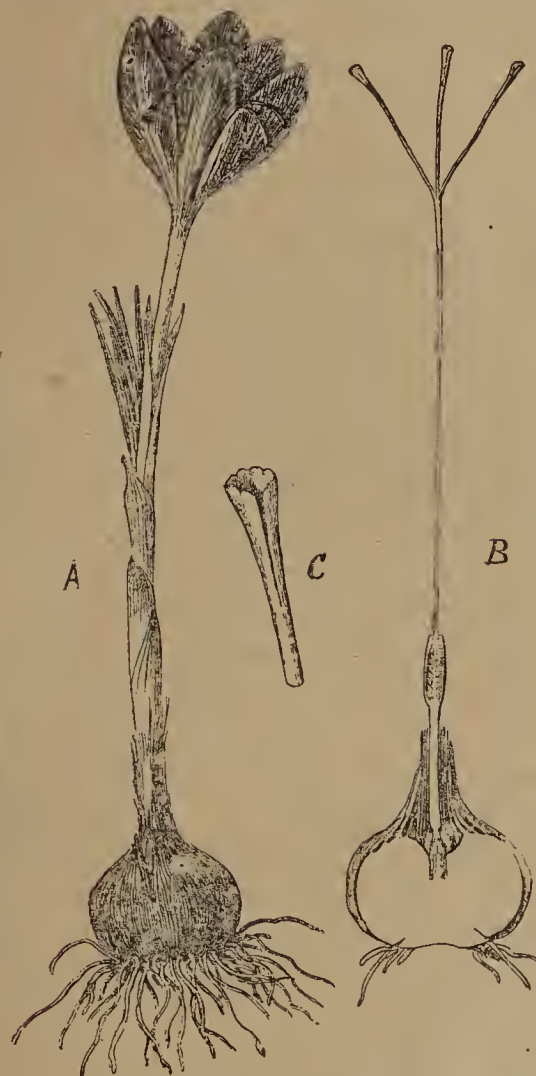
Crocus.

SAFFRON consists of the dried stigmas and tops of the styles of *Crocus sativus*, Linn. (N.O. Iridaceæ), which is cultivated in Spain, France, Austria, and Italy, and was formerly cultivated in England, near Saffron Walden. The flower produced by the plant in the autumn is of a pale purplish-violet colour, and has a long pale yellow style which terminates in three deep-red, elongated, protruding and pendulous stigmas. After the flowers have been collected the stigmas and upper part of the style are separated from each and dried, the resulting product being the hay saffron of commerce. The greater part of the drug is produced in Spain, being chiefly exported from Valencia and Alicante, whence the two most important commercial varieties take their names; the different qualities vary in the size of the stigmas, in relative freedom from useless parts of the flower such as the stamens, and from fraudulently added inorganic substances. Valencia saffron is much superior to the Alicante variety. The only use of saffron in medicine is to give colour and flavour to preparations, as in the case of Decoctum Aloes Compositum and Tinctura Cinchonæ Composita; it is also used in the preparation of Tinctura Croci.

CHARACTERS.—Saffron of good quality occurs in entire portions about 25 Mm. or more in length, consisting of single orange-red or reddish-brown stigmas, or three such attached to the top of a yellow style; they are thickened and tubular above, each having a slit on the inner side near the upper extremity and its mouth being jagged or irregularly notched. Unless quite dry, the loosely matted mass of stigmas is flexible and unctuous to the touch; it has a strong characteristic aromatic odour, due to the presence of volatile oil, and a somewhat bitter taste, which is attributable to a colourless bitter principle named picrocrocin. If thrown on the surface of water, the dry stigmas expand and their shape is clearly revealed; the liquid surrounding them assumes a deep yellow colour, owing to the extraction of the soluble colouring matter.

TESTS.—Saffron should impart an intense orange-yellow tint to a wet finger on which it is rubbed, thus showing that the colouring matter has not been extracted, and it should leave no oily stain when pressed between folds of white filter paper, thus proving freedom from added vegetable or mineral oil. Warm water in which saffron is soaked should be coloured orange-yellow, the saffron itself becoming paler and not depositing any white or coloured powder. If the water be coloured red or pink and the saffron yields colour freely

to ether or petroleum spirit, it has probably been exhausted and afterwards artificially coloured with aniline dyes, logwood, Brazil wood, or the yellow or orange salts of dinitrocresylic acid. Any white or coloured powder which may be deposited will probably consist of calcium carbonate, barium sulphate, bo'le, or other inorganic impurity with which the saffron has been dusted after being damped with glycerin, honey, or glucose and water. Absence of added water should be indicated by the saffron losing not more than 12.5 per cent. of moisture when dried at 100° C. The dried



SAFFRON.—A, *Crocus sativus*, showing protruding stigma, $\frac{1}{2}$ natural size; B, ditto, with perianth, leaves and scales removed, showing section through corm and ovary; C, Upper part of stigma, enlarged.

saffron should not deflagrate when incinerated with free access of air, nor should it yield more than about 7 per cent. of ash, the first test indicating absence of nitrates and the second of other fraudulently added inorganic matter. The presence of glycerin or other substances which are soluble in water and leave no ash when incinerated will be indicated by the proportion of water-soluble substances yielded by the saffron exceeding 15 per cent.

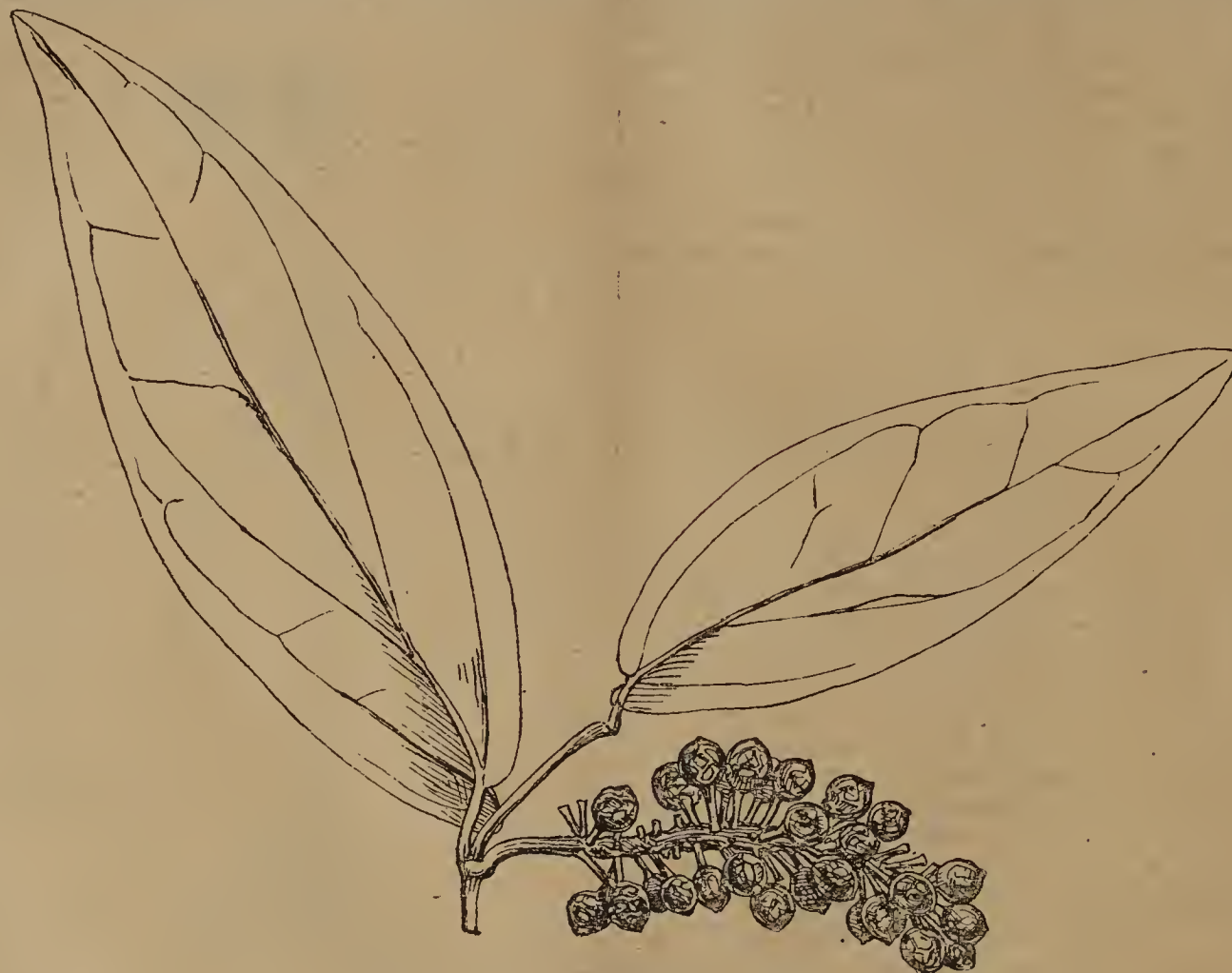
NOTES.—The distinctive characters of saffron are its shape, odour and colour. It contains about 1 per cent. of volatile oil, a colourless bitter principle (picrocrocin), and an amorphous red colouring matter (crocin). The last is a glucoside which, when hydrolysed with dilute mineral acids, yields crocetin and a sugar (crocose). The colour of crocin, or "polychroite" as it has been called, is changed by concentrated sulphuric acid to deep blue and by nitric acid to green. Saffron may be adulterated by the addition (1) of the stamens, or portions of the perianth of saffron or other flowers; (2) of safflower or calendula florets; or (3) of the slender stems and roots of monocotyledonous plants. All such adulterants may be detected by allowing the drug to expand in water and noting the shape of the pieces. Safflower and calendula florets are much shorter than the stigmas of saffron and differ considerably in shape.

Cubebæ Fructus.

CUBEBS, or "tailed pepper," consists of the dried unripe fruit of *Piper cubeba*, Linn. (N.O. Piperaceæ), a dioecious woody climber which is indigenous to, and probably cultivated in, Java, Sumatra and Borneo. The pistillate inflorescence of the plant is a spike of sessile flowers; as the young sessile fruits mature they become elevated on slender stalks produced by abnormal development of the pericarp at its base. When full-grown, but whilst still green and unripe, the fruit

small embryo embedded near the apex in a somewhat scanty endosperm surrounded by a copious perisperm. Frequently a fruit contains only the dark shrunken remains of a partially developed seed. The characteristic strong and aromatic odour of cubebs, due to the volatile oil present, is more marked when the fruit is crushed; the taste of the drug is also warm, aromatic and somewhat bitter, the bitterness being due to the cubebin present.

TESTS.—Cubebs have two layers of much thickened and lignified parenchymatous cells in the pericarp, as may be seen in a trans-



CUBEBS.—Fruit of *Piper cubeba* on rachis, with leaves.

is stripped from the rachis, dried in the sun, and exported from Batavia or Singapore to Amsterdam and London. The drug possesses aromatic, stimulant, antiseptic and diuretic properties; it is administered in doses of 30 to 60 grains, and is used in the preparation of *Oleum Cubebæ* and *Tinctura Cubebæ*.

verse section, one layer being near the epidermis, the other constituting the smooth, hard inner surface or endocarp and consisting of radially elongated cells. The presence of those two layers, which can only be detected under the microscope, helps to distinguish cubebs from fruits of similar appearance. The crushed fruit imparts a crimson colour to sulphuric acid; most of the substitutes for cubebs yield only a brownish-red colour under similar conditions.



CUBEBS.—A. Fruit of *Piper cubeba*, magnified; B. ditto, longitudinal section, showing embryo at apex of seed and stalk-like elongation of pericarp.

CHARACTERS.—Cubebs are nearly globular fruits, each containing a single seed attached by the base and bearing the minute remains of three or four stigmas at the apex; they are about 4 Mm. in diameter and greyish-brown or nearly black in colour. If depressed at the base the fruits are immature. Owing to shrinkage during the drying of the fruit, the thin, brittle pericarp is reticulately wrinkled. At the base the pericarp is abruptly prolonged into a slender, rounded or slightly flattened stalk about 6 Mm. in length. The fully developed seed is reddish-brown in colour, with a very

NOTES.—The distinctive characters of cubebs are the slender and not easily detachable stalk, the attachment of the seed to the pericarp by the base only, the characteristic odour and taste, the microscopical characters, and the reaction with sulphuric acid. The fruit contains a volatile oil, of which it yields about 14 per cent.; the oil occurs in cells in the pericarp and perisperm, and about 1·7 per cent. can also be obtained from the rachis, which contains similar oil cells, as well as the stem, leaves, etc. Other constituents of cubebs are cubebin—a bitter colourless crystalline substance which gives a cherry-red colour with sulphuric acid—and 3·5 to 4 per cent. of resin, 1 per cent. of which is an acid resin named cubebic acid. The last-named compound is white, amorphous, and gives a crimson colour with sulphuric acid. The resin as a whole produces purely diuretic effects and appears to constitute the active portion of the drug. Portions of the rachis on which the fruit is borne may be found mixed with cubebs, and many fruits of similar appearance have been used to adulterate the drug, but none possess the same microscopical characters, whilst also yielding the distinctive crimson colour with sulphuric acid.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

OIL OF CAMELLIA DRUPIFERA.

The oil extracted from the seeds of *Camellia drupifera*, known by the natives of Tonkin as Caydeau-So, is used by them as food, as well as for application to the hair and as an external remedial agent. The kernels of the seeds yield on expression 28 to 35 per cent. of a bland oil, which does not readily become rancid. Pottier has examined this oil, for which he gives the following figures:—Sp. g. at 15° C., 0.980; acidity in terms of oleic acid, 2.876 per 1,000; opt. rot. (200 Mm.) + 1.8; bromine absorption number (of fatty acids), 0.435; iodine absorption number (of fatty acids), 0.680. Twelve C.c. of the oil give a white permanent emulsion with 8 C.c. of lime water; with the same proportion of solution of ammonia separation takes place. Sulphuric acid gives a brown coloration with Heydenreich's test. It gives no reduction of silver with Becchi's test, nor does it afford any crystals of arachidate of potassium.—*Nouv. Rem.*, 16, 121.

ACTION OF HEAT ON PAPAIN.

V. Harley confirms the statement of Wuertz that, if papain be first thoroughly dried, its digestive power on fibrin is but little, if at all, influenced by prolonged exposure to a temperature of 100° C. It is, however, otherwise when the ferment is in solution. A series of digestions conducted at various temperatures, in which the amount of matter dissolved, the optical rotation of the resulting solutions, and the weight of the residual undigested fibrin were determined, show that the proteolytic action of papain in solution is destroyed at about 82° C. Fibrin was found to be quite unaltered when digested in a solution of papain which had been previously heated to 82.5° C. From the colour produced by tyrosinase on the products of digestion, it would appear that heat merely has the effect of lessening the digestive power of papain, but does not modify it in any other way. In all cases, even when the digestive action has been reduced to a minimum, in the solutions heated to the highest point, the typical colour-reaction at first red, then green, was obtained with tyrosinase, only differing in intensity from that produced by unheated papain digestion-products.—*Journ. de Pharm.* [6], 11, 269.

NOTES ON CHAULMOOGRA.

It appears that the seeds of chaulmoogra met with in commerce, and generally considered to be the product of *C. odorata*, differ materially from those of that species. D. Hanbury ('Science Papers,' 244) describes and figures Chinese chaulmoogra seeds, as imported from Siam into China, as having foliaceous, lanceolate cotyledons, which he recognises as not being identical with *Chaulmoogra odorata* of Roxburgh, that authority describing the cotyledons of *C. odorata* as being subreniform, with the radicle variable. Notwithstanding this, in works on materia medica and in museums, the Chaulmoogra seeds of Hanbury are attributed to *C. odorata*. G. Desprez has recently received from Calcutta specimens of both seeds. He describes the true *Chaulmoogra odorata* seeds as being larger, less uniformly grey, the testa being marked with dark patches. The integuments are not so brittle as in the ordinary kind, the kernel is reddish and marked with white. The cotyledons are thick, subreniform, the radicle placed at the side. These seeds contain a large amount of hydrocyanic acid. The seeds generally met with in commerce are uniformly grey in colour, the integuments are brittle, the kernel is dark in colour with a rough surface, the cotyledons are foliaceous-lanceolate, and the radicle direct, as described by Hanbury. These seeds contain no prussic acid.—*Journ. de Pharm.* [6], 11, 315.

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STRUCTURE OF LICHENS.

Professor G. J. Peirce contests the current view that the connection of the fungus (hyphal) and the algal (gonid) elements in lichens is one of commensalism. The hyphæ and the gonids are in the most intimate contact with one another; the hyphæ develop branches which may merely clasp the gonidial cells, or may penetrate them in the form of haustoria. This clasping or penetration stimulates the gonids to internal cell-divisions. The haustoria consume the protoplasmic contents of the gonidial cells which they have entered, leaving only the empty cell-walls. The fungus is fed by the alga, and there is no evidence that the gonids develop more luxuriantly in connection with the hyphæ than they would elsewhere.—*Proceedings California Acad. Sci.*, 1899.

FUNGI IN JUNIPER BERRIES.

Herr A. Nestler finds the mycele of a fungus almost universally present in the so-called "berries" of the juniper immediately before maturation. The change in colour from green to black or blue-black appears to be due to this fungus. It was not found in the fruit during the first year of its development.—*Ber. Deutsch. Bot.-Gesell.*, 17, 320.

RANCIDITY OF BUTTER.

According to Herr B. Reinmann there is not any relation between the rancid taste and odour of butter and the quantity of free acids found in it. The greater the amount of casein and of milk-sugar in butter the more quickly does it become rancid. Light and air do not appear to exert any direct influence on the process. Butter made from sterilised cream will rarely become rancid; but, if brought into contact with rancid butter, will turn in a few days.—*Centralblatt f. Bakt. u. Parasitenkunde*, 2te Abth., 1900.

EXTRA-NUPTIAL NECTARIES.

At the base and on the margin of the young leaves of *Ailanthus glandulosa* are two or more nectariferous glands which, according to Sig. L. Macchiati, constitute an extra-nuptial nectary, the species being myrmecophilous. The nectar of these glands is greedily devoured by ants, which stand as sentinels throughout the day at the base of the leaf-stalk, and ward off other insects, mites, and the larvæ of lepidoptera which would otherwise attack the young leaves. Another instance of an extra-nuptial nectary is furnished by the red or brown patches at the base of the young leaves of the cherry-laurel, *Prunus laurocerasus*. Herr Nestler regards it as incontrovertible that this bright colour attracts insects in the same way as the bright colour of the flowers.—*Bull. Soc. Bot. Italiana*, 1899.

PRODUCTION OF ALCOHOL BY PLANTS.

M. P. Mazé gives further evidence in favour of his previous observations on the production of alcohol by plants, especially in the germination of oily seeds. He concludes that these seeds are capable of transforming substances of the group CH_2 into substances of the group CHOH by the fixation of oxygen. The castor-oil plant exhibits this phenomenon to a remarkable degree.—*Comptes rendus*, 130, 424.

FORMATION OF PROTEIDS IN THE DARK.

According to Herr J. Goldberg, the processes which go on in the embryo and in the endosperm during the germination of wheat are of quite opposite characters. While the amount of proteids in the endosperm is continually decreasing, the amount in the embryo is, on the other hand, continually increasing. This can only be the result of a synthesis of proteids in the embryo at the expense of amides obtained from the endosperm.—*Beiheft z. Bot. Centralblatt*, 9, 130.

ON THE COMPOSITION OF EAST INDIAN SANDALWOOD OIL.*

BY M. M. GUERBET.

There have been various researches into the chemistry of sandalwood oil. According to Chapoteau it contains an alcohol $C_{15}H_{26}O$ called santalol, and also the corresponding aldehyde $C_{15}H_{24}O$, also identified by Chapman and Burgess.† The latter body gives by dehydration by phosphoric anhydride the hydrocarbon $C_{15}H_{22}$. The author's own work has been interrupted for a year, and his results partly forestalled by Soden and Müller.‡ These latter workers did not find an aldehyde, but isolated an alcohol, *santalol*, $C_{15}H_{26}O$, constituted of a mixture of isomeric and lævogyre alcohols of differing rotatory powers; these formed 90 per cent. of the oil; further, they isolated a sesquiterpene, *santalene*, $C_{15}H_{24}$, boiling at 261° - 262° ; and lastly declared the probable presence of other bodies not isolated. These results are confirmed by Messrs. Schimmel and Co., chemists.

The present author's researches§ confirm the complex nature of "santalol," and have also resulted in the isolation of the greater part of the hitherto undescribed bodies.

The oil examined was distilled from Bombay wood: it was a limpid, pale yellow oil, sp. gr. at 0° 9684, and rotation $[\alpha]_D = -21^{\circ} 16'$; it contained no bases, no free acid, and a minute amount of esters or alkali-absorbing bodies; the proportion of alcohols reckoned as santalol (by Parry's process||) was 90.1 per cent. In order to saponify the ethers, 5 kilos. of the oil were boiled with 200 Gm. KOH and 500 Gm. of 90 per cent. alcohol; the product diluted with water, the separated oil washed, and the alkaline liquor retained for identification of the organic acid. The oil, after washing and drying with anhydrous K_2CO_3 was distilled under reduced pressure and fractionated with a "Le Bel Heninger" apparatus. Two groups of fractions were thus obtained: (1) The hydrocarbons passing over at 110° - 180° at 38 Mm.; and (2) a group, principally alcohols, distilling at 180° - 200° . The residue left was resinous, yellow and honey-like.

The hydrocarbons were refractionated a great many times under reduced pressure, and finally under atmospheric pressure, lastly, the different fractions were rectified over sodium, thus isolating two principal fractions, viz., (1) Boiling 252° - 252° -5, and (2) Boiling 261° - 262° ; these were distinguished as *santalene* α , and *santalene* β . The fraction boiling below 252° appeared to contain a hydrocarbon boiling at 130° - 140° , and an oxygenated product boiling at 210° - 220° . These first fractions have a very powerful and agreeable odour, and to these above all is due the characteristic odour of sandalwood oil, but the percentage is so small (0.2 to 0.3 per cent.) that their exact nature could not be determined.

The fractions distilling at 180° - 200° (38 Mm.) contain alcohols (determined by Parry's method) to the extent of 97 per cent. of the product. In order to separate this mixture of alcohols, Haller's method was employed** for the extraction of terpene alcohols. The mixture was warmed at 120° for two hours with the calculated amount of phthalic anhydride, which converts the alcohols into their acid phthalic esters, the product was treated in the cold with carbonate of soda solution, in which it completely dissolved, leaving only a little unacted-on phthalic anhydride. This aqueous solution of the ethereal salts was freed from any non-alcoholic bodies by repeated extraction with ether; finally, the ethers were saponified by heating with soda under a reflux condenser, the liberated alcohols washed, dried with K_2CO_3 , and fractionated under reduced pressure. This yielded an oily colourless liquid distilling

at 183° - 197° (37 Mm.), which has not yet been separated into fractions having constant boiling points; the rotations of the fractions also differed, varying from $-9^{\circ} 4$ to $-25^{\circ} 3$. Therefore the alcohol known as santalol is probably a mixture of two alcohols of differing rotatory power, and corresponding to the *santalenes* α and β , whose rotatory powers are respectively $-13^{\circ} 98$ and $-28^{\circ} 55$.

Treatment of the Alkaline Liquor containing the Acids of Sandal Oil.—This was neutralised with H_2SO_4 , extracted with ether acidified with excess of H_2SO_4 , and the insoluble acids separating collected. To isolate the soluble acids the acid liquid was distilled; the distillate was found to contain solely acetic and formic acids, the latter in very small proportion; a titration experiment showed that the 5 kilos of oil yielded of these acids only 3.8 Gm. reckoned as acetic acid. The sticky precipitate of insoluble acids, washed with water and steam distilled, yielded a white crystalline solid, which was purified by crystallisation from alcohol (90 per cent.). It melted at 157° , and had the characters of a monobasic acid of the formula $C_{10}H_{14}O_2$; this acid was named *teresantalic acid*; the silver salt contains 39.3 per cent. silver ($C_{10}H_{13}AgO_2$ contains 39.56 per cent.). The residue from this steam distillation added to the mother liquors from the crystallisation yielded a monobasic acid of the formula $C_{15}H_{24}O_2$, which was named *santalalic acid*. It can be isolated by means of a solution of ammonium carbonate, in which it is insoluble, but which dissolves the *teresantalic acid*; it was purified by precipitating its alkaline solution by a prolonged current of CO_2 and distilling under reduced pressure; it boiled at 210° - 212° (20 Mm.). It is monobasic; its silver salt $C_{15}H_{23}AgO_2$ contains 30.2 per cent. Ag. (calculated 30.6).

In addition to the above compounds sandalwood oil contains an aldehyde, santalol, $C_{15}H_{24}O$, which was isolated by means of its carbazone by the process of Tiemann and Krüger*. Ten Gm. of powdered semi-carbazide hydrochloride were mixed with acetic acid and an equivalent of sodium acetate (about 12 Gm.); the mixture was allowed to stand twenty-four hours to complete transformation into semi-carbazide acetate, then 100 Gm. of sandalwood oil added and the mixture allowed to react in cold for three days; then 20 volumes of water added, the whole extracted with ether, the ethereal solution washed with water and weak sodium carbonate solution and evaporated. The semi-carbazone was deposited in small crystals, purified by dissolving in hot alcohol and recrystallising. The 100 Gm. of oil gave 3.5 of semi-carbazone, $C_{15}H_{24} = N-NH-CO-NH_2$. This compound, when decomposed by strong HCl at 50° , regenerated santalol $C_{15}H_{24}O$.

To summarise, the following definite compounds were isolated from sandalwood oil:—

(1) Two hydrocarbons—(sesquiterpenes) $C_{15}H_{24}$, *santalenes* α and β , oily colourless liquids, with feeble odour and a sweet burning taste. Their solution in chloroform shaken with sulphuric acid gives a currant-red after some minutes. *Santalene* α boils at 252° - 252° 5; $[\alpha]_D = -13.98^{\circ}$; sp. gr. at $0^{\circ} = 0.9134$. *Santalene* β boils at 261° - 262° ; $[\alpha]_D = -28.55^{\circ}$; sp. gr. at $0^{\circ} = 0.9139$.

(2) A mixture of sesquiterpene alcohols corresponding to the above hydrocarbons; these are the *santalols* α and β whose study is not yet complete.

(3) An aldehyde of the formula $C_{15}H_{24}O = \text{santalol}$, a colourless oil with a strong and peppery odour; boiling-point 180° (40 Mm.) its semi-carbazone exists in small needles melting at 212° , scarcely soluble in ether, petroleum ether, or cold alcohol; very soluble in boiling alcohol. Oxidised by chromic acid in acetic solution, it is partly transformed into a monobasic acid identical with santalalic acid $C_{15}H_{24}O_2$. Heated with P_2O_5 , it resinifies and does not yield a hydrocarbon. It is therefore a very different body from that of Chapoteau and Burgess ($C_{15}H_{24}O$); probably these workers had in their hands an alcohol and not an aldehyde.

* *Berichte*, 28, 1,754.

* Abstracted from *Journal de Pharmacie et de Chimie*, 11, 5, 224.

† *Proc. Chem. Soc.*, 12, 140.

‡ *Pharm. Zeitung*, 44, 258.

§ *Comptes rendus*, 130, 417.

|| *Pharm. Journ.*, [4], 5, 118.

** *Comptes rendus*, 108, 1308; and 122, 865.

(4) An acid $C_{15}H_{24}O_2$ —*santallic acid*, a viscous colourless liquid boiling at 210° – 212° (20 Mm.), insoluble in water and in strong ammonium carbonate solution, soluble in alcohol, ether, or chloroform; is a feeble acid with properties analogous to those of campholic acid*. The santalates of sodium and potassium occur in confused crystalline masses; the barium salt is slightly soluble in water, crystallising from alcohol in fine needles; the calcium salt is soluble in water and crystallises in crusts; the silver salt crystallises from alcohol in colourless lamellæ insoluble in water.

(5) An acid of the formula, $C_{10}H_{14}O_2$,—*teresantallic acid*, obtained by cooling its alcoholic solution in large prismatic needles, melting at 157° ; boils at 183° (28 Mm.) Its potassium salt occurs in pearly crystalline masses; its calcium salt is in small crystals of the formula $Ca(C_{10}H_{13}O_2)_2 + 2H_2O$.

(6) Lastly, the more volatile portions of sandalwood oil include every odorous compounds not yet isolated in a state of purity; whilst their amount is very small, it is above all to their presence that the oil owes its odour.

The following is the approximate composition of the oil according to these researches:—

Santalenes α and β	60
Santalols α and β	800
Santalal	30
Acids in the state of esters (formic, acetic, santallic, teresantallic) ..	30
Undetermined strongly odorous bodies boiling at 130° – 220°	3
Undetermined products boiling about 320° (hydrocarbons, alcohols, ethers, resinous products)	77
	1,000

The author is still engaged in the study of the santalenes and santalols.

MATERIA MEDICA FOR STUDENTS.

A TEXT-BOOK OF MATERIA MEDICA FOR PHARMACEUTICAL STUDENTS

By W. A. KNIGHT. Pp. 319. Price 9s. London: Clive and Co.

As the author states that this work has been written with a view to furnishing the student with "all that is required for the Minor and Major examinations in Materia Medica," it would not be reasonable for us to judge of it except according to that limitation. The restriction thus placed upon the work implies an urgent responsibility as to the thoroughness of the method and the accuracy of the information which it may set forth. The materials for a thoroughly reliable and comprehensive students' text-book of materia medica are ample; but they are scattered in so many departments of knowledge—botany, chemistry, physics, geography, zoology, microscopy, and commerce—that only after careful collection and a judicious selection can anyone hope to produce a work to command the reader's confidence. A perusal of the preface leads one to hope for a treatment of the subject somewhat in advance of that which it has received at the hands of others. The term *megascopic* is adopted in preference to *macroscopic*, which is certainly in pronunciation too much like *microscopic*, and the author has coined the word *mesoderma* to indicate the region of the cortical parenchyma. This verbal inventiveness indicates an alertness of mind which prognosticates novelty in the treatment of the matter proper of the book. The particular instances given, however, lead us to fear that caution may be lacking, because if the author had taken the trouble to look up a good dictionary he would have found that his two new words had previously been invented and used in a different connection. He speaks of his experience as a teacher, but surely a teacher's first duty is to make knowledge assimilable. The introduction of new terms, the manufacture of new definitions for old terms—such as pharmacography and pharmacognosy—and the displacement of terms by others which have ordinarily a different meaning—such as "cambiform tissue" for cambium is not only to create in the mind of the student mental nausea, but to make him an easy prey to the examiner.

* Guerbet, *Ann. de Chim. et de Phys.* [5], 14, 11 and 18.

The plan and detail of the book scarcely reveal the teacher, though for the most part the information which it contains is accurate. The drugs are treated of under three different heads: "(1) The specially diagnostic megascopic characters of the crude drugs. (2) The diagnostic microscopic characters of the powders; and (3) The pharmacography of the drugs." The latter is the epitome of the botanical and geographical sources, the chemistry and the adulteration of each drug. What advantage such an epitome can have when arranged in the same order as the monographs we cannot see; a very serious disadvantage may attend it, however, when, as in several instances in this book, the information given differs from that found in the monographs (catechu and catechu nigrum). When we say that the information is for the most part accurate, we feel that we have said the utmost that can be said that is favourable. The arrangement of even accurate statements is so bad as to produce in some cases a false impression—for instance, in one paragraph we are told that the second harvest of cochineal consists "of females exhausted by fecundation," and "constitutes the 'black' or 'dark grain' cochineal"; while in another paragraph it appears that "in the black grain," the insect having been killed by heat, this waxy [previously mentioned as 'cottony'] secretion has disappeared." Again, a most detailed description is given of the structure of senega root, but we should be much surprised if any student learned from it that the xylem column was generally fissured in an irregular manner below the crown of the root. On page 124 it is stated that a drug may be "partly identified" by certain characters. How anything can be "partly identified" is not explained.

The work should not be taken too seriously, perhaps, but the author has made us feel that he really has made a serious attempt to write a serviceable handbook. That he has not succeeded he will probably be quick to admit; and he will not realise his ambition in this direction until he shakes himself free from the bonds of other text-books, and braces himself to a first-hand knowledge of his subject. The drawings are not of uniform excellence, those which are drawn for the work leaving very much to be desired. Many errors, due to faulty revision, have been noted; it is to be hoped that the first edition has been small, so as to permit of a speedy revision. In order to justify this remark we may point out, first, that a micron is not equivalent to the micromillimetre; the former represents the thousandth part of a millimetre, and the latter the millionth part. Lycopodium contains more than 10 per cent. of fatty oil. On page 105 amyloextrin is spoken of as "proteid matter." Araroba is grouped with the resins. Facing page 51 is a drawing signed by the author, and, therefore, presumably original; but we feel sure that we have seen a similar drawing about ten years ago in a periodical. If this is a drawn copy, which, of course, it may not be, is it quite fair to reproduce it without any acknowledgment of source? West Indian sandal wood oil is not even mentioned, and the chemistry of the essential oil of sandal wood is quite ignored. But we must not multiply faults. Suffice it to say that the work represents an honest attempt to write a useful book; the attempt, however, has failed.

NEW REMEDIES.

AMMONIO-ARSENIO-CITRATE OF IRON.—This compound occurs in green scales which are very soluble in water; it contains 1.4 per cent. of arsenious acid, and 15 to 18 per cent. of metallic iron. Valvassori and Peroni find that it is a valuable antiperiodic, and that it may be administered subcutaneously to children.—*Merck's Report*, 1900, 74.

CUPRI-ASEPTOL.—This is a compound of copper with phenol-sulphonic acid and forms small deep bluish green opalescent crystals which dissolve easily in water. It is employed in veterinary practice as a hæmostatic.—*Merck's Report*, 1900, 53.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

An Ending and a Beginning.

In a few days the pharmaceutical year will have closed and—with the annual dinner eaten, the annual meeting past, the vacancies in the Council filled—we shall all be waiting for the curtain to be raised once more and wondering in what respect the next twelve months will differ from the last, so far as matters pharmaceutical are concerned. Not that I, personally, expect to see any marked difference manifest itself immediately. As an old stager, I have learned that great and sudden changes in our social conditions are so rare and exceptional as to be practically non-existent. Even when a new Act of Parliament is passed, or new bye-laws are adopted, the effects are not immediately perceptible; the gradual manner in which effects manifest themselves is far remote from anything in the nature of cataclysmic change. In fact, taking one year with another, the variation in our environment appears so slight in an ordinary way that we are apt to jump to the erroneous conclusion that no progress has been made, when, in reality, the progress and improvement have been very considerable. Only by contrasting periods a few years apart are we able, as a rule, to form a just estimate of the march of events. This year, for example, we may expect to see more clearly than before how the change in the qualification for membership of the Pharmaceutical Society is likely to operate upon the traditional policy of the representative body; but next year will probably afford a still better opportunity of observing how the latest pharmaceutical application of the democratic principle works. Last year a big wave of enthusiasm brought in an unusually large number of new members; this year I expect to find that the pendulum has swung back some distance, and that the membership may show a slight decrease. But next year will supply the crucial test, and it is hard to say at present how the swing of the pendulum may be affected when the first flush of enthusiasm and the reaction naturally following that have alike ceased to be immediate factors in the situation.

The Year's Lesson.

Taking the annual report of the Council as a record of the pharmaceutical year, we find that whilst there has been no marvellous display of constructive ability, our position has been steadily maintained and strengthened. The Lord Chancellor's attack has not been entirely beaten off, but our defences are yet intact, and that delay in following up an attack, which is as good as a victory to the defenders, has enabled us to do much in the direction of educating outside opinion and furbishing up our somewhat rusted weapons for offensive action in the immediate future. Quite a short time ago the defects in the Pharmacy Act were known to very few persons outside our own ranks; to-day they supply food for reflection to a comparatively large number of prominent non-pharmacists, and that with but little effort on our part to direct public attention to the matter. What, then, may be the result of steady, persistent agitation, carried on by several thousand educated professional men, such as pharmacists are now entitled to be considered? It seems to me that there can only be one result—arrival at the conclusion that the existing state of things is illogical and altogether too absurd to be allowed to continue. And, though the manner in which reform is ultimately effected may conform more to prevailing notions of public policy than to the ideas of a few individuals in the ranks of pharmacy, I have but little doubt that we, as a class, will receive all the consideration to which we are entitled when the reform is brought about. How much or how little that consideration may be will depend upon our average for the time being. If the average be high the consideration will be marked, and it should be needless to suggest that it behoves us all to attempt to raise that average far above what it is at present if public consideration is to be as great as we should like. We must be prepared to recognise the necessity of a com-

pulsory curriculum, to let the "Widows' Clause" go by the board, to agree that no pharmacy shall ever have an unqualified person even in temporary charge, to act up to the spirit as well as the letter of the law, and—whatever personal inconvenience may be involved—to consider the public interest first and foremost, as the basis of any claim by pharmacists for special treatment.

The Official Journal as a Trade Paper.

I am glad to see that, according to the Society's revenue account for 1899, the official organ appears to have got well through the experimental stage into which it was thrust a few years ago. It is now received and read by more pharmacists than any other journal devoted to pharmaceutical topics in this country, and, I believe, has a weekly circulation in Great Britain not far short of that of all other similar papers put together. In that respect its position will doubtless improve steadily as time goes on, and as the paper is developed on such lines as will enable it to adapt itself to all the varying needs of British pharmacists. I am afraid Mr. Percy Wells cannot be regarded as a safe guide in that respect, though he appears to have got a faint glimmering of what is needed when he speaks of "the supplement." There is no regular supplement to the Journal at present, but it is a point worthy of consideration whether the existing inset pages might not, with advantage, be allowed to develop into a separately printed supplement, complete in itself and dealing exclusively with trade matters. Such a supplement might well have a circulation of its own, apart from its indissoluble connection with the Journal, though I would not for a moment suggest that the *P. J.* should attempt to rival one of its contemporaries, which contrives to mislead advertisers with regard to its circulation by occasionally issuing a few thousand extra gratuitous copies of a loose sheet. There is no occasion for the official journal to sin in that direction, for its regular weekly issue is so large that it is unnecessary to bolster up the figures representing a genuine circulation by any kind of semi-fiction. Nevertheless, I should be glad to see the multifarious nature of the ordinary pharmacist's occupation recognised even more fully than it has been by the Council, for that body, I presume, is directly responsible for such development as has taken place in the official organ of the Society during the past six years, and is alone competent to decide what further changes, if any, shall be effected in the future.

Turnover and Profits.

In addition to reading all the periodicals which cater especially for the needs of pharmacists, I like, at times, to dip into the pages of other trade papers, and, in glancing through the columns of a recent issue of the *Grocer*, I was pleased to find some useful tables on turnover and profits, in which the question of possible profit is placed upon a proper basis. Thus, to find the percentage of profit on cost, the rule is to multiply the profit by 100 and divide by the cost. Supposing, therefore, the cost is 8 and the profit 4, the percentage of profit on cost is 50, thus—

$$4 \times 100 = 400 \div 8 = 50 \text{ per cent.}$$

But, taking the same figures for cost and profit, the percentage of profit on sales is only 33, thus—

$$4 \times 100 = 400 \div 12 (4 + 8) = 33 \text{ per cent.}$$

To find what amount to add to cost to realise a certain rate per cent. upon the cost, we must multiply the cost by the rate required and divide by 100. Say the cost is 6 and the rate required 25 per cent., then—

$$6 \times 25 = 150 \div 100 = 1.5.$$

Finally, to find what amount to add to cost to produce a certain rate per cent. upon sales multiply the cost by the rate required and divide by 100 less that rate. Thus, if the cost be 6 and the rate required 25, then—

$$6 \times 25 = 150 \div (100 - 25) = 2.$$

A little time devoted to the study of the foregoing rules will be well spent by many pharmacists, and they may be glad to know that copies of the tables referred to can be obtained by sending an addressed envelope, with a halfpenny stamp affixed for postage, to Messrs. J. Bath and Co., 3, Crooked Lane, London, E.C.

ROYAL INSTITUTION.

On Friday, May 4, Dr. T. E. THORPE, of the Government Laboratory, Somerset House, delivered a lecture on

Pottery and Plumbism.

He showed the results of some recent chemical investigations which prove conclusively that lead poisoning among potters is a disease that can be stamped out. Lead is used by the potter for producing the well-known glaze on earthenware and china articles. Glazing is necessary to convert the porous, so-called "biscuit" ware, into an impervious material. It is obtained by using certain compounds of lead—*e.g.*, white and red lead, which are known as "raw lead," and lead silicate, formed by fusing litharge with flint. These lead compounds are mixed with silicates of aluminium and the alkaline earths to form a glazing solution. Lead poisoning is due to the solution of lead in the saliva and the gastric juice. The poison may enter the system in various ways; it may be inhaled as solid particles floating in the atmosphere, absorbed through the skin from the clothing, or introduced by eating with unwashed hands. Even the user of cheap earthenware articles is not exempt from liability to lead poisoning. A sample of mint sauce was found by the lecturer to be heavily contaminated with lead by standing for some few hours in an earthenware vessel. There are two ways of preventing this disease, both depending on a careful selection of the glazing materials. The first precaution is to select glazing materials free from "raw lead," and consisting of the silicate of lead mixed with other silicates. This compound is not so soluble as the "raw lead." In Germany it is illegal to sell any earthenware or china article which gives up lead when boiled for one hour in a 4 per cent. solution of acetic acid. A special commission was appointed in this country to find some means of combatting this disease and remove what constituted a grave scandal. As a result, the recommendation was made that manufacturers should substitute the silicate of lead for "raw lead," but unfortunately it was not enforced. It is noteworthy that a high percentage of lead in the mixture is quite compatible with a low solubility. While this precaution lessens the danger, lead poisoning can only be altogether avoided by abandoning the use of lead for glazing purposes. Leadless glazes are known to manufacturers of pottery, and answer the purpose as well. Many public bodies—*e.g.*, the Post Office—have notified manufacturers that all china and earthenware goods must in future be made for them by the leadless glaze process. In following this example the public may compel the manufacturers to take the only step that will effectually stamp out plumbism among potters.

On Thursday, April 26, Professor DEWAR delivered the first of a course of lectures on

A Century of Chemistry.

He pointed out that the scientific history of the Institution began with Sir Humphry Davy, and paid a high tribute to his singular boldness and originality in devising experiments, though he did not always show corresponding caution in drawing conclusions from them. Heat was at that time regarded as an entity which entered into combination with matter, and certain phenomena were explained as being due to the liberation of the specific heat of bodies. By grinding two pieces of ice together *in vacuo*, Davy showed that they melted, although the specific heat of the water produced was greater than that of the ice, thus establishing the truth of his view that heat was a mode of motion. He entered with great eagerness into the study of gases, to which the discoveries of Priestley and others had given prominence, and showed astonishing boldness in finding out their physiological action by experiments on his own person. Thus, having demonstrated the properties of nitrous oxide, now extensively used by dentists, he pushed his experiments with carbonic oxide so far as to put his life in imminent peril. That curiosity was the more remarkable

because he had left on record a very disparaging estimate of physiology, the ultimate object of which he declared must for ever remain unattainable. The same contempt for danger was shown in his experiments upon nitrogen chloride, which the loss of an eye and almost of his life did not deter him from resuming as soon as he could return to work. Davy's electrical work was next referred to, and some interesting pieces of his rudimentary apparatus were exhibited. He was able to detect exceedingly feeble currents by the aid of an instrument which the lecturer showed in operation, and with very simple appliances he attacked problems and arrived at conclusions which subsequent research had only confirmed and amplified.

On Thursday, May 3, Professor DEWAR delivered the second lecture of the series, in which he continued his examination of

The Work of Davy,

and showed the origin and development of the electro-chemical theory at the hands of that great investigator. By close reasoning from experiments, Davy arrived at the migration of atoms, or of ions, as the sufficient explanation of the phenomena of electro-chemical action. As freedom of movement among the atoms was a function of their temperature, it might be anticipated that at a sufficiently low temperature all voltaic piles would become inactive, and that was shown by Professor Dewar to be the case, by using temperatures far below those at Davy's command. An enormous stride was taken by Davy when he effected the separation of the alkali metals, and established the nature of chlorine. After proving the alkalies, which were then thought simple bodies, to be really compounds, he proved chlorine, then thought a compound, to be a simple body. To Davy was due the first clear and philosophic conception of an element as simply a body which cannot be decomposed by any methods at our command. However easy that conception might appear to-day, it met with much opposition even from some very distinguished chemists when Davy first put it forth. The invention of the safety-lamp gave Davy a place in popular estimation which his abstract researches would hardly have won for him. The safety-lamp remains to this day essentially what Davy made it, improved perhaps in workmanship and details but depending on the identical ideas Davy developed.

ROYAL SOCIETY.

The rooms occupied by the Royal Society at Burlington House, Piccadilly, W., were thronged on Wednesday evening, May 9, by a large assembly of Fellows and their friends, the occasion being the

Annual Conversazione,

presided over by the PRESIDENT, Lord Lister.

In addition to about thirty exhibits of scientific apparatus, etc., to which reference will be made, several

DEMONSTRATIONS

were given during the evening by means of an electric lantern. Sir Andrew Noble, K.C.B., F.R.S., led off with some illustrations of Modern Explosives and the results connected therewith. A considerable variety of explosives were shown, descriptions being given of the effect of some when exploded or detonated; a few experiments were made, and the results of others exhibited with lantern slides. The effect of erosion in guns was also shown, as well as the results of experiments made with the object of minimising erosion.

Dr. ARTHUR W. ROWE, F.G.S., followed with a series of splendid illustrations of the Photomicrography of Chalk Fossils, shown by reflected light. The photomicrographs exhibited the beautiful and delicate features of the fossils—consisting chiefly of sponges and bryozoa, developed from the matrix by means of a dental engine—in a most wonderful manner, every detail being shown distinctly. The forms of fossils exhibited have been not

a little neglected by geologists on account of the difficulty of extracting them from the matrix; but by means of the dental-engine every particle of chalk can now be removed, so that the fossil stands out clearly and may be examined and photographed from every side. Dr. Rowe also exhibited the series of *Micraster* used to illustrate his paper on "An Analysis of the genus *Micraster*," recently published in the 'Quarterly Journal of the Geological Society.'

Mr. F. ENOCK, F.L.S., gave a series of lantern illustrations of Photographs from Living Insects, showing the metamorphoses of one individual nymph of *Aeschna cyanea* from the moment of quitting the water to that of the perfect imago.

Mr. H. B. HARTLEY and Mr. H. L. BOWMAN, M.A., demonstrated the Properties of Crystals yielding Doubly-refracting Liquids on Fusion. Certain crystalline organic compounds—viz., *p*-azoxyanisole, *p*-azoxyphenetol, and cholesteryl benzoate, have been found by Professor Lehmann, of Carlsruhe, to give on melting (at temperatures of 116°, 134°, and 145° respectively) liquids possessing the properties of double-refraction and dichroism, even under conditions in which a state of strain is impossible. When these anisotropic liquids are further heated, they change at definite temperatures of transition (134°, 165°, and 178° respectively) into ordinary isotropic liquids. The intermediate bodies have been called "liquid crystals," for, although the evidence of their elasticity, viscosity, and dielectric capacity shows them to be undoubtedly liquids, yet nevertheless they possess, like crystals, both double-refraction and dichroism.

Mr. RICHARD KERR, F.G.S., exhibited a clock—the invention of Mr. Isaac H. Storey, of Lancaster—which is controlled at a distance by wireless telegraphy of the Hertzian wave system. A receiving instrument with a coherer was attached to the clock; a transmitting instrument in another part of the room gave rise to ethereal waves, which, acting upon the coherer, set the works of the clock in motion. Based upon this system, a method is being devised by which all the clocks in a city can be made synchronous, and can be driven without springs or pendulums other than the standard driving pendulum at headquarters, and also without the intervention of air-tubes or electrical wires or any device involving the erection of poles or the tearing-up of streets. Correct time, hitherto an unknown quantity in all the clocks of a city, will thus be available to everybody. Mr. Storey, it is understood, is at present completing plans whereby he will steer and direct a steam-launch at a distance of several miles from the operator, and entirely without the intervention of wires or any connection other than that of the Hertzian waves. This, it will be seen, opens up the great possibility of controlling and directing war vessels from any central station, such as a fort or an ironclad.

THE EXHIBITS

were of an extremely interesting character, not only from a scientific but also from a general point of view.

Sir H. HOWORTH showed a box, believed to be unique, painted by De Hooze Straten, representing the interior of a Dutch house. Its chief interest, apart from its character as a painting, is that it is an extraordinary *tour de force* in perspective—perhaps the most remarkable example of the application of the scientific principles of perspective extant.

Professor J. W. JUDD, C.B., F.R.S., on behalf of the Coral-Reef Committee of the Royal Society, exhibited specimens from the Reefs of Funafuti illustrating the rate of growth of corals and calcareous algæ; new and interesting forms of Foraminifera, which have been described by Mr. F. Chapman, including *Cycloclypens*, a genus previously regarded as being very rare, but now shown to exist abundantly at Funafuti; a curious form of *Polytrema*, which occurs encrusting various objects in alternate layers with the marine alga *Lithothamnion*, thus forming loose nodules; and the newly-described *Haddonina*, first obtained from Torres Straits.

Professor H. G. SEELEY, F.R.S., exhibited four natural-size

drawings illustrating Restorations of *Dimorphodon*. The drawings, based upon fossil remains from the Lias, in the British Museum, represent the skeleton as in the quadruped and biped positions, and show the contours of the body at rest, walking, and preparing for flight, to illustrate proportions of the skeleton. The drawings were made from working models with the wing membranes attached to the bones.

Prof. E. RAY LANKESTER, F.R.S., on behalf of the Archæological Survey of the Egypt Exploration Fund, showed a number of reproductions of Paintings and Sculptures in Tombs of Ancient Egypt, representing domestic and wild animals and birds. In spite of the artists' ignorance of perspective and occasional faulty colouring, the outlines were rendered with remarkable fidelity to nature, often enabling the species to be identified. Among domestic animals, the dogs were perhaps the most interesting, as showing that extreme development of various breeds had already taken place. The monuments from which the drawings exhibited were copied were of two periods:—(1) Tombs at Beni Hasan, of the XIIth Dynasty (*circa* 2000 B.C.); (2) the Tomb of Ptah-hetep at Saqqarah, of the Vth Dynasty (*circa* 3000-2500 B.C.).

Maps illustrating the Total Eclipse of the Sun of May 28, 1900, were exhibited by Dr. DOWNING, F.R.S. These included a general map of the eclipse, prepared by Señor Tarazona; the path of the moon's shadow across Mexico, and the path of the moon's shadow across the United States, prepared by Professors Todd and Brown; the path of the moon's shadow across Portugal, Spain, and Algiers, prepared by Señor Tarazona; and the stars and planets in the neighbourhood of the sun, prepared by Mr. A. C. Crommelin.

Mr. H. O. ARNOLD-FORSTER, M.P., had on view a specimen map from the London School Atlas—an atlas for Elementary Schools, to be published by the London School Atlas Company, Limited, which contains 48 pages of maps and 8 pages of text. He also exhibited the original drawings for plates appearing in the Atlas.

Mr. J. WIMSHURST, F.R.S., again gave practical demonstrations of the utility of his well-known Influence Machine—constructed with twelve plates of vulcanite—for either screen or photographic work in the hospital or on the battlefield.

An exhibit of especial interest to photographers was that of Mr. THOMAS THORP, showing Celloidin Grating Films and their application to Diffraction Colour Photography. Celloidin films of diffraction gratings, of about 14,500 lines to the inch, are impressed on chromated gelatin plates, the surface of which thus becomes grooved. Light falls on the gelatin surface through photographic transparency. The celloidin film is detached and the plate immersed in warm water, when an image appears in grooves more or less decided. The pictures are superposed and illuminated, and are then seen in their natural or other desired colours stereoscopically.

Prof. MINCHIN, F.R.S., gave practical demonstrations of flashes induced in a helium tube by Hertz waves, while Prof. SILVANUS P. THOMPSON, D.Sc., F.R.S., made several electromagnetic experiments, the converse of that made by De La Rive, using a floating magnet instead of a floating battery. He also demonstrated new varieties of the De La Rive experiment. Mr. A. P. TROTTER, M.Inst.Elect.Eng., had models illustrating leakage from electric tramways.

Messrs. W. A. SHENSTONE, F.R.S., and H. G. LACELL exhibited Apparatus constructed of Vitreous Silica. It comprised a long tube for use with a platinum thermometer, a mercury thermometer, bulbs and stems for thermometers, a Giessler tube, a small distilling tube, and rods and tubes of various sizes for various purposes. They also exhibited a quantity of non-splintering silica, suitable for use in the oxygen flame, and gave practical demonstrations of the method of converting this into tubes and other forms of apparatus, together with experiments to illustrate the

behaviour of vitreous silica under sudden and great changes of temperature.

Improved forms of Standard Resistance Coils were shown by the CAMBRIDGE SCIENTIFIC INSTRUMENT Co., Limited, Cambridge. The coils are of bare wire wound on mica frames, and are immersed in oil of high insulating properties, which can circulate freely in the vessel. The reading of a thermometer in the oil gives the temperature of the coil. One of the coils exhibited, by permission of the Board of Trade, was fitted with a platinum wire wound parallel to, and on the same frame, as the platinum-silver wire. These wires have very different temperature coefficients, and by measuring the resistances of both coils the temperature of the standard coil can be determined to a high degree of accuracy. The coils are annealed by heating them by a current when finished.

Mr. P. E. SHAW exhibited an Electric Micrometer, designed primarily to measure the small movements of a telephone diaphragm. A screw abuts on a system of three levers, set up on a strong wooden frame. By turning the screw the far end of the levers moves to and fro through distances which can be controlled and measured. This end of the levers carries a rod, and the diaphragm a small plate, both of iridio-platinum; if these two surfaces touch one another a flow of a small amount of electricity occurs, producing a sound in a telephone held by the observer; at the same time he reads by a telescope a graduated circular scale fixed on the screw. Since the screw and levers can be moved at will by the observer, he can, by this contact method, find the position of the diaphragm and follow its movements. Precautions against vibrations are taken by having india-rubber suspensions, and against temperature changes by covering the working parts with boxes wrapped in felt. Movements as small as 1/200th of a wave-length of sodium light have been measured by this apparatus.

Other exhibits included a set of Anthropometric Instruments, by Dr. J. G. GARSON, for the use of travellers desirous of making anthropometric observations on native races, or on the inhabitants of any special locality, whether at home or abroad; also instruments and apparatus used in England for making metric observations on prisoners in connection with the identification of criminals by means of that system; longitudinal sections of Filariated Mosquitoes (*Culex ciliaris*), showing that *Filaria nocturna*, like the malaria parasite, leaves its mosquito host *via* the proboscis, exhibited by Dr. MANSON; remains of extinct gigantic and lesser Lemurs from Madagascar, and living forms for comparison, shown by Dr. C. I. FORSYTH-MAJOR, F.Z.S.; a collection of living marine worms (Annelids) from the neighbourhood of Plymouth, designed to illustrate, as far as possible, the prominent features in the habits of life of the different types of this class of animals, and such modifications of form as are related thereto, exhibited by the MARINE BIOLOGICAL ASSOCIATION; examples of leadless glazed ware, shown by Dr. T. E. THORPE; specimens of the decorative art of the sea Dayaks of Sarawak, by Prof. A. C. HADDON, F.R.S.; jointing boxes and aigrettes, used in the re-arrangement of the Lightning Conductors of St. Paul's Cathedral, by Mr. KILLINGWORTH HEDGES, M.Inst.C.E.; a volume of photographs of Stars, Star-Clusters, and Nebulæ, by Dr. ISAAC ROBERTS, F.R.S.; ethnographical objects from Malay Peninsula (Malay and Sakai), including phonographic record of the songs of the Pangan tribe, a wild aboriginal tribe of Negrito stock, by Mr. W. W. SKEAT; section cut from the tree on Lake Bangweulu, Central Africa, under which Livingstone's heart was buried, and containing the inscription carved by his native followers, by the ROYAL GEOGRAPHICAL SOCIETY; and a photograph of the statue of the late Professor Huxley, Pres. R.S., now in the Natural History Museum, South Kensington, by Mr. H. R. HOLDER.

POLITICAL GOSSIP.

MR. BALFOUR'S PLEDGE to give several days' notice of the second reading stage of the Companies Bill was not, it appears, a permanent pledge, and was not intended to possess any of the dictionary attributes usually associated with the noun. The First Lord of the Treasury has, indeed, established the interesting fact that there are subtle distinctions and degrees in Parliamentary promises, and that the specimen he exhibited just before Easter (see *ante*, p. 282) had only a transitory *nuance* of sincerity. The situation is, therefore, that the second reading of the Companies Bill may come on suddenly, but not just yet. Mr. Balfour has definitely stated that he is not desirous of immediately taking measures of such importance as the Companies Bill, and the policy of the Cabinet right through the session has been to deal with the "small fry" of legislative proposals, rather than the more adult and vigorous items. It is a pretty open secret too in Parliamentary circles that the Bill will not be pushed on by the Government unless events in South Africa should render the prospect of an early dissolution hopeless. It will be just as well, however, for the Parliamentary Watch Committee of the Council not to be deluded into a sense of false security by the procrastinating tactics hitherto adopted by the Ministry, or by the rumoured intention of Mr. Ritchie to advise the omission of Clauses 2 and 3 of the Bill.

THE BIRMINGHAM CHAMBER OF COMMERCE having carefully considered the Companies Bill, expresses general satisfaction that the subject of company reform is occupying the attention of the Legislature, but it is not satisfied with some of the clauses of the Government Bill. A petition has therefore been presented to the House, on behalf of the Chamber by Mr. Jesse Collings, embodying a number of suggested amendments. Among the suggestions is one relating to Clause 3, and it reads thus:—"This clause should be limited by the exclusion of companies coming under Section 23 of the Companies Act of 1867." Presumably the Birmingham Chamber of Commerce regards Clause 2 as being perfect as it stands, for nothing is urged against it in the petition. This is all the more inexplicable when regard is had to the fact that the Secretary to the Chamber, and one of the signatories to the petition, is Mr. W. F. Haydon, who, if we are not mistaken, is a pharmaceutical chemist, and was at one time intimately connected with an association for protecting the trade interests of chemists and druggists.

PERSISTENCE is usually regarded as a virtue by those who possess the faculty, or who profit by its exploitation, but, like vaulting ambition, it sometimes overdoes the business. Mr. MacNeill, for instance, is a perfect genius of interrogation, and has never shown the faintest signs of weariness in plying ministers with queries about members of the Cabinet who are company directors; yet he does not advance matters much. Here is Mr. Balfour's answer to his onslaught on Thursday week. "I have answered questions on this subject twice in 1895, three times in 1898 and twice in 1899, and have also made long and elaborate speeches thereon. I really have nothing to add." Really this treating the virtue as a disease must be very galling to a persistent man with a mission. Undismayed and unabashed however, Mr. MacNeill revived the matter on Tuesday in the shape of a motion setting forth that the position of a company director was incompatible with the position of a Minister of the Crown; but the House again administered the snub direct by rejecting the motion—but by a majority of eleven votes only.

ANOTHER REFORMER.—Major Rasch—failed to carry his reform on Tuesday. He desired to pin the House to the rule that no speech (except by the big Treasury guns and movers of Bills or Resolutions) shall exceed twenty minutes. A majority of 46 in a House

of 230 members decided that no such restriction was desirable or necessary. The gallant member for S.E. Essex was consoled—or at any rate it was the only consolation offered—by the fact that a marked improvement had taken place in the House in the matter of speeches during the past few years, and that members generally were more business-like and less prolix.

THE SUCCESSOR to Sir William Priestly in the representation of Edinburgh and St. Andrews is not, after all, J. M. Barrie the "Little Minister," but Sir John Batty Tuke, M.D. The new member is a Fellow of the Royal College of Physicians in Edinburgh, and represents that body on the General Medical Council.

THE DEPARTMENTAL COMMITTEE of the Local Government Board, which was entrusted with the investigation of the question of the innocuousness or otherwise of food preservatives, is hearing evidence from medical experts under the presidency of Dr. T. E. Thorpe, F.R.S.—the Principal of the Government Laboratories. On Monday last four medical practitioners of standing gave testimony that may be summarised as being chiefly against the use of preservatives. Dr. R. Hutchison, however, considered that the use of boric acid and borax rather conduced to the health of the public, inasmuch as it tended to prevent the diseases produced by bad milk. Personal experiment had convinced him that the above-mentioned articles were perfectly harmless. On the other hand, Dr. E. H. Starling, on behalf of the Royal College of Surgeons, urged the prohibition of formalin, salicylic acid, boric acid, and borax. The other two witnesses held the view that preservatives in milk were unnecessary, but whereas one of the twain pinned his faith on sterilisation and cleanliness, the other was understood to entertain a very poor estimate of the value of the boiling or sterilising process. This brief note on the evidence given will be sufficient to convince the average man that the investigation in progress is no light task.

THE WEIGHTS AND MEASURES BILL which was brought in last Session by Mr. Bousfield (Hackney, N.), and was then commented upon in this column, was reintroduced on the 2nd instant, and is placed for second reading on the notice paper for Wednesday next. A large amount of extra work is proposed to be placed on the Board of Trade by the Bill, and the President of that Department may be excused if he is not quite prepared to endorse the views of the promoters of the measure. The abolition of cased weights is a feature in the Bill, and the provisions otherwise appear to be restricted to weights and measures used in trade.

EXTRACTS FROM CONSULAR REPORTS.

THE QUININE MANUFACTORY established in Java in 1897 is reported to have been well supported by most of the cinchona planters, who, during the first year, gave it a sufficient share of their bark for manipulation to enable it to work steadily throughout 1898, and to deliver about 500,000 ounces of quinine sulphate. Since then its capacity has been considerably enlarged, the bulk of the Bandong manufactory's product being shipped to London, whilst large shipments have also been made to New York and Amsterdam, and smaller consignments to Australia, China, Japan, and the Straits.

THE CINCHONA CULTIVATION COMPANY—"Pandan Aroem"—has erected a manufactory on its estate at Paroeng Koeda, in the Preanger Regencies, to convert its bark into quinine, but so far the greater part of the output is said to have been sold for local consumption, only small quantities being exported.

LETTERS TO THE EDITOR.

The Council Election, 1900.

As I have reason to believe that there may be a misunderstanding as to my position with reference to a circular recently issued by some of the friends and supporters of the retiring members of Council, I desire to state that whilst I am naturally gratified to have this evidence of confidence, the circular was drawn up without my knowledge or authority.

May 9, 1900.

WALTER HILLS.

We wish to emphasise and place on record the fact that it has been found necessary on behalf of five out of the seven retiring Councillors to repudiate their former action in Council, and to adopt the policy of the majority of the Law and Parliamentary Committee in order to have—as we must conclude—any chance of re-election. This recantation appears to us to savour of electioneering strategy, which is not always above suspicion. We regret that this action could not have been taken earlier; but, on the other hand, we are glad to have even at this late hour the position Mr. Gifford and our Association have consistently fought for so completely justified. In a circular issued on behalf of the seven retiring Councillors there appears the following sentence:—"There is also reason to believe that some of the proposed new members may be prevailed upon to favour a policy of allowing limited companies of unqualified men to legally dispense and deal in poisons provided some one or more of the directors are qualified. This would be a fatal mistake, and strike at the root of the principle of the Pharmacy Act, 1868." This declaration is emphatically one of "No compromise," and is contrary to the votes and expressed views of several of the retiring Councillors. It is to be hoped that the electorate will treasure up this precious document, and in the event of these gentlemen being elected will hold them strictly to the views expressed on their behalf.

Blackburn, May 7, 1900.

JOSEPH HINDLE,
WILLIAM HOLT,
PERCY BEAN.

** Whilst finding space for the foregoing letter from Mr. Gifford's Election Committee, we must point out that Mr. Percy Bean is not a member of the Pharmaceutical Society and is therefore not entitled to interfere in its affairs [Ed., P.J.]

We want new blood in the Council—men whose minds are made up on the all-important and pressing question of company pharmacy. Mr. Walter Hills must be re-elected, and Mr. Storrar, although not so full-blown as we should like, is a sound and safe Councillor. The four gentlemen recommended by Mr. Glyn-Jones's Committee are well-known men, whose presence in the Council should tend to stir the other members to vigorous action in the important work which lies before them. If we are to have some new Councillors united action is necessary. There are many good men seeking election, but we can't put them all in—hence selection is imperative if success in this direction is to be gained. It is desirable that Council honours should go round. Men elected and re-elected time and again often become stereotyped. This conservatism has of late become too pronounced. Ours is not a hereditary chamber, nor is the Council or elected *ad vitam aut culpam*. Since we have universal suffrage, why should our Council not be a thoroughly representative and democratic body? Why should I vote for Mr. Slowgoing or Mr. Waitawhile simply because they have been sitting for twenty or thirty years in the Council, when Mr. Goahead and Mr. Thoroughgoing are ready to advance the reforms demanded by registered chemists? What is most to be deprecated in the Council is the halting and uncertain policy pursued in regard to company pharmacy. It is known that many of the Councillors have given up hope of stopping company trading, yet very few are frank enough to publicly say so. This non-committing has the effect of catching blind votes. The Council members

thus re-elected assume that the go-as-you-please policy has been approved by the electorate, and the blundering continues.

Edinburgh, May 5, 1900.

W. S. GLASS.

Will those members who are determined that the Society shall adopt a more vigorous policy, instead of using their votes on behalf of those who are seeking re-election, and whose return is practically assured, divide their votes amongst seven of the new candidates who have pledged themselves to do all in their power to protect their trade interests?

London, May 8, 1900.

C. E. PICKERING.

The Poison Schedule.

The list of "drugs and preparations included in the schedule of poisons" published in this week's issue of the *Pharmaceutical Journal* contains certain items—and certain omissions, if a Hibernianism be permissible—the reason for which is not evident. I would therefore respectfully invite discussion upon these points, viz.:—Why are apomorphine hydrochloride, codeine and its phosphate, and the three official salts of morphine placed in part 2 and not in part 1 of the schedule? "Poisonous vegetable alkaloids and their salts" are distinctly mentioned in part 1, and such I contend these are, and not merely "preparations of morphine," which belong to part 2. Second: Why are liquid extracts of coca, ipecac., and jaborandi, green extract of hyoscyamus, extract of Calabar bean, vinegar and wine of ipecac. included in either part of the schedule? These I consider to be preparations of crude drugs which are not recognised as poisons by the Pharmacy Act, and of them only the preparations of ipecac. are standardised to contain a definite quantity of alkaloid. If these preparations are to be scheduled because they contain alkaloid, why should not the crude drugs be scheduled for the same reason? The schedule of the Act makes a distinction in certain cases—e.g., "belladonna and its preparations" are scheduled, but "chloroform" alone is scheduled, nothing being said about its preparations; yet we have legal decisions to the effect that he who sells a preparation of a poison sells the poison itself. If the articles I have mentioned have been included on the ground of their being preparations of alkaloids—which I am not prepared to admit them to be—I am at a loss to understand why preparations of other scheduled poisons—viz., liniment, spirit and water of chloroform, antimonial wine, red and white precipitate ointments—have been omitted. Third: Why are cantharides plaster and ointment and warming plaster placed in part 2? Cantharides is in part 1, its tincture and vesicating liquid preparations are in part 2. These are questions of more than mere academic interest to the trade as a whole, and I would be glad to know what views are taken of them by others, as they concern the student, the teacher, and the wholesale and retail pharmacist.

Newcastle-on-Tyne, May 5, 1900.

FRANK R. DUDDERIDGE.

A Protest from Dr. Symes.

I have received a gratuitous copy of a journal devoted to pharmacy, and, assuming there was some special object in sending it to me, I looked through its pages, and found that my name occurs a dozen or more times therein. The grievance is the subject of my remarks at the last meeting of the Liverpool Chemists' Association, where I had been asked to open a discussion on "Companies and Pharmacy." The report of my remarks is a condensed one, differing in some essential points from that in the *Pharmaceutical Journal*, and seems made rather to fit the criticism than the criticism to fit it. In the concluding lines, however, it is absolutely incorrect in saying, "In conclusion, he suggested passing a resolution supporting the Council of the Pharmaceutical Society in their opposition to the Bill." The statement is unfair alike to the members present, to myself, and to the Pharmaceutical Council. The resolution was moved by Mr. T. F. Abraham, and the action was entirely voluntary on his part, and the support given to the resolution was not at my suggestion in any way. Another journal reports my remarks and the proceedings very fairly, but the editor suggests

that I was providing "food for the enemy." I have always given that gentleman credit for considerable astuteness, and, if I am not mistaken in my assumption, he is fully aware that "the enemy" knows quite as much about the laws affecting pharmacy as we do, and requires no feeding on my part. If we are to do any good we must look the matter as it stands fairly in the face and deal with it according, rather than attempt to gain any advantage by trusting to the ignorance of those affected by it. The more absurd and anomalous our position can be shown to be under existing circumstances, the more reason have we to hope to obtain fresh legislation of a beneficial character.

Liverpool, May 7, 1900.

CHARLES SYMES.

The Journal and Its Needs.

Mr. Percy Wells' idea of a supplement to the Journal may look somewhat like a "joke," but it has often occurred to me that as a means of strengthening the Society a trade supplement would be a very good thing. There is much talk in these pre-election days of the difference in the points of view from which matters pharmaceutical are regarded between West-end London pharmacists and their provincial brethren. It may be—I hope it is—the fact that West-enders are to a man in the happy position of being able to subscribe to all the trade journals. I know, however, that we in the provinces are not all so pleasantly circumstanced, and when I read railings or bewailings editorial in your pages on the iniquity of registered men failing to see that it is their duty to join the Pharmaceutical Society, I sometimes wonder why it is not more clearly perceived that this reluctance may proceed from other causes than simple apathy.

The Journal, while not retrograding on its scientific side, has in recent years improved immensely as a trade paper. But, while this is so, there is no use blinking the fact that in this aspect it has to contend with strong opposition. This would be a matter for congratulation to the body generally were it not the case that, for the financial reasons suggested, success of the opposition journals tends inevitably to limiting the number of the Pharmaceutical Society's members. It may seem a large order to demand that you not only provide for us in the official organ the best scientific journal, but that in addition you give us in it the best trade journal. But that is the order. You have already gone a great way towards filling it, and if this "notion" of a trade supplement be properly handled it is possible that another long step in the right direction will have been taken.

My idea of what this proposed supplement should contain is not that of Mr. Wells' by any means. If we are not too proud to learn from our competitors, we know already, in the main, what a business supplement should look like. I feel sure that if the average man, who cannot afford to patronise all the journals, could be assured that the official organ—in its supplement or elsewhere—contained week by week the fullest collection of matter (and advertisements) interesting to him in his business, when he came to make the choice between joining the Society or contenting himself with the position only of subscriber to an unofficial journal, he would prefer to attach himself to the Society. I am aware that this is putting the matter on a not very exalted plane. We have sometimes, however, to look low for a thing which has been dropped, and in this case if we have not dropped we have certainly failed to pick up.

This letter is already too long; but I would like, before closing, to suggest—for others to think of—how comparatively small would be the expense of sending a supplement every week, free, to every chemist in business, and how great, in all probability, would be the effect in a few years on the membership of the Society.

Glasgow, May 5, 1900.

T. G. (31/8).

Of Things in General.

As a chemist of the second generation, with one of a third growing up, I have naturally taken a deep interest in all that concerns our business and profession. Having passed the qualifying examination early in 1873, I eagerly allied myself

with the Pharmaceutical Society, in the confident expectation that, while safeguarding the interests of the public, it would also see that those of its members would not be lost sight of, for, if the interests of the public were alone to be served, why should we alone have to bear the cost? That the interests of the members have not received that attention which many of us think we had a right to expect, is proved by the facts that we have had to organise subsidiary societies such as the P.A.T.A. and Chemists' Defence Association; that no amended Pharmacy Act has been urged upon the Government, after the Lords' decision had practically knocked the bottom out of that of 1868, and in various other ways which have been pointed out in recent correspondence and in speeches at meetings of chemists all over the country. Of recent pharmaceutical politics, which have been discussed *ad nauseam*, I will say nothing more than that I cannot understand there being more than one opinion upon the two questions of the sole right to the use of our titles and sole right to sell and dispense poisons. These are the irreducible minima, upon which there must be no compromise. Personally, I even go further than that. I think that as individual chemists, and as a Society, we have been much too modest in our claims, and the world and Parliament have been very apt to take us at our own valuation. If the two restrictions mentioned constitute the whole advantage we are to obtain, why go to the trouble and expense of passing examinations covering so much ground? Logically, we ought only in that case to be examined as to our knowledge of toxicology. Every chemist knows that there are a hundred and one drugs and chemicals in the Pharmacopœia not scheduled poisons which yet require care in handling and in their administration; many of these are used in domestic medicine, in arts and manufactures, and we are constantly called upon to answer questions as to their use and limitations, to give advice and cautions, and generally to protect the public from any possible ill-effects of their own want of knowledge. All such active substances should be procurable only from educated pharmacists, and should not be sold by grocers and hucksters, for when the blind lead the blind both are apt to fall into the ditch.

A restriction such as suggested would have the indubitable effect of improving our position, but it would also undoubtedly be very greatly to the advantage of the public. The sole right to our titles must, of course, remain, but the mere restriction of the sale of poisons to qualified chemists, even when companies are exempted, would be of precious little benefit to us, and not nearly enough for the public. I am fully aware that when any chemist ventures to make such claims he does so at his peril. He is howled down, strange to say, not by the public, but by his own Journal, by members of the Council, and by brother chemists not so unfavourably situated as himself. He is told that he is ignorant of pharmaceutical history, of the tendency of the times, the sacred name of free trade is trotted out to give him the *coup de grace*, and he is strongly recommended to retire to that obscurity from which he ought never to have emerged. Yet I know that similar opinions to these are held by large numbers of the rank and file in our craft. Unfortunately, many of these are inarticulate, because they have lost all hope of the assistance of their Council in the attainment of those objects which they believe to be theirs by right. It has been iterated and reiterated times without number that there is not the slightest hope of such Utopian ideas being accepted in Parliament, that it is a mere crying for the moon, and a waste of time and energy to bring them forward. Now, I do not for a moment believe that such is the case; whenever I have carefully and fairly explained the position to friends, they have invariably expressed surprise that any unqualified person or company should be allowed to sell physiologically active drugs or chemicals, whether actually poisons or not, and many of them were under the impression that the public had that amount of protection already. If the whole case were fairly stated, if we demanded what we have earned as a right, if it were shown that we had done our part by passing increasingly stringent examinations, and by so doing fitted ourselves for the

guardianship of the public interests, I am not yet convinced that even Parliament would not acknowledge the justice of our claims, and grant us a measure that would be at one and the same time a boon to us and an undoubted protection to the public. If, on the other hand, we approach Parliament "with bated breath and whispering humbleness," we need not be greatly surprised if we are, metaphorically speaking, kicked downstairs.

Even in the matter of jury service our Council dared not claim exemption for all on the Register, and we were told that such a claim would not be entertained for a moment, and yet, years afterwards, such a claim was made on behalf of our dental friends and accepted by Parliament, so far as I know, entirely without demur. I will venture to say that our right to exemption was much, very much, stronger than theirs, for Parliament had imposed upon us the duty of personal service to the public, a service which we were not allowed to delegate to our assistants. As an excuse for the inactivity of our Council, I have no doubt but that some kind apologist will triumphantly call my attention to the carbolic acid case as illustrating the difficulty of our position, and the all but impossibility of gaining even a proper protection to the public if that would involve some protection to us. Well, but even in that instance I do not for a moment admit that we have exhausted all the resources of civilisation. We could educate the public by occasional letters in our local papers, we could put up members to ask questions in Parliament, we could show how large a proportion of the deaths by poison were caused by carbolic acid, how often juries had strongly recommended it to be placed under proper restrictions, and how frequently coroners had publicly complained that no notice was taken of such recommendations. If the question was in these and other ways forced to the front, even such a tardigrade body as the Privy Council would be compelled to act in a matter which could so clearly be shown to be in the interests of the public; and I believe that similar measures would do much towards forcing through Parliament a Pharmacy Bill which would be a real boon to us, and not less really so to the public. Further than this, as it was a pharmacist in Parliament who first gained for us legal recognition, I would suggest that if all else fail, we should take steps to send other pharmacists there. In conclusion, I think that we have reasonable cause of complaint in the attitude our Journal assumes towards reforms, but more especially towards reformers. It is too much of a government organ for voicing the official mind and too intolerant of all but a colourless criticism of the Council. I have noted, with some indignation, a disposition to sneer at Lancastrian chemists, and several individuals whose only offence has been the advocacy of opinions differing from those held by the official pharmacists, have been most superciliously snubbed in one number and perhaps unmercifully castigated in the next. This ought not to be; the Journal is ours, and ought to exist only for our interests, and every member of the Society has an undoubted right to ventilate his opinions, provided always that he does so courteously, in temperate language, and with a due regard to the feelings of others. I trust that the awakened interest in the forthcoming election will result in a considerable infusion of new blood, so that the interests of the craft may be more vigorously prosecuted than has hitherto been the case.

A ROSSENDALE CHEMIST (31/9).

Rawtenstall, May 7, 1900.

Sorting the Sorters.

Though it may be too late for me to disinherit the chaos that prevails in and about this Council election, I have shaken off a legarthy regarding the trend of pharmaceutical affairs that has held me for a time. If, therefore, I may be allowed such space in the Journal as has been granted to others whose rapid outpourings have made confusion more confounded, we may bring order to the pharmaceutical barque and its undisciplined crew to our honour and glory for the common good. To make straight the path seems almost beyond the wit of man, as the amount of accumulated rubbish for which the Journal has of late been a

"free coup," or dumping ground, has first to be cleared away. I voted for Mr. Glyn-Jones at his former election and also gave him my moral support, for he is a strong man. He has, however, been beating the air, and at this time a period set apart with his four satellites for reflection will do him no harm and may prove advantageous. He reasons that limited companies, having stolen our donkey and utilised it so long as to acquire a vested interest in it, we cannot get it back; therefore, he would let them also have its harness and barrow. No, Mr. Glyn-Jones, we will not take for granted what has been too readily assumed without proof. There has been more than enough of sentimental twaddle about "the safety of the public" as the chief influence on Parliamentary legislation. The safety of the public is ensured as much as it can be by the requisites of pharmaceutical examination. Parliament did give, and purposed giving, a monopoly in passing the Poisons Acts and granting a charter to the Pharmaceutical Society. There is no logic, nor any sense, in the Courts' axiom that a corporate body cannot be qualified. The existence of the Pharmaceutical Society gives it the lie, because it is a corporate body, and had there been no qualification it would never have been incorporated. Neither would Parliament grant immunities to an irresponsible combination while it denies them to an individual singly.

Herein lies the straight issue our Mr. Lord Gifford has begun to clamour about. He, nevertheless, hugs the shadow of names and titles more than the substance of practical business; and when he so strongly asserts that his business interests are his own affair he demurs to anyone else taking an interest in them. Now, the whole pharmaceutical trouble springs from no merely sentimental ideals, but from the havoc done or threatened to business interests. The past history of Council procedure for twenty years shows grievous error in not rightly estimating this and acting on it. Mr. Lord Gifford, being so minded regarding his own business interests, does not take the right way to show fitness to look after the interests of pharmacists generally, and it would be a pity to take him away from his household gods. Peace be with him.

In conclusion, it is better to endure the ills we have than fly to others while our would-be councillors have hazy and immature notions of the duty lying before them. Mr. W. L. Currie, of Glasgow, seeks to represent the wider field of pharmacy at this time. He rightly thinks that we, as pharmacists, have no call to give form to a Limited Companies Bill; and though he does not trot a particular hobby-horse, his is the best kind of new blood to infuse into the London Council—strong, without being headstrong, and practical. Give the Council a little Currie and its quality will be greatly improved. Those who have not yet returned their voting papers will do well to return representatives pledged to oppose Clause 2 of the Companies Bill and force the new Council to take active measures. The wire entanglements and barbed fences we have made a terror to ourselves are of our own construction, and more imaginary than real as evidences of a strong position on the part of limited company pharmacy. Let us make a frontal attack and see. I have now put my hand to the helm of the drifting ship, and if there is any steam in its badly-corroded boilers I will make her bump.

Larbert, May 8, 1900.

ALEXANDER LAING.

The Title of The Qualifying Examination.

I notice that at a meeting of the Public and Poor-law Dispensers' Association, held on February 28, Mr. Frederick Davis suggested that the name of the qualifying examination should be changed. I consider this an excellent suggestion. There can be no doubt but that the term "Minor" is a very misleading one, and liable to give a totally inadequate idea of the scope and difficulty of the examination to anyone not conversant with the subject. "Qualifying Examination" would be a much better

title. I hope the Pharmaceutical Council will see its way to make the alteration.

Southport, May 8, 1900.

C. F. JESPER.

"The Outlook in Pharmacy."

I have received a number of applications for copies of my paper, "The Outlook in Pharmacy," from various parts of the country. May I have the use of the Journal columns to say that my supply of these is exhausted? The paper may be seen verbatim in the Journal of February 17 last.

Bolton, May 7, 1900.

JOHN TAYLOR.

The Literature of Pharmacognosy.

I note in the Journal of May 5 (p. 487), that Mr. F. W. Gamble is reported as saying at the meeting of the Chemists' Assistants' Association, that, "speaking of the literature of pharmacognosy, it was curious that so little has been done by English workers. So far as he knew, Professor Greenish was the only Englishman who has taken up the subject thoroughly in recent years." This seems to me a little unjust to previous English workers, who, not professionally, but in their spare hours after business, have devoted time to original work on this subject. Mr. H. Pocklington in the *Pharm. Journal* [3], 2, 3 and 4, gave a long series of articles on pharmacognosy, under the title of "The Microscope in Pharmacy," and although these were not illustrated by drawings, they were of considerable practical value as containing original observations on a large number of drugs. Mr. W. Kirkby, who was appointed lecturer on pharmacognosy in Owens College in 1891, has also done a considerable amount of original and very careful work in pharmacognosy, as the following papers testify:—"Kamala," *Pharm. Journal* [3], 14, 897; "False Cubebs," 15, 653; "Rio Ipecacuanha," 16, 126; "Sandal Wood," 16, 857, 1065; "W. African Pareira Brava," 17, 218; "Spurious Cubebs," 18, 269; "Insect Powder," 19, 239; "Adulterated Saffron," 21, 337. Excellent histological work on Pareira, has also been done by Mr. J. Moss and Mr. W. M. Holmes; on Hwang-peh bark and *Aconitum napellus* by Mr. P. W. Squire, and on *Daphnidium Cubeba* by Mr. Farr. These by no means exhaust the list of histological work in pharmacy done by Englishmen of recent years.

Sevenoaks, May 7, 1900.

E. M. HOLMES.

What is Pharmacognosy?

Every student of the theory of teaching is aware of the great danger of allowing students to give—parrot-like—text-book definitions, instead of using their own phraseology, lest the meaning of the phrase be imperfectly understood; and every teacher knows how difficult it is to eradicate this bad habit when once learnt. The danger of, and the great difficulty of the eradication of, this bad habit are well exemplified in the adoption by Professor Greenish, in his lecture before the Chemists' Assistants' Association of Flückiger's definition of pharmacognosy. This German authority defines pharmacognosy as "The simultaneous application of various scientific disciplines with the object of acquiring a knowledge of drugs from every point of view." This definition—if words have any meaning—certainly includes the study of drugs from the therapist's point of view (pharmacology), a branch of the study of drugs with which pharmacists have absolutely nothing to do; and yet at the conclusion of his paper Professor Greenish makes the statement that "the pharmacist alone is qualified from the outset to deal with the problems of scientific pharmacognosy." Prof. Greenish therefore either does not appreciate the full meaning of Flückiger's words or else he has no knowledge of the extent of modern pharmacological methods. Of the two explanations the former seems the more charitable and indicates the danger I have already pointed out, of adopting the definitions of others verbatim. But there seems no good reason for extending the meaning of the word pharmacognosy. It has been adopted in this country both by pharmaceutical teachers as well as by "well-known lec-

turers in pharmacology," to indicate the study of the "diagnostic characters of crude drugs," whilst the term "pharmacography" is used to describe the other information known about drugs, such as the history, preparation for the market, etc. Possibly the Professor adopts the German definition of pharmacognosy in the same highly intellectual manner that he adopts towards the controversy regarding "digitalin" and "digitoxin"—i.e., takes the "opinion of the last speaker," without reference to the arguments previously stated.

Clapham, May 14, 1900.

W. A. KNIGHT.

Œcology.

The earliest mention of the word "œcology" I have been able to find is in Professor Haeckel's 'The History of Creation,' the English edition of which was published in 1874. He includes it in the ten general laws of biology upon which the comprehensive law of development is firmly based. "Œcology of organisms," he says, is "the knowledge of the sum of the relations of organisms to the surrounding outer world, to organic and inorganic conditions of existence; the so-called 'economy of nature,' the correlations between all organisms living together in one and the same locality, their adaptation to their surroundings, their modification in the struggle for existence, especially the circumstances of parasitism, etc." It would indeed be extremely interesting to see the essays which the candidates in the Council Prizes Examination must have written in answering the first botanical question.

May 8, 1900.

Kpovos (31/23).

The Terms Ecological and Perennation.

I note the remarks by "An Ordinary Pharmacist" on the above terms, but I think Professor R. J. Harvey Gibson's definition of ecology to be far more expressive to the student's mind than those quoted:—"Ecology—the relation of plants to their environment." The word perennation explains itself by its obvious relation to the word perennial.

Stoke-on-Trent, May 4, 1900.

E. GRIFFITHS.

Urine Analysis.

Will some reader of the Journal kindly inform me what is the usual charge to medical men, and also to ordinary customers, for urine analysis?

May 2, 1900.

J. W. (41/31).

Copper in Nux Vomica.

In reply to the editorial footnote to my letter of last week, permit me to say the source of heat in incinerating the ground seeds was a brass Bunsen. I had my attention directed to this possible source of copper during incineration some years ago, but I have failed to discover the reference. I understood, however, that only a minute trace was likely to come from this source, and to avoid contamination as much as possible the incineration was conducted in a fairly large crucible, and the two Bunsens used were inclined at an angle of 45°, so that only the apex of the flame impinged on the bottom and sides without overlapping. In one case the incineration was allowed to continue for about twelve hours, while in another case it was completed in about one hour, and the amount of copper in both cases was practically the same. Nevertheless, some of the copper may have come from this source. In the case of the fluid extract an iron Bunsen was used for the incineration, so that this source of copper was eliminated. There are other proofs that the Bunsen is not the source of the copper, and as it has been shown by Vedrödi (*Pharm. Journ.* [4], 3, 177) that my process is attended by loss of copper, the possible Bunsen contamination may probably be disregarded. I send you a piece of polished iron wire which was immersed for half-an-hour in a dilute hydrochloric acid infusion of a few grains of the ground seeds, and you will note a very distinct coating of metallic copper. The tincture and fluid extract made from these ground seeds in vessels

free from copper give an exceptionally distinct greenish-blue colour when mixed with aromatic spirit of ammonia and water. I ought to say that the work was done merely to answer the query and with no thought of publication. It was only at the last moment that a quantitative estimation was thought of, and unfortunately the whole material was used up, and no more of the same can be procured. But there was abundant indisputable evidence that the sample contained much more copper than any of the others, which were merely qualitatively examined. I may add that I purpose continuing the inquiry, and would be glad of any information as to whether copper in any form is applied to the seed in commerce.

Edinburgh, May 8, 1900.

J. RUTHERFORD HILL.

Glaucium Luteum.

I have read with pleasure some letters about *Glaucium luteum*, which have appeared in the pages of this Journal, since they show that attention is being given, not only to plants themselves, but also to their surroundings. It is rather remarkable that in many of the ordinary floras and text-books the description of the localities in which plants grow, and the nature of the soil is even now very imperfectly given. I can quite support Mr. W. J. Brown's statement in this Journal, p. 447, about the above species being found on ground that is not sandy. Between Brighton and Dover—that is, near Excet Bridge—the yellow poppy grows abundantly on the cliff, where no sand is present, and which moreover differs essentially from the sand in that the soil there is not very porous. Dr. Arnold, in his 'Flora of Sussex,' gives as its place of growth in Sussex chalk cliffs and shingles, and the very first notice of it as a British plant is from Dover Cliffs, in Turner's Names of 1548. I may also add that it grows quite well in ordinary garden loam at Oxford, to which a small portion of salt is added, and that in the east of Europe or West of Asia it is also found at long distances from the sea, to the vicinity of which in Britain it is confined as a native plant.

May I say in allusion to the rather vexed word "ecology" that for the past year or two I have been engaged in collecting material for 'An Ecological Flora of the British Isles,' in which I hope will be shown more particulars as to the exact place of growth, altitude and distribution than is given in the usual text-books. May I also ask any reader of this Journal who has any information on the subject, or any notes on the relationship of plants and soil, or, in fact, any information bearing on this great subject, to kindly let me have the benefit of it, as such a work as the one I allude to can be only brought to an approximate completeness by the assistance of the many workers who are scattered through the British Isles. May I say that the correct name of the yellow-horned poppy is *Glaucium flavum* (Crantz), since the name given by Crantz in 'Stirp. Austr.' of 1763 takes precedence over that of *G. luteum*, used by Scopoli in the 'Flora Carniolica' of 1772.

Oxford, May 8, 1900.

G. CLARIDGE DRUCE.

At the risk of being considered either pertinacious or encroaching on your valuable space, I venture to return to the consideration of this "fugacious beauty." If I have misunderstood Mr. Brown's statement I hope he will not ascribe it to a captious motive, but rather to the obtusion incident to old age. It is not improbable that the plant may possess accommodating qualities common with several other maritime favourites; as sea-thrift, *Aroneria maritima*; sea lavender, *Statice spatulata*, *Asplenium maritimum*, *Tamarisk*, *Tamarix gal.*, etc., Asparagus, *A. off.*, found by the late Mr. Henry Deane in the Warren, Folkestone (where he also discovered *Hirudo off.*). It is pleasing to notice how cheerfully these wildings of nature accept exile from their native haunts and surroundings. I was not, however, successful in the culture of *G. luteum*, although planted in some of the sand in which it had grown—it seemed to be pining for the sea breezes, and gradually faded away. I must still

plead ignorance as to what is meant by "sandy erosions of limestone"—the term seems to imply disintegrated sandstone—which does not occur on the cretaceous system on the S. Kent coast. With the gault I am more familiar. My father informed me that about the year 1820 a subsidence of the chalk cliff occurred, occasioned by the undermining influence of subterranean springs; the pressure of the superincumbent mass upon a stratum of blue gault forced up an immense mound of it, seawards. This was gradually washed away by the tides; but I well remember the locality, called Copt Point, which as boys we often visited, excavating large stores of ammonites, belemnites, hamites, and corrugated bivalves, all small specimens, which on being washed and dried presented an iridescent appearance. Mr. Brown's comparison of blue gault with ung. hydrargyri is humorously correct—in one place it lies on the surface covered with long grass; the effect of rain had worn channels to the depth of four to five feet. In pursuit of a butterfly, I slipped into one of these crevasses, and lay there in a very ignominious position until hauled out. Remarking the tenacious quality of the clay upon my clothes, I suggested it might, if burned, make good cement. Some one appears to have taken the hint, for a year after extensive cement works were in full operation, under a lease granted by Earl Radnor to a private company. I hope the speculation has proved a success, it is full thirty years since I visited the spot.

Richmond, April 29, 1900.

R. GOODWIN MUMBAY.

The P.A.T.A. and the Council Election.

The letter from Mr. Glyn-Jones in last week's *Pharmaceutical Journal*, in reply to Mr. Eardley's two questions respecting the *Anti-Cutting Record*, will no doubt astonish many people who, like myself, were under the impression that the *Record* was the property of the P.A.T.A. and edited by Mr. Glyn-Jones as the paid Secretary of the Association, whereas it is evidently a private speculation of his own subsidised by the P.A.T.A.

Mr. Glyn-Jones's letter led me to make an examination of the accounts of the P.A.T.A., and I find there several items which I think deserve the very serious attention of members of that body as well as of members of the Pharmaceutical Society at the present juncture. In 1897-98 the total income of the P.A.T.A. was £1,468. The expenditure includes salaries, £653; travelling expenses, £114; subscriptions to the *Record*, £204; extra copies of the *Record* and advertising, £44; rent, £50. It is fair to presume that a considerable proportion of this item, £653 for salaries, goes to Mr. Glyn-Jones as Secretary, and seeing that the *Record* is his private property, the items of £204 and £44 are also paid to him.

The principal reasons which Mr. Glyn-Jones gave for his seeking a seat on the Council of the Pharmaceutical Society were:—

- (1) That it was dominated by one man.
- (2) That the 1868 Act should be more stringently carried out by the Council.
- (3) That great economy might be exercised in regard to the publishing of the *Pharmaceutical Journal*.

Now, sir, I think that anyone who has taken any interest in the P.A.T.A. will be compelled to admit that Mr. Glyn-Jones is practically the P.A.T.A., and that his influence predominates in its counsels. It will also be seen from the figures that I have quoted that a considerable part of its income finds its way into his possession. Of course, Mr. Glyn-Jones gives a great proportion of his time to this work, but so does the gentleman to whom Mr. Glyn-Jones objects so much on the Pharmaceutical Council, with this great difference, that he does it gratuitously, whereas Mr. Glyn-Jones is rapidly developing into a paid agitator, and what with the P.A.T.A., the Chemists' Defence Fund, and the Pharmaceutical Council, he will soon have no time left to attend to his business in the East-end.

Then with regard to the carrying out of the spirit of the 1868 Act. I should like to ask Mr. Glyn-Jones if it is a fact that he, as well as the gentleman to whom he objects on the Council, is carrying on business under an assumed name, and that his poison labels do not bear the name of the actual proprietor? Also, is it a fact that his business in his often prolonged absence is, or was, managed by a gentleman whose name does not appear on the Register of Chemists and Druggists, and that this gentleman has under him a qualified man as cover. If these things are so, I think it explains entirely Mr. Glyn-Jones's position with respect to company pharmacy, as he cannot be expected to go for legislation which is contrary to the spirit in which he is conducting his own business.

With regard to the third point, economy in conducting the *Pharmaceutical Journal*, I must say that I think the price the Council of the P.A.T.A. is paying for the *Record* is much greater, proportionately to its contents, than the cost of the *Pharmaceutical Journal* to the Society, though it does give us valuable literary and scientific knowledge that we look for in vain in the *Record*.

In conclusion, I would urge every member of the Pharmaceutical Society to weigh very carefully the arguments which are put forward in opposition to the present members of the Council, who have no interests of their own to serve, before allowing themselves to be led away by a gentleman who is, as I have shown—in another organisation, of which he is chief, and in his own business—doing exactly the things which he blames our present leaders for doing.

Bradford, May 9, 1900.

ALFRED H. WADDINGTON.

Dr. Symes and Company Pharmacy.

The present Council election is noteworthy for the number of caucuses set on foot. This may indicate a lively interest. I have received my voting paper, and by the same post I also received an appeal, signed by an influential number of chemists, to vote for the retiring members of the Council who are offering themselves for re-election. I understand we are absolutely determined to protect our title and will deal with nothing in the nature of concession whereby company pharmacy may be legalised. I will point out that the election of Dr. Symes to the Council, since he is associated with company pharmacy, would be calculated to stultify us in our efforts to deal with this question. I have a great appreciation for Dr. Symes individually, but emphatically declare his presence in Council to be a huge inconsistency.

London, May 9, 1900.

ROBERT EDWIN WRIGHT.

The New Caucus.

I would venture to add a word or two to my warning of last week against the new caucus candidates. I am agreeably surprised to find that my criticism of one of the candidates is endorsed by no less an authority than that monument of judgment and probity the *Chemist and Druggist*. There remains, however, the record of Mr. Walter Gibbons, of Manchester, to be dealt with. That gentleman is now making his second essay for Council honours. Early in 1898, when the Pharmacy Acts Amendment Bill was before Parliament and the pharmacists of the country, Mr. Gibbons obtained a certain amount of kudos from the amount of noisy alarm he sounded on the "confiscatory clauses of the Bill" and the injustice it betokened to "Major" men. A glance at the Register will show that Mr. Gifford and Mr. Gibbons both passed the Major Examination as far back as 1878. The comparative stringency of the Major Examination of that era and the present Minor will be duly appreciated by those of us who have more recently been privileged to become members of the Society—through no fault of, or assistance from, Mr. Gibbons.

Cockermouth, May 9, 1900.

W. S. SCOTT.

ANSWERS TO QUERIES.

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

NAME OF PLANT (E. E. H.—41/33).—*Helleborus viride*.

ECOLOGICAL (H. M.—41/30).—A definition was given in last week's issue, at page 465.

LANTERN SLIDES (J. W.—41/28).—Have you tried George Houghton and Son, 88, High Holborn, W.C., or W. Watson and Sons, 313, High Holborn, W.C.?

SODIUM SULPHATE (R. E. W.—41/32).—The only article of the kind quoted by leading wholesale druggists is the powdered dried sulphate, and that, we imagine, is what you should expect to receive if you order the powdered salt.

ZEISS'S BUTYRO-REFRACTOMETER (A. W.—41/23).—You will find the information you require, with the requisite tables for calculating the results rapidly, in 'Oils, Fats, and Waxes,' by Benedikt and Lewkowitsch, pp. 507-509. The book is in the Society's Library.

WORK ON PHOTOGRAPHY (C. R. P.—41/34).—There is no one work that comprises all the subjects. You should get Abney's 'Instruction in Photography' (Sampson Low, 6s.), Hubert's 'Art of Retouching' (Hazell, Watson and Viney, 1s.), Townshend's 'Chemistry of Photography' (Dawbarn and Ward, 1s.).

F. C. S. (T. W.—41/29).—It is not a degree, and there is no examination, but a candidate is expected to submit evidence of chemical training, and must be recommended by five Fellows, three of whom must certify their personal knowledge of his qualifications. Write to the Secretary, Burlington House, London, W., for the form of application, and further particulars. If you wish to take a degree, why not work for the B.Sc.?

CEMENT FOR STOPPING TEETH (G. S.—41/26).—The term "crystal" is misapplied in this case, as there is no such thing as a crystal tooth-stopping. What you require is evidently the osteoplastic cement, prepared by pouring strong nitric acid on zinc oxide and stirring until the reaction is complete, then heating in a porcelain crucible until red vapours cease to be given off. Next raise the contents of the crucible to a white heat and allow to cool gradually, after which the mass should be very finely powdered and mixed with syrupy phosphoric acid for use.

PH.D. (H. L. H.—42/1).—The degree can be taken at many German, Austrian and Swiss Universities after two years' residence. A chemical student must furnish proof of satisfactory general education and devote at least a year to lectures and laboratory classes in chemistry, physics and allied sciences, after which he proceeds to investigate a suitable subject for the dissertation to be presented before he can take his degree. Examinations must also be passed in chemistry, physics and one other science, such as botany or geology. For further particulars write to one of the Universities, say, Berlin, Munich, Stuttgart, Würzburg, Marburg, Heidelberg, or Tübingen.

DETERMINATION OF TANNIN (E. F. M.—41/27).—The process of Simand and Weiss is simple and sufficiently accurate for most

purposes. Dissolve from 22 to 28 Gm. of the extract in distilled water, make up to 1 litre and filter. Determine the total amount of soluble matter by evaporating 100 C.c. of the filtrate to dryness and weighing. To extract all tanning material place 250 C.c. of the filtrate in a dry flask with 1 Gm. of hide powder, and shake for 2 hours; filter and repeat the treatment twice with 1 Gm. of hide powder each time; again filter and shake for 2 hours with 2 Gm. of hide powder. Finally, filter for the fourth time, and evaporate 100 C.c. of the filtrate to dryness. The difference between this weight and that obtained after the first evaporation indicates the amount of tannin. The hide powder can be obtained of dealers in chemicals for analytical purposes. You will find details of other processes in Trimble's work on 'The Tannins,' a copy of which is in the Society's Library.

PRACTICAL NOTES AND FORMULÆ.

Metol Developer.

Metol is dissolved in water, 1000; and then sodium sulphite, 150; potassium hydrate, 75; potassium bromide, 2, are dissolved in the solution. If negatives with little contrast are desired, less potash should be used, and little or no potassium bromide; if deep contrasts are aimed at, more of the bromide should be employed.—*Amat. Phot. g.* 14, 15.

Japan Varnish Recipes.

	(1)	(2)	(3)	(4)	(5)	(6)
Celluloid	2 ..	5 ..	10 ..	5 ..	5 ..	5
Amyl acetate	78 ..	16 ..	30 ..	— ..	50 ..	25
Acetone	20 ..	16 ..	30 ..	— ..	— ..	25
Camphor	— ..	— ..	4 ..	— ..	— ..	—
Methylated Spirit....	— ..	— ..	— ..	50 ..	— ..	—

All these preparations require months to settle, so that a centrifugal separator or filter press should be used.—*Pharm. Post*, 32, 721.

Inhalations for Coryza.

Menthol, 1; chloroform, 10; or menthol, 1, and chloroform and alcohol (90 per cent.), of each 5. Several drops of either mixture is rubbed on the hand, and the vapour inhaled.—*Pharm. Post* 32, 721.

Ointment for Acne Rosacea.

Precipitated sulphur, 3 to 15; salicylic acid, 0.5 to 1.5; sweet almond oil, 5; lanolin, 30.—*Deuts. Am. Apoth. Zeit.*, 20, 101, after *Monats. f. prakt. Dermatol.*

New Method of Copying.

The following process for obtaining copies of writing has been recently patented:—One side of a thin parchment paper is covered with tannin solution and thoroughly dried. The tannated side of the parchment is then laid on the manuscript to be copied and the other side of the parchment is damped. About fifty copies may be taken in this manner from one manuscript.—*Deuts. Am. Apoth. Zeit.*, 20, 131, after *Pharm. Post*.

Chilblain Remedies.

Thibridge recommends the following preparations:—(a) Zinc oxide, 150; carbolic acid, 8; vaseline, 225; lanoline, 230. (b) The same ingredients and proportions, except that the phenol is replaced by menthol, 4.5. For deeper inflammation the following is recommended:—(c) Lead subacetate, 30; carbolic acid, 7; zinc oxide, 225; vaseline, 225; lanoline, 225; or, (d) Lead subacetate, 3; bismuth subnitrate, 9; Rousseau's laudanum, 1.5; vaseline, lanoline, and lard, of each, 15.—*Pharm. Post*, 32, 721.

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LONDON: SATURDAY, MAY 12, 1900.

THE SOCIETY; ITS OBJECTS AND ITS UTILITY.

UTTERANCES relating to the Pharmaceutical Society are of a very varied nature, and frequently quite opposite, according to the source from which they proceed, or the audience to which they are addressed. Naturally, that is the case since the Society—though representing a legally recognised body—is only a comparatively small fraction of that body, and the majority have no direct connection with the Society. Those conditions have always prevailed, since the foundation of the Society. They existed as a matter of course, when its membership was a voluntary criterion of fitness; afterwards, also, when, with the same object, the title of pharmaceutical chemist received statutory recognition. Those conditions still continue to exist, even since the Society has been entrusted with wider administrative functions relating to qualification for—as well as to the exercise of—the business carried on by all the persons which the Society now represents, officially, the majority of whom, however, are not members of the Society. Though the sole object of the Society's administrative function is "safety of the public"—protection of those engaged in the business it relates to being only an incidental effect—various erroneous ideas have been formed respecting the exercise of that function in the grant of statutory qualification. On the one hand, that has been regarded as conferring a trade monopoly, though very little consideration should suffice to correct that notion. On the other hand, persons unable to satisfy the Society's examiners that they possess "competent practical knowledge" of the business they desire to carry on, regard the action of the Society as inflicting a hardship upon them, though the conduct of the examinations has throughout met with unqualified approval by the Government supervisors. To those two sources may be traced the whole of the hostility manifested in adverse criticism of the Society and of its proceedings. Nor is that hostility confined to persons outside the body that the Society officially represents, for unaccountable as it may seem, the same feeling prevails with many within the ranks of legally qualified persons.

Still more unaccountable is it to find within the ranks of the Society opinions expressed indicating that it is

looked upon as a centralised autocratic body, possessing independent ruling power, and not a democratic organisation, intended to give effect to objects that are, or should be, common to all persons on the Register of Chemists and Druggists. Practice of the art of pharmacy being more or less the occupation of all chemists and druggists, the advancement of that art should naturally be promoted by all of them, and the advancement of the science of chemistry with which their business is so closely connected should receive equal attention. For the furtherance of both those objects, and of the general interests of the whole body, the promotion of a uniform system of education, for the practice of the calling, should also be assisted by all registered persons as a primary condition of their welfare. The provision of a fund for relief of distressed chemists and druggists or their relatives is another object which might be expected to enlist the sympathy and co-operation of all engaged in the business. Then there is another object which is so immediately connected with the material welfare of persons who carry on the business of chemists and druggists, viz., the protection of those so engaged, that all persons on the Register might be expected to regard that object as requiring their zealous co-operation and support. Apart from public administrative functions, these are the objects of the Pharmaceutical Society. They are so natural and so important that their attainment, through mutual efforts of the persons interested, should appear indispensable; they should induce all registered chemists to join in the work and to regard membership of the Society as a duty and a primary desideratum. Considering the provision that has been made for such consolidated organisation and self-government, the fact that the Society still numbers only one-third of the entire body, is therefore matter for astonishment and regret. While that condition continues the complaints of chemists, as to the generally felt want of protection in the exercise of their business, are only evidence of their own neglect. In the case of those who are not members of the Society, they either amount to self-condemnation of their failure to incorporate themselves with their fellows and give support to such mutual co-operation as would render protection possible, or they point to the unreasonable assumption that protection of those who are not members of the Society is the particular business of the minority who do belong to it.

The lines on which protection of chemists' business interests is to be secured have always been plainly indicated since the foundation of the Society. The fundamental principle is education. That principle is the essence of the Society's charter, of the Pharmacy Act, and even of the Act of 1868; though the Society's original project was watered down to suit the desires of chemists and druggists as a "trading community," and as a mere "wretched Poisons Act" it is branded with the great seal of the "United Society." Still the possibility of protecting the interests of chemists and druggists, so far as that result is attainable under that Act, rests upon the distinction of chemists and druggists, as specially educated persons, from other traders. Only by cultivating the difference which justifies that distinction can chemists and druggists hope to provide, for themselves, the protection they desire and would then merit. But the great object, of establishing a

uniform system of education for that purpose is still unachieved. That has been persistently opposed for the last twenty or thirty years; the failure of all attempts made to obtain amendment of the Pharmacy Acts in the true interests of the pharmacist has been due to that opposition, with the result that the present difficulty of examinations arises entirely from the want of systematic education. Trade interests have always intervened, and, just in proportion to the descent from the educational standard to make trade interests prominent, so has the prospect of rational regulation of the practice of pharmacy become more and more remote. Meanwhile chemists and druggists have been shorn of the protection they should have furnished for themselves, and unqualified persons, trading as companies, have usurped the statutory privileges which chemists should have conserved more carefully. The position that has thus been reached ought to bring conviction as to the utility of the Pharmaceutical Society, greater respect for the sound principles on which it is founded, more general appreciation of the privilege of membership, and perception of the fact that the Society's protective action must necessarily depend upon the extent to which the entire body is identified with it. In fact, the history of the Pharmaceutical Society may be epitomised as the effort to establish qualification of the chemist and druggist. Qualification has two factors:—examination to protect the public; education to protect the chemist and druggist. Hence the utility of the Society.

QUESTIONS OF INTEREST.

“When will our British, and especially our English, pharmacists be able to concentrate their entire resources on the dispensing of physicians' prescriptions?”

“When will the Legislature give them the exclusive right?”

THESE questions have been suggested to a member of the Society by the fact that a friend, in a neighbouring country, is able to confine his business operations to the dispensing of medicines, finding therein sufficient and satisfactory occupation. His inquiry serves as a useful commentary on the foregoing article, and it gives opportunity for recalling the fact that the aim of the Pharmaceutical Society has always been to make the practice of pharmacy exclusively the business of the chemist and druggist, and to qualify the chemist and druggist for that work. That is shown by the original draft of the Society's Pharmacy Bill of 1864, which related to “compounding the prescriptions of duly qualified medical practitioners” (see *Ph. J.* [2], 5, 557). That aim was strenuously opposed by the rank and file of chemists and druggists, who then sought incorporation. Though the Society's principle of educational qualification was adopted in the Act of 1868, its application, generally, to the dispensing of medicine was stoutly resisted by the greater number of persons then entitled to call themselves chemists and druggists. A chief reason assigned for that opposition was the alleged desirability of “free trade in physic.” As a consequence the application of the principle, in the Act, was limited to the dealing in a few of the more dangerous drugs, etc., leaving by far the greater part of them, as well as the practice of pharmacy, open to the “free trade” which was then considered to be the *summum bonum*.

ANNOTATIONS.

THE STREAM OF CORRESPONDENCE continues at full flood, and views of all kinds—serious, amusing, accurate, and prejudiced—find space in our columns this week. One communication—which, by its inordinate length, might not unreasonably have been submitted to a cutting-down process—is published in full, as written, because of the special interest attaching to a letter written by an old subscriber to the Society, who has never troubled the Editor before and now asks for the most favoured treatment on the ground that, “in another place,” a new speaker is considered to have a special claim to be heard. But a new speaker in that other place does not wear a mask, as “A Rossendale Chemist” quite unnecessarily does, and though, in the present instance, our new correspondent's letter is printed without abridgment, it must not be assumed that a similar plea will produce a corresponding effect in the future. Space is always precious in the columns of the Journal, and though, other things being equal, preference is always given to correspondence—especially when contributed by members of the Society—over much other matter, writers of letters are expected to refrain from mere bald assertion, or vain repetition. Those who have something fresh to say and send properly authenticated communications, free from offensive personalities, can practically always depend upon securing publication in the Journal, but they must take full responsibility for what they write and be prepared for criticism. An impression seems to prevail in certain quarters that members of the Society ought to be able to use the pages of the Journal to criticise with impunity the Council, the Editor, and other contributors, but that impression really must be removed. The Journal undoubtedly exists for the members, but for the whole five thousand odd, and not for a few who happen to be a little more self-assertive than the rest.

“A ROSSENDALE CHEMIST” states an extreme case in fairly moderate language, but his censures upon the manner in which the Journal is conducted would have had more force if he had descended to particulars. He is quite wrong in asserting that the Journal is out of sympathy with chemists who ask that their titles should be protected and that registered persons alone should be allowed to dispense and sell scheduled poisons and other dangerous substances. In fact, that is the position which has consistently been defended in these pages. Notwithstanding pharmaceutical history, the tendency of the times, and the sacredness of “free trade,” the Journal has always contended that the educated pharmacist is unquestionably the only person who should be permitted to compound, dispense, or sell dangerous drugs and chemicals, whether scheduled poisons or not. So much for that point. Turning now to the supposed attitude of the Journal towards reforms and reformers, it is not too much to ask “A Rossendale Chemist” to explain more exactly what he means, and to adduce evidence in support of his case. It certainly should not be a cause for complaint by members of the Pharmaceutical Society that their official organ supports the executive body elected by them. Even when those who attack the Council are members of the Society, it must be remembered that they usually represent only a small section, and that the Journal, in meeting such attacks, is merely acting as the mouthpiece of the majority. Again, so far as Lancastrian chemists are concerned, it is incorrect to allege that they have been sneered at by the Journal; in no quarter is there higher appreciation of the energy, the enthusiasm, and the capacity for organisation displayed by Lancashire chemists. A few of them are, unfortunately, too susceptible to criticism of the mildest kind, but there is reason for believing they all mean well, and when it is generally recognised that Lancashire is not Great Britain, we may expect to see more of that due regard for the feelings of others, which has not always been manifested in the utterances of some Lancashire chemists.

THE ANNUAL DINNER OF THE PHARMACEUTICAL SOCIETY will be held on Tuesday, May 15, and members who wish to be present, but who have not yet obtained tickets for themselves and friends, must send in applications for tickets, accompanied by a remittance, immediately, so as to be in Mr. Bremridge's hands not later than Saturday of this week, in order to enable him to make the necessary detailed arrangements. The names of the gentlemen for whom tickets are intended should be notified to the Secretary; it will also assist the Committee, and ensure friends being seated together if the necessary information be sent with the applications for tickets.

THE SUGGESTION OF "XRAYSER" that by mistake as to the origin of the "United Society" an honourable distinction has been undeservedly thrust upon a contemporary is not supported by the quotation from the 'Progress of Pharmacy,' which was relied upon for the purpose. A more conclusive confirmation of the statement, made on page 449 of this Journal, will be found in the number of the trade circular there referred to, for February 15, 1861, where its next-door neighbour—the "United Society"—is spoken of in an editorial article as follows:—

"We originated the Society," etc.

In 1865 that family relationship had become disturbed; parent and child were then rending each other, and internal disintegration of the "United Society" had also commenced, so that, as the historian of that period, Dr. Redwood would naturally be chary of touching either of those parties.

THE 'MEDICAL REGISTER' for 1900 shows that the total number of persons whose names were registered on December 31 last as practitioners of medicine and surgery was 35,836, being an increase of nearly 800 on the number registered twelve months earlier, and more than 1,000 in excess of the average for the last five years. The numbers of persons whose names appear in the three local registers are: 20,627, or 57.56 per cent., for England; 10,230, or 28.54 per cent., for Scotland; and 4,979, or 13.90 per cent., for Ireland. During 1899 the number added by registration was 1,351—or 708 in England, 487 in Scotland, and 156 in Ireland; the restorations were 96 and the number removed was 668. From the beginning of registration in 1858 up to January 1, 1900, there have been 60,895 persons registered—37,887 in England, 13,668 in Scotland, and 9,320 in Ireland. But more than 25,000 have been removed by death, or have had their names erased for various reasons.

THE 'DENTISTS' REGISTER' for 1900 occupies only 235 pages, as against the 1,793 in the 'Medical Register.' It includes the names of 4,749 persons, of whom only 1,758, or 37.02 per cent., are licentiates in dental surgery of the four Colleges of Surgeons; 2,965, or 62.43 per cent., are persons who, on their own declaration, are in *bonâ fide* practice of dentistry; 6; or 0.55 per cent., are colonial, or foreign, dentists.

THE MINOR EXAMINATION has been the subject of two queries addressed by Mr. W. R. Kermath, of St. Andrews, to all the candidates at the forthcoming election of Council. He asked (1) whether the candidate was in favour of "an alteration in the method of conducting the examination?" and (2) whether, if returned to the Council, he would support a motion "to the effect that candidates for the Minor certificate get credit for any subject or subjects in which they may obtain pass marks?" The questions are so vague that the whole of the candidates might, with but little hesitation, have answered both in the affirmative. Apparently, however, the first was generally interpreted as referring to the proposed division of the Minor examination, and the second as inquiring whether a candidate who obtains pass marks in one or more subjects should be excused the examination in those sub-

jects when he presents himself again. Many of the replies were therefore more or less guarded, and the result of the inquisition has proved little beyond the fact that opinions may differ upon questions which are not properly stated. Why, in the circumstances, Mr. Kermath should have gone to the expense of printing all the replies it is not quite easy to conceive. They are certainly not worth printing in the Journal.

MR. GLYN-JONES' OPEN LETTER to the members of the Pharmaceutical Society (see *ante*, p. 445), advocating the candidature of Messrs. Cooper, Gibbons, Taylor, and Wootton, has been supplemented by a circular with the same object in view, signed by numerous members of the Society and sent to all the voters. But, as a natural result of Mr. Glyn-Jones' action, another circular—also signed by many members of the Society—has been sent out, advocating the return of the seven retiring members. In that circular, it is suggested that concerted action should be taken by those electors who are in favour of re-electing the retiring members of Council, "who have shown sincere regard for the well-being of the Society, and whose experience should not now be lost." The signatories express the belief that no good object or unity of purpose would be gained by displacing those individuals in favour of others holding divergent opinions, who do not appear to possess any special qualifications, and some of whom, by apparently accepting nomination at the hands of a small section or caucus, would, it is feared, not have the independent position and impartial judgment that is desirable. In conclusion, it is stated that "there is also reason to believe that some of the proposed new members may be prevailed upon to favour a policy of allowing limited companies of unqualified men to legally dispense and deal in poisons, provided some one or more of the directors be qualified." That, it is thought, would be a fatal mistake, and strike at the root of the principle of the Pharmacy Act, 1868.

MR. GIFFORD'S ELECTION COMMITTEE—one member of which, by the way, is not a member of the Pharmaceutical Society, and therefore not justified in interfering in the election—has taken offence at the circular referred to (see p. 502) apparently assuming that retiring members of Council are responsible for it and that none but new candidates are entitled to have their candidature advocated by groups of voters. The letter of Mr. Hills (page 502) suffices to show the inaccuracy of the first assumption, so far as he is concerned, and we have no hesitation in stating that his disclaimer might well have been signed by his six colleagues. With regard to the other point, it only requires to be clearly stated to be at once scouted as absurd. As for the alleged "recantation," it seems pertinent to ask if "electioneering strategy, which is not always above suspicion," is absolutely unknown to Mr. Gifford's committee. How about the postcards sent out by that committee, stating that it is "imperative that every local member should plump in favour of Mr. Gifford," and what of the unauthorised use of a colourable imitation of the Pharmaceutical Society's arms on an electioneering circular issued by the committee? A much neater but yet too ingenious piece of strategy is Mr. Pickering's disinterested advice to the voters (see p. 503) to abstain from voting for the seven candidates who are seeking re-election, as their return "is practically assured," and to vote instead for seven of the new candidates. But, the question may be asked, if the return of the first-mentioned seven is practically assured, why trouble about the rest? "And answer came there none."

MR. ALEXANDER LAING comes forward to amuse our readers, once more, after a somewhat prolonged silence (see p. 504). How he proposes to "disinherit the chaos" we know not, but any attempt of his to do so will assuredly prove interesting reading—ininitely more so than much of the "accumulated rubbish" for which the Journal has of late been a "dumping ground." Mr. Laing

as is well known, is a poet, and even in his prose contributions he seems disposed to claim a poet's licence. In language as picturesque as it is vigorous he falls upon Mr. Glyn-Jones and smites him hip and thigh; he also suggests why it might be a mistaken kindness to elect Mr. Gifford on the Council, and expresses the opinion that the administration of a little Currie will greatly improve the quality of that body, probably on the principle that a little Currie goes a long way. It may be doubted, however, whether anything the poet-pharmacist says can now seriously affect the result of the election, so he had better set himself to remove the wire entanglements and barbed fences he speaks of, initiate the frontal attack, and carry out the rest of the complicated technical manœuvres he refers to. If then the Lord Chancellor and the President of the Board of Trade persist in their attack on the pharmaceutical position, Mr. Laing must even drop into poetry; the result can then hardly fail to prove fatal to some one or something, if only it be to Clause 2 of the Companies Bill.

SQUIRE'S 'LONDON HOSPITALS,' or, to quote also the fuller title of the book, 'The Pharmacopœias of Thirty of the London Hospitals,' has just appeared in its seventh edition. The idea of the book is to present to the general practitioner a collection of formulas used in the hospitals in a tabulated form for comparison, so that he may see at a glance the manner in which the medicines are prescribed at the different London hospitals, and the doses given. So far as pharmacists are concerned, the book is chiefly interesting as supplying the different formulas of all the leading hospitals in a convenient form for reference when prescriptions are received in which any of those formulas are quoted. The new edition contains seventy pages more than its immediate predecessor, and advantage has been taken of the opportunity afforded by re-publication to bring the contents up to date and, more especially, into accord with the new British Pharmacopœia. In the preface to the first edition the late Peter Squire suggested that the different hospital authorities should consider the desirability of modifying many of their formulas so as to assimilate them to those of like nature in the British Pharmacopœia, and thus simplify and reduce the number of compound drugs. Though that suggestion has not been acted upon to any considerable extent, the compilation has done much to minimise the trouble caused by existing differences, and Mr. P. W. Squire, the present editor, is to be congratulated on the fact that so many as seven editions have been required within the space of twenty-seven years.

LONDON UNIVERSITY has now entered into possession of its new premises at the Imperial Institute, and presentation day was celebrated there on May 9, the Prince of Wales being present on the occasion, together with many other distinguished persons. Lord Kimberley, the Chancellor of the University, made the presentations, and afterwards referred to the fact that the University is now about to enter on a new career, becoming a teaching, as well as an examining, body. Sir Michael Foster also addressed the new graduates, and told them how much better off they were than he was when he took his degree. In those days the University was a homeless wanderer. He was examined in different places—more than once at a restaurant, and once certainly in a building which he took for a public-house, because it bore the title of the Thatched Tavern. It seemed to him that practically he was examined in the street, and his degree was conferred by post. How different was the lot of the graduates of to-day! They had been examined in luxury, and they received their honours in a magnificent building, and in the presence of the Prince of Wales. In conclusion, Sir Michael said the University was not merely a London, or even a national, institution. It was imperial—a character which would grow under the new organisation, and in the new home.

ENGLISH NEWS.

WOLVERHAMPTON AND DISTRICT CHEMISTS' ASSOCIATION.—At a meeting, held on Monday, May 7, to consider the views of the candidates for the coming Pharmaceutical Council Election, and to decide whom to vote for, the President (Mr. F. J. Gibson) in the chair, the Hon. Sec. (Mr. J. H. Coleman) stated he had written to each candidate the following questions:—1. Do you agree and heartily support qualified proprietorship? 2. Do you oppose conceding anything to limited companies, either qualified managers or directors? 3. Would you aid in abolishing the Widow's Clause, only allowing a few months to settle up? 4. Do you oppose branches, and so show that ours is a personal business? He said he had received replies from all the candidates, and read a condensed report of their answers. After an interesting discussion, during which several of the letters were read in full, it was proposed: "That this meeting suggest that the members of the Wolverhampton and District Chemists' Association do all in their power to support and secure the election of all the retiring members." This was seconded, and an amendment was proposed that the names of Messrs. Taylor and Gifford be substituted for Messrs. Symes and Storrar, owing to their views on question 4. This was seconded, but, upon being put to the meeting, was lost, and the original resolution was carried, two only voting against it.

ROYAL INSTITUTION.—A general monthly meeting of the members of the Royal Institution was held yesterday afternoon, May 7, the Duke of Northumberland, K.G., President, in the chair. The following were elected members:—Mrs. E. S. Beale, Mr. E. Callard, Mr. E. J. Duveen, Mr. E. Pearson, Lord Russell of Killowen, and Mr. J. A. Thierry. The special thanks of the members were returned to Professor F. Clowes for his donation of £20 to the Fund for the Promotion of Experimental Research at Low Temperatures. The Chairman announced that he had nominated the following Vice-Presidents for the ensuing year:—Sir F. Bramwell, Right Hon. Lord Lister, Dr. Ludwig Mond, Sir A. Noble, Mr. A. Siemens, the Hon. Sir J. Stirling, Sir J. Crichton Browne and Sir W. Crookes.

THE PHARMACEUTICAL STUDENTS OF BIRMINGHAM have addressed a letter to the local papers pointing out that at present a great grievance exists among them concerning "the poor provisions they have for the purpose of studying for their examinations, there being no recognised pharmacy classes in the town." The letter states that "the students of the Chemists' and Druggists' Chemistry Class, held at the Birmingham Technical School, have, however, attempted to remedy this by presenting a memorial to the School Committee asking for classes to meet the requirements of their examinations. We regret to say, however, that the School Committee, while deeply sympathising with us, say they cannot at present see their way clear to start the new classes as required. We wish to express through your paper our sincere thanks for the hearty support the local chemists and druggists have given to our memorial. On behalf of the Chemistry Class, Chas. F. Spruce, 12, Temple Row." It appears that for some years there has been a class on Wednesday afternoons at the Technical School for the benefit of pharmaceutical students, but the subjects have been limited to chemistry and botany. Now some of the students desire the Council to establish pharmacy classes and lectures in materia medica, and they have approached "the powers" with that object in view, and the letter referred to explains as far as they are able to go, the chief difficulty being expense. Whether it is desirable that those subjects should be taught at such places is an interesting one.

INLAND REVENUE PROSECUTION.—At Lambeth Police Court on Monday, May 7, George Baldwin, herbalist, of Rye Lane, Peckham, was summoned for selling medicine liable to stamp duty without it being so stamped.—Evidence was given of the purchase at the

defendant's shop of a bottle of mixture which was advertised by a card exhibited in the shop window. The bottle in which the article was supplied was unstamped.—In reply to a question by Mr. Hopkins (magistrate), the defendant stated that the mixture was not claimed as a proprietary preparation. It had been on the market for years. The label on the bottle was submitted with many others to the authorities at Somerset House some years ago, and they were satisfied that a stamp was not required.—Mr. Hopkins said that defendant had evidently acted *bonâ fide* in the matter, therefore a nominal penalty of 20s. and costs only would be imposed.

BRISTOL PHARMACEUTICAL ASSOCIATION.—At a meeting of members, held at University College on May 9, Mr. G. T. Turner, President, in the chair, it was unanimously resolved to recommend the members of the Association to vote for the following candidates at the approaching Election of Council of the Pharmaceutical Society:—Messrs. Campkin, Gifford, Grose, Gostling, Hills, Taylor.

SALE OF CAMPHORATED OIL.—John Huson, Chumleigh Street, Camberwell, S.E., was charged at Lambeth Police Court on Thursday, May 3, with selling camphorated oil which was not of the nature, substance, and quality demanded. It appeared that the Camberwell Vestry, being anxious to get at wholesale dealers, obtained the assistance of an oilman, who ordered a quantity of small bottles of camphorated oil; by arrangement an inspector was at the shop when the bottles were delivered, and secured a sample. An analysis showed it to be deficient in camphor to the extent of 73 per cent. and to contain 94.2 per cent. of mineral oil. The bottles of oil were supplied on a card bearing the words, "Campholeum—formerly known to the public as camphorated oil."—The defendant, who, it was stated, was an agent only, was fined £10 and costs.—George Baldwin, herbalist, Rye Lane, Peckham, S.E., was also fined £10 and costs for selling camphorated oil which was not in accordance with the B.P.—William A. Sargood, grocer, Bird-in-Bush Road, Peckham, and Ralph C. Wright, trading as Wright Brothers, Maxted Road, East Dulwich, were each fined 40s. and costs for similar offences.

POISONING BY HYDROCHLORIC ACID.—An inquiry was held at Birmingham on Friday, May 4, concerning the death of Albert Ricardo (2), son of Moses Ricardo, 21, Florence Street. The evidence showed that on Tuesday, May 1, the child obtained possession of a bottle containing hydrochloric acid, which had been left on the premises by some workmen; he drank some of the contents and died. A verdict of "accidental death" was returned.

SALE OF TINCTURE OF OPIUM.—On Friday, May 4, at the Nottingham Summons Court, William Gil, chemist and druggist, Nottingham, was summoned for selling tincture of opium that was alleged to be deficient in proof spirit.—Mr. Glyn-Jones was present on behalf of the Chemists' Defence Association.—Evidence as to purchase having been given, the city analyst, Mr. S. R. Trotman, stated that in the sample examined there was an absence of 41 per cent. of proof spirit.—In reply to Mr. Barlow, for the defence, he admitted that in making his analysis he used the B.P., 1885, as a standard; he also stated that he was aware that the words "proof spirit" had been abandoned in the B.P., 1898. He always used the term "proof spirit," but admitted that it was a mistake.—Mr. Barlow then submitted that the summons was bad, and ought to be dismissed; but Mr. Day, for the prosecution, contended that there is nothing in the Act to say that the public analyst shall use any particular standard for making his calculations, and that he can use what terms he likes in his certificate. Mr. Day admitted that there was no reason why the analyst should not have used the B.P., 1898, as the standard.—The Bench dismissed the case, but refused to allow defendant's costs.

IRISH NEWS.

DEATH OF AN IRISH DRUGGIST.—The death took place last week of a well-known Irish druggist, Mr. Henry Lyons, M.P.S.I. of Omagh, Co. Tyrone, whose pharmacy was one of the leading establishments in that town. The sad event occasioned widespread sorrow, as deceased, who was a most upright man, was held in the highest esteem by all who knew him. His business career was a most successful one, the result of indefatigable perseverance and constant personal supervision.

PHARMACY ACT CASE.—On Monday, May 7, in the Belfast Sessions Court, a summons issued at the instance of the Pharmaceutical Society of Ireland against Mr. W. J. Gibson, Sandy Row, was heard. The complaint was that the defendant kept open shop for the purpose of retailing medical prescriptions, he not being qualified by law to do so. There were two other summonses under the Act arising out of the same case. After evidence was given, the Bench inflicted a penalty of £5 and costs on the first summons. The other two were withdrawn by consent.

FOREIGN NEWS.

THE GERMAN GOVERNMENT has brought in Parliament a Bill to provide measures against perilous diseases, by which it is proposed to establish a new division of the Imperial Sanitary Board—viz., a "Reichs-Gesundheitsrath." This institution, similar to our Local Government Board and the French Comité Consultatif d'Hygiène, is intended for regulating the execution of the sanitary laws in a uniform manner in the federated States. It will be entitled to send representatives for local research, and will be composed of prominent savants of all hygienic and technical branches and of officers of the Administration. The new Board will also take upon itself the duties of the now existing Pharmacopœia Committee, and of the special committees for cholera, bubonic plague, etc.

IN PRUSSIA medical affairs have hitherto been in charge of the so-called "Cultusministerium" (Ministry of Public Worship, Public Instruction, and Medical Affairs). It is now reported that the Government intends to transfer the medical division to the home Ministry (Ministerium des Innern).

THE PRICES OF GLASS-WARES, pasteboard goods, and dressings having been raised by manufacturers, the Berlin Apotheker-Verein has resolved to arrange with certain makers for reduced prices. The members of the Verein will undertake to buy only from such firms as have made arrangements with the special committee appointed for that purpose.

THE PRUSSIAN COMMERCIAL BOARDS have agreed to appoint no chemists in their service unless they have passed examination as food chemists. For special service only such chemists will be employed who have passed the leaving examination on a "Gymnasium" or "Realgymnasium," the University, and a two years' practice.

DR. HEINRICH SALZMANN, hitherto editor of the *Apotheker-Zeitung*, the official organ of the German Apotheker-Verein, has resigned that position in consequence of having received the grant of a concession for establishing a new Apotheke at Wilmersdorf, a suburb of Berlin. He is succeeded by Mr. L. Zumbroich, hitherto owner of an Apotheke at Zell, on the Mosel. The resignation of Dr. Salzmann, who has much contributed to raise the *Apotheker-Zeitung* to the prominent position it now holds in scientific and professional respects, is generally regretted, though the fact that a concession has been granted to him has given much satisfaction to his numerous friends.

PHARMACEUTICAL SOCIETY.

Library, Museum, School and House Committee.

At the ordinary monthly meeting of this Committee, held on Wednesday, May 9, the following particulars respecting the Society's Libraries and Museums were presented:—

ATTENDANCES.

	Total.	Highest.	Lowest.	Average.
Museum (April)	331	29	4	15
Library (April)	264	33	6	12

CIRCULATION OF BOOKS.

	Total.	Town.	Country.	Carriage Paid.
London (April)	112	46	66	13s. 2½d.
Edinburgh (April)	176	129	47	1s. 9d.

DONATIONS TO THE LIBRARY (LONDON).

Chemists' Assistants' Association, London:—Proceedings, 1898-99, No. 15.
Imperial Bacteriologist, India:—Annual Report, 1897-98; Preliminary Note on Rinderpest.

H.M. Secretary of State for War:—Army Medical Department Report for 1898.

Mr. W. A. Knight, Leicester:—Organic Materia Medica and Pharmacognosy, 1900.

Signor G. Dian, Venice:—Cenni storici sulla Farmacia Veneta, 1900.

Missouri Botanical Garden:—Eleventh Report, 1900.

University of the State of New York:—College Department Bulletin, Nos. 5 and 10, 1899-1900.

Messrs. E. R. Squibb and Sons, Brooklyn:—Ephemeris, Vol. 5, No. 4; Vol. 6, No. 1.

Ecole supérieure de pharmacie de Paris:—Thèses par L. Napias, H. Barnouvin, L. C. E. Gautrelet, E. Hallé, et J. B. Charpentier.

DONATIONS TO THE LIBRARY (EDINBURGH).

Chemists' Assistants' Association, London:—Proceedings, 1898-99.

Messrs. E. R. Squibb and Sons, Brooklyn:—Ephemeris, Vol. 5, No. 4; Vol. 6, No. 1.

DONATIONS TO THE MUSEUM (LONDON).

Mr. J. S. Ward, London:—Specimens of Aloe leaves picked out of Zanzibar aloes.

Messrs. Jenkin and Phillips, London:—Specimens of Mamiritta and Chamairi barks from Peru.

Messrs. Hearon, Squiré, and Francis, London:—Very fine specimen of Guaiacum resin in the tear.

Messrs. Wright, Layman, and Umney, London:—A new variety of false Ipecacuanha.

TO THE HERBARIUM (LONDON).

Mr. J. Martin, Chatham:—Specimens of *Lathraea squamaria*.

Mr. W. H. Lenton, Thrapston:—Specimens of *Paris quadrifolia*.

Mr. J. Medley Wood, Natal:—Natal plants, vol. II., pl. I.

PURCHASE OF BOOKS.

The Committee authorised the purchase of the undermentioned works:—

Jackson, Glossary of Botanic Terms.

Rogers, Handbook of British Rubi.

Wiesner, Die Rohstoffe des Pflanzenreiches.

MIDLAND PHARMACEUTICAL ASSOCIATION.

The annual meeting of the Midland Pharmaceutical Association was held on Wednesday, May 9, at the Great Western Hotel, Birmingham, Mr. JEFFREY POOLE (President) in the chair. In the

Annual Report and Accounts,

the work of the session was referred to in detail, the Council expressing surprise and regret at the great apathy existing amongst members of the Association at so critical a period in the history of pharmacy, and at the little interest displayed by so many in the important questions, political and otherwise, affecting the position and well-being of the pharmacist. The financial statement showed that the receipts during the year amounted to £40 2s. 2d., and that, after meeting all demands, there was a balance in hand of £5 19s. 6d. In moving the adoption of the report and accounts, the PRESIDENT congratulated the Association upon the fact that the favourable balance had been so largely

increased, despite the fact that the extraordinary expenditure during the year had amounted to more than £8. The circular sent out with regard to the proposed pharmacy classes at Mason College had been favourably received by the chemists of the district, and, although they regretted that the scheme had not made greater progress, they had the consolation of knowing that the fault did not lie with them. In reply to the circular sent out to local members of Parliament, asking them to oppose the Companies Bill, Mr. Brooke Robinson had replied promising to comply with the request, and other members, including Sir Henry Meysey-Thompson, had promised to give the matter consideration.

Mr. A. SOUTHALL seconded the motion, and it was supported by Mr. C. THOMPSON, who said that, although the report seemed colourless, it was satisfactory. He agreed with the statement that there was far too much apathy shown on the part of members of the trade, and expressed a hope that in the future more energy would be displayed.

The motion was then agreed to.

The New Council.

The PRESIDENT announced that the following had been elected to form the Council of the Association for the ensuing twelve months:—Messrs. J. Barclay, J. Poole, W. Jones, G. E. Perry, T. Wakefield, F. H. Alcock, F. H. Prosser, J. Spilsbury, C. Thompson, J. Wakefield, T. Barclay, Stokes Dewson, F. Barlow, G. H. Brunt, A. Southall, W. Scott, J. T. Gibson (Wolverhampton), F. W. Lowther (Moseley), and F. Smith (Handsworth).

Mr. W. G. Cross (Shrewsbury) proposed a vote of thanks to the President, Secretary, and members of the Council for the admirable manner in which they had conducted the business of the Association during the year. He was particularly pleased to see a large item in the accounts for printing, because that spoke of activity, and activity in pharmaceutical circles was much to be desired. He had been pleased to find that matters of interest in the political and pharmaceutical world were constantly being brought before the Association, and he was glad also to note the soundness of the criticism, as evidenced in the reports of the proceedings published in the *Pharmaceutical Journal*. The vote was seconded by Mr. J. McLANACHAN, and accorded. This concluded the business of the meeting.

A company, numbering about forty, subsequently attended the

Annual Dinner,

which was held at the Great Western Hotel. Mr. JEFFREY POOLE again presided; and there were also present, amongst others, Professor Hillhouse, Alderman W. G. Cross (Shrewsbury), Dr. Carter, Messrs. Glyn-Jones, A. Southall, C. Thompson, J. Barclay, A. W. Gerrard, and Mr. Jones. After the loyal toast had been honoured, Mr. PERRY gave

"THE MEDICAL PROFESSION,"

and coupled with the toast the name of Dr. Carter, who, in response, referred to the fact that he had endeavoured to get a resolution passed by the medical profession in its corporate capacity against the clause in the Companies Bill to which pharmacists had objected so strongly. But there were insuperable difficulties in the way, and, rather than have the resolution rejected, a course which might have given rise to misapprehension, he had withdrawn it as a matter of policy and expediency. At the same time, he was able to assure the pharmacists present that the feeling of the medical profession towards them was kindly and sympathetic, and they would have been glad to have helped forward the object the Pharmaceutical Society had in view, had it been possible to do so without risking the prospects of the clause the medical profession was so anxious to get passed.

The toast of

"THE PHARMACEUTICAL SOCIETY"

was proposed by Mr. GIBSON, who said that, as compared with the indifference displayed in days now, happily, gone by, the toast was now received with enthusiasm. He affirmed that the Society had

obtained for chemists whatever advantages they now possessed. As to the Companies Bill, although that was neither the time nor the place to criticise the Council, he could not help expressing regret that, when it was decided to oppose Clause 2, an amendment was not brought forward at the same time.

Alderman Cross, who spoke first in reply, agreed that most of the good which pharmacists had got, either through legislation or otherwise, had been got through the instrumentality of the Pharmaceutical Society. The action taken by the Society more than fifty years ago to improve the conditions of pharmacy in England had been proved to be right. It stipulated, in the first place, that the pharmacist should be an educated man. Further than that, it had organised what was a somewhat heterogeneous trade into something more than a trade. To-day the Society was continuing the work it entered upon half a century ago, and it largely depended upon pharmacists themselves whether the Society in the future would be a more powerful factor, as regarded the well-being of pharmacy, than it had been hitherto. Formed on democratic lines, the Society enabled its members to replace officers who did not follow a course popular with the majority of members. He urged, in conclusion, that no stone should be left unturned to prevent all that had been done by the Society being thrown away.

Mr. GLYN-JONES, who also responded, said he was in hearty agreement with all Mr. Cross had said. To the large increase of the local organisations up and down the country he attributed the fact that the toast of the Society was better received now than formerly. The toast was best received now, and obtained the warmest support, in the towns where active Associations existed.

OTHER TOASTS.

In proposing the toast of "The University of Birmingham," Mr. A. SOUTHALL expressed a hope that the claims of pharmacy would not be forgotten by those who had the control of the new institution.

Professor HILLHOUSE acknowledged the toast, and said that pharmacy might look forward hopefully to the possibility of having a direct share in the benefits of the University. Twelve months ago a member of the Midland Pharmaceutical Association approached the authorities of Mason College with a view of ascertaining what could be done to promote pharmaceutical teaching, in the form of providing classes for pharmaceutical students. He had gone into the matter himself very carefully, and it had suggested itself to him that they might aim at something higher than that. Of course, he could make no promises, but he was hopeful that in a few months they would be able to publish the fact that, amongst the degrees which the new University was prepared to give, was the degree of Bachelor, Master, and Doctor of Science in pharmacy. It was desirable that, when the Senate was approached in this matter, the application should be backed up by pharmacists themselves, who should make it clear that they were sincere and earnest in the matter. He did not suggest that they should put their hands in their pockets, but, at the same time, if they could either directly or indirectly bring influence to bear upon those whose pockets were well lined, he hoped they would not fail to exert it. He was desirous of getting some promise which would enable the authorities to offer scholarships or exhibitions, and so attract students to the University. Towards such a fund one gentleman, on behalf of a very limited group associated with him, had recently promised a sum which ran over the three figures. The object of the fund was to offer for a limited term of years, in order to start the school, scholarships and exhibitions which would enable students, almost without cost or at any rate at a considerable reduction, to pursue in the University pharmaceutical education to the highest point.

The "Health of the President," which was afterwards proposed and received with cordiality, ended the toast-list.

PHARMACEUTICAL SOCIETY OF IRELAND.

The monthly meeting of the Council was held on Wednesday, May 2, at the Society's House, No. 67, Lower Mount Street Dublin, at three o'clock. The PRESIDENT (Mr. George D. Beggs), occupied the chair, and the other members who attended were the Vice-President (Mr. Bernard), Messrs. Tate (Belfast), O'Sullivan (Waterford), Turkington, Brittan, Dr. Walsh, Jameson (Belfast), Grindley, Kelly, Simpson, Porter, and Professor Tichborne.

The minutes of the last meeting and of the special meeting having been read and signed,

THE DEATH OF MR. R. J. DOWNES.

The PRESIDENT said: Gentlemen, before taking up the business on the agenda paper I regret having to allude to an event which was a great shock to each of us—I allude to the death of our late President, Mr. Robert J. Downes. I am sure there are none amongst us who realise the great loss that the Society, and more particularly this Council, have sustained by his death than I do, as when taking the chair I did so in the hope of being able to look to him for counsel and advice on matters connected with the Society. By the death of Mr. Downes the Society at large has lost one of its most able and hard-working members—one who never spared himself in the discharge of his duty—and in him we had a pharmacien of a very high standard. It will be in the recollection of members of the Council that at our last meeting we unanimously asked him to reconsider his resignation as a member of the Pharmacopœia Committee. I had hoped that rest would have enabled him to regain his health and take his place amongst us again; but an all-wise Providence has ordered it otherwise. I am sure it is the fervent wish of all of us that the weight of their heavy affliction may be lightened to his sorrowing widow and family. I move that a letter of condolence be sent to Mrs. Downes from the Council, expressing their grief at his death and their sympathy with her in her bereavement.

Mr. TURKINGTON added an expression of the sorrow which he felt on hearing of the death of Mr. Downes, who, he said, was a man of great capacity and an ornament to the Society.

The motion was unanimously agreed to.

The PRESIDENT: We have a long list of deaths on this occasion. Coming after Mr. Downes there are Mr. John Blair, Mr. Isaiah Gibson Gilmore, Mr. William Mark Oldham, and Mr. William Henry Harman.

The next business was the election of a member of Council in the room of Mr. Downes; and

The PRESIDENT said he had great pleasure in proposing that Dr. Whitla, J.P., who was lately one of the Examiners of the Society, should be co-opted to fill the vacancy.

Mr. JAMESON seconded the motion, which was unanimously agreed to.

CORRESPONDENCE.

A letter from the Home Secretary stated that her Majesty the Queen regretted that she had been unable personally to receive the address of the Council; that it would be received on her behalf by the Home Secretary on the 19th ult., and that her Majesty's reply would be duly forwarded.

The PRESIDENT: I presented the address at the Castle. The representatives of thirty or forty other bodies also handed in their addresses. I am glad that I did so, as only one address was sent by post.

Mr. TURKINGTON: It would have been impossible for the Queen to have received them all in person.

The following letter was received from the *Chemist and Druggist*: "April 12, 1900.—Mr. A. T. Ferrall.—Dear Sir, I was quite shocked yesterday morning to receive your account of Mr. Downes's funeral, as I had not heard of his death. I would be much obliged if you could send me some further particulars in regard to his life if you can possibly obtain them, for publication in our Irish Supplement. Please convey to your Council my deep regret at

the loss of so eminent an Irish pharmacist before his life's work was accomplished.—Yours faithfully, THE EDITOR."

The PRESIDENT: We thanked the editor of the *Chemist and Druggist* for his communication. I may mention that Mr. Wells did supply a slight sketch of Mr. Downes's life to that journal.

Mr. WELLS: Sir George Duffey asked me to state that he was not at the funeral because he did not see the announcement of it in time.

A letter from Mr. James Michie resigned his seat on the Council and thanked the members for the courtesy he had always experienced from them.

A letter from the Secretary of State for the Colonies forwarded a copy of an Act recently passed by the Legislature of New Zealand, amending their pharmacy law, one provision of which excluded any but residents in those islands from being registered as pharmacists there.

The PRESIDENT: So that we are barred from going to New Zealand—even English folk—from this date.

Mr. GRINDLEY: Perhaps there is a way round.

Mr. TURKINGTON: It should be the same all over the whole Empire.

THE REGISTERED DRUGGISTS' EXAMINATION.

Mr. TURKINGTON moved, pursuant to notice, that candidates be admitted to the Examination for Registered Druggists on the acceptance of the declaration according to Sections 8 and 10 of the Amendment Act; and that the direction in Sub-section 3 of Section 8 of that Act as to subjects of examination be more fully observed than it is at present. He understood that the Council were not granting certificates to candidates unless they had attained the age of twenty-one. He wished to know what authority the Council had for this. If he was right in assuming that it was their practice, some apprentices who had entered service understanding that immediately on completing their time they would get their certificates, would be greatly disappointed.

The PRESIDENT: A young man is not a "person" in view of the law until he is twenty-one.

Mr. WELLS said the Council had been advised by their solicitor that they had no legal power to admit candidates to examination until they were twenty-one. The Universities and the medical bodies did not give degrees and diplomas to their students until they had attained that age. The Council could admit candidates under twenty-one to examination, but they could not grant them certificates. They had inadvertently done otherwise on one or two occasions.

Mr. TURKINGTON: There should be some regulation on the subject.

Mr. WELLS: There will be now.

Mr. TURKINGTON said he could understand pharmacists not being granted certificates till they were twenty-one, but he did not see that the rule should apply to druggists.

Mr. WELLS said the certificate enabled a young man to become the proprietor of a business.

Mr. TURKINGTON: Do you permit pharmaceutical assistants to receive their qualifications before they are twenty-one?

Mr. WELLS: Their qualification is only that of an assistant.

PRESIDENT: They cannot keep open shop.

Mr. TURKINGTON: Will they get the qualification?

Mr. WELLS: That's a point that has not been decided by our solicitor, but I am not aware that we have admitted any that are under twenty-one all the same.

Mr. TURKINGTON: It is a great disappointment to many apprentices. I think if the matter were referred to the Castle an opinion different from that of our solicitor would be given.

Mr. WELLS said the only thing Mr. Turkington could do would be to move that the matter be referred back to the solicitor for further information, or to get an opinion of counsel, but he believed that the latter course would be throwing away money, for the law was quite certain and could not be altered.

Mr. JAMESON: A young man is an infant until he is twenty-one.

Mr. WELLS: Suppose he opened shop, in what position would the traders be who supplied him with stuff? One young gentleman actually refused to give us a certificate of his birth, and challenged us and threatened us if we did not give him a certificate.

Mr. TURKINGTON: Was that a druggist?

Mr. WELLS: Yes.

Mr. GRINDLEY: It is usual for all educational bodies to withhold their diplomas until the candidate has become a legal person.

Mr. JAMESON: Will you admit them for examination before the age of twenty-one?

Mr. GRINDLEY: I am afraid it would open up a great deal of illegal trading if we should do so, because then the candidate would say, "I have passed the examination," and then open shop. It is not for employers to tell their apprentices anything about the matter; the apprentices can get all the information they require if they look for it.

Mr. JAMESON: It is for the employers to answer any questions that they may be asked by their apprentices. If I were asked a question I would say that no young man could go up for his examination until he is twenty-one.

Mr. WELLS: The regulation as to the Pharmaceutical License Examination says, "Candidates presenting themselves for this examination must be twenty-one years of age, and must have passed the Preliminary Examination at least one year previously."

Mr. TURKINGTON: Will you allow those who shall have their time in within the next year to go forward?

Mr. SIMPSON: We couldn't.

Mr. KELLY: You are asking us to do for chemists and druggists what we refuse to pharmaceutical chemists.

Mr. TURKINGTON: Yes; because the standard is lower.

Mr. SIMPSON: It makes no difference in the eye of the law.

Mr. TURKINGTON, passing to another topic, said that the provision of Sub-section 3 of Section 8 of the Irish Amendment Act, which provided that candidates for registration as chemists and druggists should be examined as to the "appearance and properties of the various drugs and chemicals in general use," was not carried out by the examiners.

Mr. WELLS: We had a battle as to this at the time the Act was a Bill before Parliament. We wanted to have the examination so stiff that it would ensure thorough knowledge on the part of the candidates, but those were the only words we could get into it. We have tried to get the examiners to ask the questions that Mr. Turkington wants to be asked. All that is required is to make that part of the examination more stiff.

Mr. TURKINGTON: I have heard that an examiner refused to ask those questions lest it might lead into therapeutics.

Mr. KELLY said he did not think therapeutics any part of a druggist's education, but the student might be asked on what parts of the system drugs acted.

Mr. TURKINGTON maintained that a druggist should be acquainted with the Pharmacopœia.

Mr. WELLS: Does Mr. Turkington say that the questions he refers to are not asked at the druggists' examinations in Belfast?

PRESIDENT: They are asked the appearances of the drugs and the doses at the examinations here. I have been present when they were asked their uses.

Mr. WELLS: The advantage of having visitors present is that they can report to the Council if they think that an examination is not what it ought to be.

PRESIDENT: Mr. Turkington, I will give instructions to the examiners to carry out your ideas and take care that the candidates are more closely questioned as regards the different drugs and medicines put before them, their doses and uses.

MISCELLANEOUS BUSINESS.

Mr. WELLS moved that permission be granted to a Committee appointed in connection with the British Pharmaceutical Conference to use the Society's rooms for its meetings.

Mr. GRINDLEY seconded the motion, which was unanimously agreed to.

A donation was received from the Pharmacy Board of Queensland of a copy of their Pharmaceutical List for the year 1900.

Thanks were voted to the donors.

Reports from the Examiners showed that at the Preliminary Examination twenty-six candidates presented themselves, of whom fourteen passed; that fifteen presented from the License, of whom seven passed; and that twelve druggists offered in Dublin and Belfast, of whom eight passed.

An election was held for an Examiner in Practical Pharmacy in the room of Dr. M. R. Whitla, resigned; Mr. James Michie, of Blackrock, Co. Dublin, was elected.

Other business having been disposed of, the Council adjourned.

CHEMISTS' ASSISTANTS' ASSOCIATION.

On Thursday, May 3, at 73, Newman Street, London, W., the last meeting of the session was held, under the presidency of Mr. F. W. GAMBLE. There was a fair attendance. The occasion being the

Annual General Meeting,

at which the election of councillors takes place, the first business was to appoint scrutineers, the honour of counting the votes falling upon Messrs. Surfleet and Robins.

While the scrutiny was proceeding, the PRESIDENT stated that the Council had this year been able to award the Essay Prize to Mr. H. Hymans for his paper on "The Occurrence of Sodium Sulphate in Nature." He might say that in awarding the prize the Prize Committee—which included past prize-winners—thought it rather unfortunate that the work done did not more nearly touch pharmacy proper; still, the Committee and the Council were of opinion that the paper, judged on its merits, deserved the prize, and he heartily congratulated Mr. Hymans on having earned it. The medal was not ready for presentation that evening, but he hoped it would be presented early in the next session.

Mr. HYMANS expressed his sense of the honour conferred upon him; also a hope that next year there would be more entries for both the Essay Prize and the Research Prize.

The SECRETARY, Mr. J. Evans, then read the twenty-third

ANNUAL REPORT

of the Council, which stated that thirty-three new members had joined the Association, thirty old members had resigned, and the patrons numbered forty-five, being five short of the limit imposed by the rules. Thirteen papers had been read during the session, it being satisfactory to note that a greater proportion of those were read by members than was the case last year. The attendance at the scientific meetings had been about the average. The annual reunion again took the form of a smoking concert, and was a highly enjoyable entertainment. The Council regretted that the Cinderellas had again not proved a financial success, hence the Committee had recommended that they be discontinued next year. The Council regretted that no entries had been received for the Research Prize, but it had given satisfaction to be able to award the Essay Prize to Mr. Hymans for his paper. The financial condition of the Association was sound, as evidenced by the financial report.

The PRESIDENT, in commenting on the report, said it was satisfactory to note that many young pharmacists coming to the metropolis had thrown in their lot with the Association; still, the number that had joined—thirty-three—was comparatively small. He thought it ought to have been at least three times that number. With regard to the Cinderellas, it was unfortunate they should have to be discontinued, but the Association could not afford to conduct them unless they paid for themselves. He moved the adoption of the report.

Mr. JAMES asked why the Cinderellas had declined?—they were at one time very successful.

The PRESIDENT attributed the decline this session very largely to the effects of the war; such functions had been unsuccessful generally.

Mr. PECK seconded the motion for the adoption of the report, which was carried.

The TREASURER, Mr. C. J. Strother, next presented the financial statement, showing receipts—including a balance in hand of £117 14s.—amounting to £182 2s. 6d., expenditure £79 4s. 10d., leaving a balance in hand of £102 17s. 8d. It was stated that a number of members had not yet paid their subscriptions; the cost of producing the "Proceedings" had been greater, owing to an increase in the number of pages; there had been a deficit on the Cinderellas of £8 1s. 3d.; and the surplus from the annual dinner was less than previously; hence the reduction in the amount of the balance in hand.

The report was adopted, on the motion of the PRESIDENT, seconded by Mr. DEWHIRST, and a vote of thanks was accorded to the auditors, Messrs. F. James and J. Sowden.

Mr. H. H. ROBINS then communicated the result of the

COUNCIL ELECTION,

thus:—Thirty-four voting papers had been received, all of which were in order, the number of votes recorded for each candidate being:—J. A. Dewhirst, 33; H. Hymans, 33; A. Latreille, 33; F. W. Gamble, 32; C. Morley, 31; T. M. Taylor, 31; J. Evans, 30; C. J. Strother, 29; H. Martin, 28; J. Fothergill, 25; J. W. Peck, 24; Ellis, 22; G. E. Pearson, 22; A. Goode, 21; those constitute the new Council. The unsuccessful candidates were:—G. Tweedy, 19; H. S. Coupland, 18; C. E. Vallet, 18.

The scrutineers, having been thanked for their services, the PRESIDENT delivered his

VALEDICTORY ADDRESS,

in which he voiced his feelings of thankfulness and gratitude to his colleagues of the Council, and especially to the Secretaries, Mr. Latreille and Mr. Evans, and to the Treasurer, Mr. Strother, for the untiring support they had rendered him in the discharge of his duties. The session, he said, had been productive of much good work, but the Association had been spared a surfeit of unalloyed success. He went on to refer to the occasional paucity of attendance at the scientific meetings, and stated that in his endeavours to discover a reason for the small attendances he was told that the meetings were "too scientific," and "too dull for words." He could only say that if they were sometimes dull, they were certainly also sometimes merry. During the past session the Association had had to contend with serious external forces; there had been a slump in science other than military. The Association had not been able to catch the martial spirit of the time for its steed, as it did not possess a hall suitable for the evolutions of a drill corps. But one of the members had found a grave in the veldt; he mentioned that as a tribute to his memory. The swirling vortex of pharmaceutical politics had detracted something, perhaps, from the ever quiet of their way; and at the present time the singing of the sirens was particularly loud, so that some, with Ulysses, were driven to stop their ears, whilst others, emulating Orpheus, chanted loudly to their harps to drown the sirens' voices. He again had to regret that no paper had been submitted for the prize for practical work. He hoped that next year members would endeavour to remove that reproach from the Association. The President then referred to the Cinderella dances, showing that since their inauguration in 1895 they had been attended by financial success for two sessions only—viz., 1895-6 and 1896-7, when there was a credit balance of £9 and £4 10s. 6d. respectively; the three following sessions debit balances accrued of £6, £2 14s. 4d., and £8 1s. 3d.—a debit balance on the entire series of £3 5s. 1d. Previously to the closing session there had remained a credit balance from the dances; but, in view of the fact that it had now become a debit, the Cinderella Committee recommended that next year the dances be discontinued. That decision would cause many regrets, though the circumstances made it unavoidable. The President concluded his address by expressing his thanks to all for the many

kindnesses extended to him during the two years of his presidency.

On the motion of Mr. ROBINS, seconded by Mr. J. LANGFORD MOORE, a very hearty vote of thanks was accorded to the President for his address and for his services in the chair.

The PRESIDENT having replied, the session closed.

CHEMICAL SOCIETY.

There was an exceptionally poor attendance at Burlington House, on Thursday, May 3, when Dr. THORPE took the chair. It seemed at first doubtful that there would be the quorum necessary for taking a ballot for the election of new members.

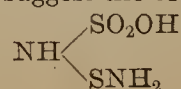
Dr. Chattaway and Mr. Orton contributed a paper dealing with THE SUBSTITUTION OF HALOGENS in anilines, anilides and their homologues. Dr. Chattaway has shown in previous publications that when chloro derivatives of these compounds are formed by the action of hypochlorous acid, the process is not a direct one, but the compound obtained is produced by the isomeric change of a substituted nitrogen chloride. By a single treatment with hypochlorous acid a substituted nitrogen chloride is formed which by suitable treatment is transformed into a chloro derivative, the chlorine wandering to a position on the ring. A second treatment with hypochlorous acid gives a similar result, a dichloro derivative being produced; but on treating a third time a stable nitrogen chloride is produced which cannot be transformed. The present paper dealt with the properties of the chloro- and bromo-compounds produced in this way from *o*- and *p*-acet-toluide. The transformations take place in some compounds quite readily at low temperatures in acetic acid solution, in other cases it is necessary to heat up the acetic acid solution strongly in a sealed tube. The authors believe that in the first reaction the nitrogen atom develops its pentavalency.

A paper was next read by Messrs. ORTON and BLACKMAN on the DETERMINATION OF HYPOIODITES, IODATES, AND IODIDES. The outline of the method is to add excess of a standard solution of sodium arsenite, saturate the solution with carbon dioxide and titrate the free arsenious oxide remaining. This gives the amount of hypiodite. Sulphuric acid is next added, and the free iodine produced is titrated. From this the amount of iodate is obtained. With the aid of this method, after its value had been verified, the authors have carried out an investigation upon the properties of hypiodites. They have found that Lunge's statement to the effect that hypiodite remains even after a mixture of iodine and calcium hydroxide has been boiled, is not to be trusted. Ammonium hypiodite is, however, much more stable, there being but a very slow conversion to iodide and iodate. The reaction of iodine and mercuric oxide in presence of water is attended by the formation of very little of either hypiodous acid or hydriodic acid, but, on the other hand, much iodic acid is produced.

Dr. THORPE mentioned that a paper had been recently published before the Society by Mr. Taylor on the same subject, and invited Mr. Orton to make a comparison of his results with those of Mr. Taylor. Mr. ORTON, in reply, said that he had as yet only seen an abstract of Mr. Taylor's work, and was unable to say how far the results were concordant.

Dr. DIVERS rose to make reference to a paper recently published by Schumann on the

INTER-ACTION OF AMMONIA AND SULPHUR DIOXIDE, which had escaped his notice up to the time of publishing his own paper on the same subject; but, since Schumann had obtained quite different results the originality of his own publication remained. Dr. Divers mentioned that he had in progress an interesting investigation upon a substance of the formula $N_2H_4S_2O_3$, for which he was able to suggest the constitution—



although it was rather premature to do so before the work was completed.

Dr. HEWITT inquired whether Dr. Divers thought the substance might be split so as to yield the sulphur analogue of hydroxylamine.

Dr. DIVERS replied that there was such a possibility.

The PRESIDENT added that the Society would await with pleasurable anticipation a fuller communication from Dr. Divers.

A ballot for the election of members terminated the proceedings.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Cuspariæ Cortex.

CUSPARIA or ANGOSTURA BARK is obtained from *Cusparia febrifuga*, DC. (N.O. Rutaceæ), a small tree indigenous to the mountains of Venezuela. The dried bark was originally brought to Trinidad, whence it is exported to Europe, from Angostura, on the Orinoco. Hence the name "Angostura bark." It is not very easily detached from the tree, its close adherence to the wood being indicated by the rough, slightly exfoliating inner surface, and by the fact that strips of wood are occasionally found attached to the bark. The properties of the drug are those of an aromatic bitter tonic; it is used in the preparation of Infusum Cuspariæ and Liquor Cuspariæ Concentratus.



A.

B.

CUSPARIA BARK.—A, Outer surface of bark of *Cusparia febrifuga*. B, inner surface of bark.

CHARACTERS.—Cusparia bark occurs in quills or in somewhat thin flattened or curved pieces, with an obliquely cut edge, from 10 to 12 Cm. or more in length, 25 Mm. wide, and 2 Mm. thick. The outer corky layer of the bark is grey or yellowish, being soft and friable in the latter case, easily removed by the finger-nail, and then revealing a dark-brown resinous under-surface; when the cork is greyish, however, it is thin and firmly adherent, the difference

being due to the production of alternate layers of thin and thick walled cork cells. In either case, a hard dark-brown cortex comes next to the cork, and the inner surface of the bark consists of light cinnamon or chocolate brown bast. The latter is finely striated, frequently exhibits a laminated structure, and has numerous short, white, longitudinally arranged lines, which are clearly visible under a lens after the surface has been smoothed with a knife. The lines are formed by axially elongated cells filled with acicular crystals of calcium oxalate, white masses of which can also be seen in smoothed radial or transverse sections. The bark breaks with a short resinous fracture, the calcium oxalate appearing on the fractured surface as white points. A transverse section of the bark exhibits the grey or buff-coloured cork with the adjoining yellowish-brown cortex, and next to that the bast, in which yellowish oblique or wavy medullary rays alternate with darker bast rays. The cells containing calcium oxalate occur throughout both cortex and bast, as well as minute dark cells or glands filled with oil. Usually no sclerenchymatous tissue is present other than small isolated groups of bast fibres, the bark being thus distinguished from others which resemble it. The musty odour of cusparia is due to the volatile oil it contains, and its bitter taste chiefly to angosturin.

NOTES.—The distinctive characters of cusparia bark are the frequently spongy cork, the laminated inner surface, the peculiar odour, and the presence of calcium oxalate. The bark contains about 2.4 per cent. of bitter crystalline alkaloids—galipine, cusparine, galipidine and cusparidine—also certain amorphous alkaloids; volatile oil is present in the proportion of about 1.5 per cent., together with resin, gum, a crystalline bitter principle—angosturin—which is soluble in water or alcohol, and a glucoside which yields a fluorescent substance when boiled with diluted sulphuric acid.

Cusso.

Kousso consists of the dried panicles of pistillate flowers of *Brayera anthelmintica*, Kunth (N.O. Rosaceæ), a tree which is a native of North-Eastern Africa and cultivated in Abyssinia, whence the drug is exported. The long panicles of pistillate flowers are collected after fertilisation, dried, and packed into cylindrical rolls or "hanks," which are bound round with the flexible stem of a monocotyledonous plant. The dried flowers stripped from the panicles are sometimes imported and offered as "loose kousso." The staminate flowers are also collected, but are not official. The drug possesses anthelmintic properties, and is administered in doses of $\frac{1}{4}$ to $\frac{1}{2}$ ounce.

CHARACTERS.—Kousso usually occurs in more or less cylindrical rolls from 3 to 6 Dcm. in length, composed of the dull reddish panicles of pistillate flowers. The stout main axis is covered with shaggy brown hairs and branches repeatedly, the branches arising from the axils of large sheathing bracts and being more or less covered with brownish or greyish hairs and glands, the latter appearing under a lens as a brownish powder adhering to the surface. The numerous small flowers have short stalks, and are mostly unisexual, with two roundish membranous veined bracts at the base of each. The pistillate flowers bear a caducous white corolla and abortive stamens, but no trace of either can be found in the drug; they are also distinguished by two monocarpellary ovaries enclosed in the tube of the calyx. The calyx itself consists of two alternating whorls of five segments each, the conspicuous outer sepals being reddish-veined and externally hairy, whilst those constituting the inner whorl are curved inwards over the young fruit and shrivelled. The drug has a slight tea-like odour, and a bitter acrid taste due to the resin it contains.

NOTES.—The distinctive characters of kousso are its reddish colour, the enlarged reddish-veined outer sepals, and the inner sepals curved over the immature fruit. Those characters serve to distinguish the pistillate from the greenish staminate flowers, which are not official. The latter are often unexpanded; they are said to be much less active than the pistillate flowers, their small outer sepals are densely covered with short hairs, and their stamens are

fertile. Loose kousso, which is also excluded by the official description, frequently contains a considerable admixture of staminate flowers. The chief constituent of kousso is kosotoxin, an



Cusso.—A, Flowering branch of *Brayera anthelmintica* (after Berg and Schmidt), about half natural size; B, Staminate flower, closed; C, ditto, open; D, Pistillate flower; E, ditto, cut longitudinally—*b*, outer whorl of sepals, *k*, inner whorl, *c*, corolla; B, C, D, and E (after Luerssen) enlarged.

amorphous substance, which is a strong muscle poison; other constituents are an inactive crystalline substance named protokosin, a bitter acrid resin, tannin, and volatile oil. An inactive crystalline substance named kosin is probably not a natural constituent of the drug, but a derivative of kosotoxin.

Digitalis Folia.

DIGITALIS or FOXGLOVE LEAVES are the product of *Digitalis purpurea*, Linn. (N.O. Scrophulariaceæ), a biennial herb which is widely distributed throughout Europe and common in England, where it occurs both wild and cultivated. During the first year of its growth the plant produces a rosette of leaves, but the tall, erect, usually simple stem does not appear until the second year. The flowers have a crimson bell-shaped corolla, with darker spots inside the mouth, didynamous stamens, and a conical ovary with two cells containing numerous ovules. The leaves must be collected when the plant commences to flower, as they are considered to be most active then, and the presence of the flower also prevents the risk of the leaves of other plants being collected by mistake. The leaves, which should be dried immediately after collection, are largely imported from Germany. The drug possesses cardiac and

circulatory stimulant and tonic properties; it is used in the preparation of Infusum Digitalis and Tinctura Digitalis. The dose of the drug in powder is from 0.5 to 2 grains.

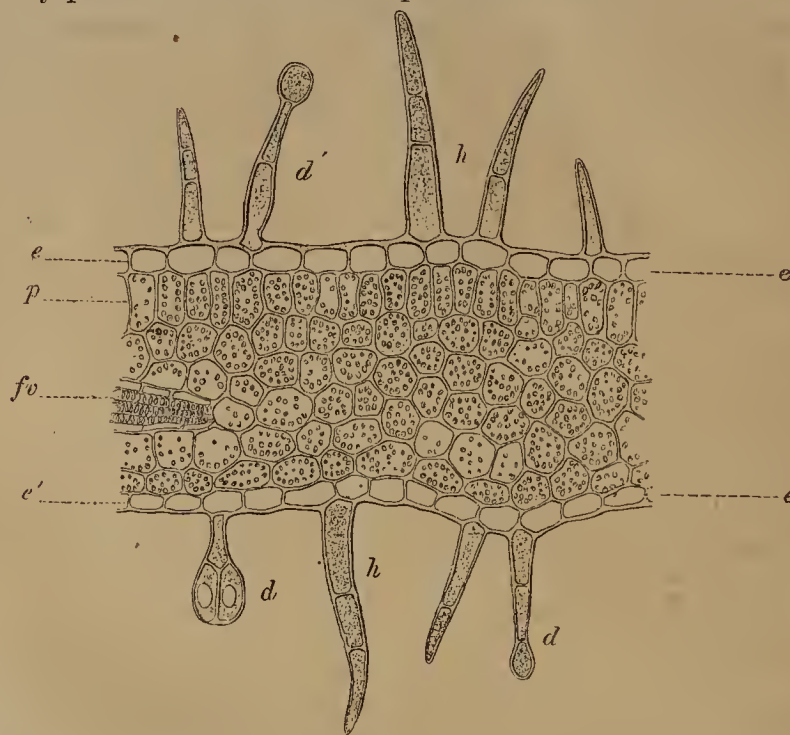


DIGITALIS LEAVES.—A, Root leaf of *Digitalis purpurea*; B, Stem leaf. Both reduced to one-fourth natural size.

CHARACTERS.—Digitalis leaves are from 10 to 30 Cm. or more in length, and may be as much as 12.5 to 15 Cm. broad. They are broadly ovate or ovate-lanceolate in shape, those on the upper part of the stem being the narrower, with a blunt or subacute apex and crenate or irregularly crenate-dentate margin. The lamina is contracted towards the base of the leaf, and passes into a winged petiole of varying length, down which the lower veins are usually decurrent; the petioles are longest on the lower leaves. The upper, somewhat rugose, surface of the leaves is dull green in colour, and bears short, glandular, simple, usually three-celled hairs; the under surface is paler and densely pubescent, the hairs being simple and unbranched. The midrib is prominent on the under surface, and the majority of the lateral veins leave it at a rather acute angle, gradually curving round towards the apex and passing into smaller ramifications near the margin. A transverse section of a leaf shows the mesophyll to be free from crystals of calcium oxalate. The drug has a faint non-characteristic tea-like odour, but a very bitter taste due to digitoxin and digitalin.

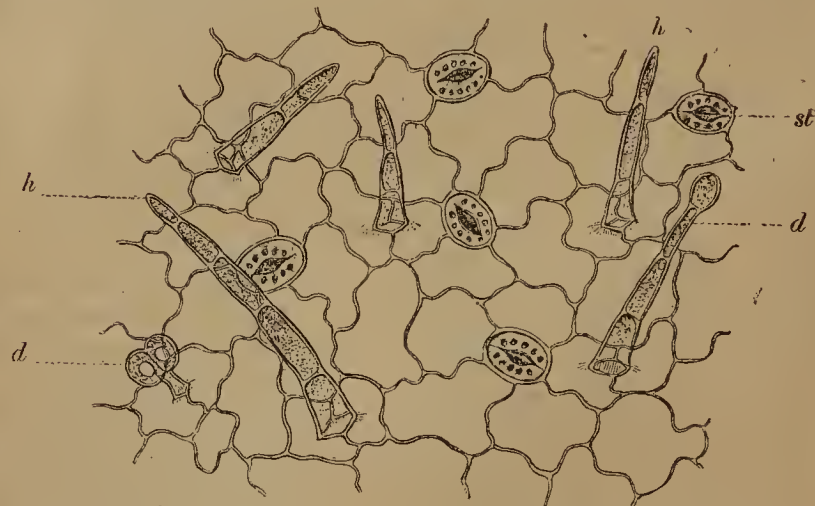
NOTES.—The distinctive characters of digitalis leaves are the crenate margin, winged petiole with decurrent veins, simple unbranched hairs, and the course taken by the lateral veins. In matico leaves (*Piper angustifolium*, Rinz and Par.) the veinlets are depressed on the upper surface, giving it a tessellated appearance; mullein leaves (*Verbascum thapsus*, Linn.) are woolly, with branched hairs; comfrey leaves (*Symphytum officinale*, Linn.) are lanceolate and bear isolated stiff hairs; primrose leaves (*Primula vulgaris*, Huds.) are nearly spatulate or spoon-shaped, with straight lateral veins which divide near the margin; Ploughman's spikenard leaves

(*Inula conyza*, DC.) have a more or less denticulate margin, with horny points to the teeth when present.



DIGITALIS.—Transverse section of leaf showing hairs, etc., enlarged (after Vogl).

The chemistry of digitalis is far from clear. It has been supposed that the leaves contain an amorphous glucoside named digitalein, which is non-cumulative in its action on the heart and causes no irritation when injected subcutaneously, together with four crystalline (? granular) glucosides—digitoxin, digitalin, digitonin, and digitin. According to Schmiedeberg and other investigators, digitoxin is extremely poisonous, and uncertain and cumulative in its action; digitalin is less toxic than digitoxin, and possesses in a high degree the medicinal action of digitalis; digitonin resembles saponin, has none of the physiological action peculiar to digitalis, and in other respects is directly injurious; finally, digitin is physiologically inert. Kiliani, however, has shown that the digitalein of Schmiedeberg is a mixture, and he claims also to have established the identity of digitonin with the crystalline digitalin of commerce. According to



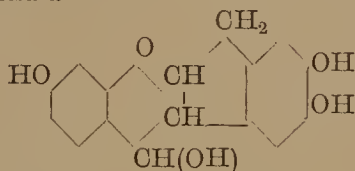
DIGITALIS.—Epidermis of under side of leaf, enlarged (after Vogl).

Merck, digitin is likewise identical with crystalline digitonin and with crystalline digitalin of commerce; he describes the compound as being physiologically inactive, whilst the digitoxin of Schmiedeberg, which occurs in the form of a white micro-crystalline powder, is said to be the substance in which the properties of digitalis assert themselves with the greatest force. On the whole, therefore, it would appear that digitoxin and digitalin must be regarded as the only two substances of definite composition proved to exist in the drug and that Merck's preparation of Schmiedeberg's digitoxin is probably the product which possesses the most definite and constant therapeutic action.

Pharmacy and the Allied Sciences.

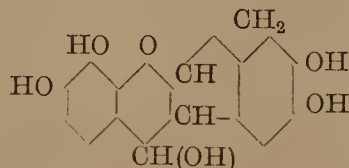
A REVIEW OF CURRENT WORK.

CONSTITUTION OF BRAZILIN. A. W. Gilbody, W. H. Perkin, jun., and J. Yates have previously shown (*Proc. Chem. Soc.*, **15**, 27) that trimethylbrazilin $\text{OH} \cdot \text{C}_{16}\text{H}_{10}\text{O}(\text{OCH}_3)_3$, when oxidised with chromic acid, is converted into trimethylbrazilone, $\text{OH} \cdot \text{C}_{16}\text{H}_9\text{O}_2(\text{OCH}_3)_3$, and that this substance, when heated, loses water, with formation of dehydrotrimethylbrazilone, $\text{OH} \cdot \text{C}_{16}\text{H}_8\text{O}(\text{OCH}_3)_3$, a compound which yields an acetyl derivative and is evidently identical with the acetyl compound which Herzig prepared by the oxidation of acetyltrimethylbrazilin (*Monatshfte*, 1895, **16**, 913). The authors now find that trimethylbrazilone, on treatment with phenylhydrazine, is reduced to a substance having the formula $\text{C}_{19}\text{H}_{18}\text{O}_4$, which melts at 173° , and dissolves in nitric acid and other concentrated mineral acids, yielding intense purple or orange solutions. When trimethylbrazilin is oxidised with potassium permanganate under various conditions, a variety of substances are formed, the principal of which are, (1) a dibasic acid $\text{C}_{10}\text{H}_{10}\text{O}_6$, melting at 175° , described as methylcarboxyresorcylic acid; (2) a monobasic acid, $\text{C}_{10}\text{H}_8\text{O}_3(\text{OCH}_3) \cdot \text{CO}_2\text{H}$, melting at 129.5° , which has already been described (*Proc. Chem. Soc.*, **15**, 29); (3) an acid very sparingly soluble in water and melting at 208° , which acid has the formula $\text{C}_{19}\text{H}_{18}\text{O}_9$, and (4) an acid very sparingly soluble in water, which melts at $214\text{--}215^\circ$ with vigorous decomposition, and gives also an intense catechol reaction after fusion with potash and treatment with ferric chloride; (5) metahemipinic acid. The results described in this and previous communications, and especially the isolation of methylcarboxyresorcylic acid and of metahemipinic acid from among the products of the oxidation of brazilin, allow of only a very few formulæ as possible expressions of the constitution of this substance, and after carefully considering all the facts, the authors are of the opinion that brazilin probably has the constitution represented by the formula—



—*Proc. Chem. Soc.*, **16**, 105.

CONSTITUTION OF HÆMATOXYLIN. W. H. Perkin, jun., and J. Yates show that when tetramethylhæmatoxylin, $\text{OH} \cdot \text{C}_{16}\text{H}_9\text{O}(\text{OCH}_3)_4$ is oxidised by potassium permanganate under various conditions, it yields the following substances:—(1) Metahemipinic acid, which was characterised by analysis and by conversion into the characteristic ethylimide melting at 230° ; (2) an acid melting at 180° , which evidently corresponds with an acid, $\text{C}_{17}\text{H}_{16}\text{O}_5(\text{CO}_2\text{H})_2$, (m.p. 208), obtained from trimethylbrazilin; (3) an acid melting at 214° which has the formula $\text{C}_{11}\text{H}_{12}\text{O}_7$, and corresponds with the methylcarboxyresorcylic acid obtained from brazilin. The formation of this acid and of metahemipinic acid from hæmatoxylin leads the authors to believe that the constitution of the latter substance is represented by the formula—



—*Proc., Chem. Soc.*, **16**, 107.

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BANANA FLOUR. The banana, which grows in almost all tropical countries, is very nutritive, and forms a nearly perfect food. It contains more than 25 per cent. of assimilable organic matter. According to Humboldt, it is forty-eight times more nutritious than the potato, while Crichton Campbell has stated that the banana is twenty-five times more nutritious than the best wheaten bread. The analysis of Thoms shows the presence in the flour of banana of 9.01 per cent. of nitrogenous matter. The best wheaten flour contains no more than 9 to 11 per cent. It is preferable to manufacture the starch from unripe fruits, because the starch is converted into sugar in ripening. In Venezuela the flour of the banana is given especially to children; it is equally good for aged people, convalescents, nursing women, and is of great service in the feeding of those suffering from complaints of the stomach. In Central America, Colombia, and Venezuela the banana flour is prepared on a large scale, and sold under the name of Musarina. The flour of the banana may be used in the same way as wheaten flour, except for the preparation of bread, for which it is unsuitable, inasmuch as it contains no gluten. Various formulæ are taken from the *Tropenpflanzer* for preparing banana flour for dietetic use. Thus a teaspoonful of the flour in a cup of chocolate or cocoa facilitates the digestion of these drinks, and renders them more nutritious. This addition enables cocoa to be taken by those whose stomachs are in a weak state. A sustaining drink may be made by adding a teaspoonful of the flour to an egg yolk beaten up, mixed with milk, and sweetened with sugar. The sale of banana flour in London is insignificant, on account of its high price and the fact that its uses are not yet understood.—*Revue des Cultures Coloniales*, **6**, 52.

TUBERCLES ON LUPIN ROOTS. M. P. Dehérain and M. E. Demousey state that *Lupinus albus* reaches only a very moderate development when it does not produce root-tubercles. *L. angustifolius* is also unable to utilise the nitrogen of the atmosphere without external assistance. It can, however, acquire a normal development without nodosities; but in that case it appears to obtain its nitrogen from bacteria which live parasitically on algæ present in the soil—*Phormidium autumnale* and *Ulothrix flaccida*.—*Comptes rendus*, **130**, 1900.

OXIDISING FERMENT IN FLOWERING PLANTS. Sig. N. Passerini claims to have detected the presence of at least a trace of an oxydase in about 80 out of 100 species of flowering plants examined. It is more constant in the root than in any other organ. The guaiacum reaction is often stronger in the bark than in the pith. In the leaves oxydases are often entirely wanting, or are present only in very small quantities, and are then generally localised in the veins. When present in the flower, they are more abundant in the pistil than in the stamens; in the latter they occur chiefly in the filament. In the fruit, they are most abundant in the pericarp; in the seeds they disappear before maturity.—*Nuov. Giorn. Bot. Ital.*, **6**, 296.

FERMENT OF SEEDS. The carob, *Ceratonia siliqua*, is taken by M. E. Bourquelot and M. H. Hérissé as the type of seeds with a horny endosperm, composed, for the greater part, of mannane and galactane. During germination the embryo secretes a soluble ferment, which hydrolyses the carbohydrates of the endosperm, producing mannose and galactose. Similar results were obtained with the fœnugreek (*Trigonella fœnum-græcum*) and the lucerne (*Medicago sativa*). The action of the soluble ferments is comparable to that of dilute sulphuric acid. For the ferment obtained from these two plants the authors propose the name *seminase*. The reserve carbohydrates are manno-galactanes, capable of being hydrolysed by the seminase.—*Comptes rendus* **129**, **130**, 1899, 1900.

PRARMACOGRAPHIC NOTES.

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

Curator of the Museums of the Pharmaceutical Society.

Chaulmugra Seed.

M. Georges Desprez directs attention to a new kind of chaulmugra seed which he has received from Dr. Prain, Director of the Botanic Gardens, at Sibpur, India, and which is stated to come from Sikkim. This seed he says is "analogue à celle décrite par Hanbury" ('Science Papers,' p. 244). But as M. Desprez states that the "teguments" (testa?) "se cassent avec la plus grande facilité," the false chaulmugra evidently cannot be the same as the "Ta-fung-tsze" or Siamese chaulmugra of Hanbury, which is distinctly stated by Hanbury, *l. c.*, p. 245, and 'Pharmacographia,' 2nd ed., p. 76, to have a hard woody outer shell (testa). It is possibly the seed of *Hydnocarpus wightiana*, Blume, which has a thin testa, easily broken. The oil of these seeds has been used as a substitute for chaulmugra oil, and the seeds are only half the price of the genuine seeds of *Gynocardia odorata*. They are illustrated in an excellent 'Report on the Oil Seeds and Oils in the Indian Museum,' by Dr. M. C. Cooke (1876), but as this work is rather scarce, and there seems to be some confusion concerning the seeds sold as chaulmugra, it may be well to draw attention to the three varieties that pass under that name.

(1) GYNOCARDIA ODORATA, R. BR.—Genuine chaulmugra seeds are irregular in size and shape, quite smooth externally, of a greyish colour, or with a pale brownish tinge, 1 to 1½ inch long and ⅝ to ¾ inch broad in the widest diameter (Cooke, 'Report,' *l. c.*, p. 16, Fig. 8). The kernel shows two flat thin cordate ovate cotyledons and a straight radicle, immersed in oily albumen (Fig. 1.).



Fig. 1.

1. GYNOCARDIA ODORATA. SEEDS, natural size, showing cotyledon and radicle *in situ*.

(2) HYDNOCARPUS ANTHELMINTHICA, PIERRE.—These are the seeds figured by Daniel Hanbury (*Pharm. Journ.* [2], 3, p. 23, and 'Science Papers,' p. 244). Dr. F. Porter Smith, in the 'Materia Medica of China' (1871) described them (p. 140) under the name of "Lucrabau (chaulmugra) seeds," imported into China from Siam, and gave the Chinese name as "Ta-fung-tsze." He evidently considered them to be identical with chaulmugra seeds, although he remarked that "the Indian nuts are somewhat different from the Siamese samples, the testa being thin, smooth,

and fragile in the former case." Hanbury showed, *l. c.*, that the Siamese and Indian seeds could not be identical. Subsequently, Dr. Pierre, formerly at Saigon, obtained specimens of the plant and described it as a new species, under the name of *Hydnocarpus anthelmintica*, Pierre (*Pharm. Journ.* [3], 15, p. 41). A specimen from Lu mountain, in the province of Bien Hoa, in Southern Cochin China, was presented by him to the Herbarium of the Society in 1884. The illustration given in 'Science Papers' does not accurately represent the marking on the seed coat. The seeds when freed from adherent dried pulp, with which many of them are coated, are about ½ to ⅔ inch long and ⅜ to ½ inch broad in the widest diameter; marked at one end with short radiating interrupted ridges, occupying about one-third of the length of the seed. The rest of the surface is slightly rough to the touch with very faint raised points and lines running in a longitudinal direction. The embryo resembles in character that of *Gynocardia odorata*, but the radicle sometimes faces the side of the seed and sometimes the base. A dark stain-like chalaza is visible on the outer surface at the end of the seed opposite the radicle. The ridges on the testa are at the chalazal end.



Fig. 2.

Fig. 3.

2. HYDNOCARPUS WIGHTIANA. SEEDS, natural size, showing cotyledon and radicle *in situ*.

3. HYDNOCARPUS ANTHELMINTHICA. SEEDS, natural size, showing cotyledon and radicle *in situ*.

3. HYDNOCARPUS WIGHTIANA, BLUME.—These seeds are rather more uniformly obovate and taper more to one end than the previous two, and are strongly marked with irregular raised rough and minutely warty lines. The rough surface readily distinguishes them at sight, and the colour is more of an ashen than a brownish grey. The embryo also shows three distinct veins on each cotyledon as in the other species. The testa is thin and more easily crushed than in the other two species. The fruit is figured in Cooke's 'Report,' p. 17. The tree is a native of Western India, and the oil is employed on the Malabar Coast in cutaneous diseases and ophthalmia, and for ulcers on the feet. It has been taken internally for leprosy, syphilis, and rheumatism, but, like chaulmugra oil, acts occasionally as a gastro-intestinal irritant (Watt, 'Dict. Econ. Prod. India,' vol. iv., p. 309).

Cannabis Indica.

A contemporary has directed attention to the fact that a stronger variety of *Cannabis indica* than that official in the Pharmacopœia is imported into this country and re-exported again to the West Indies. The attention of the Pharmaceutical Society was directed to this variety so long ago as 1886, by Dr. Geo. Watt, at the Evening Meeting in November of that year, *P.J.* [3], 17, pp. 406 and 415. He pointed out that the difference between the round and the flat ganjah was very great, the former also was taxed in India ¼ more than the flat variety, and in his 'Dictionary of Economic Products of India,' vol. ii., p. 122, he states that "the heavy fiscal restrictions

now imposed on Bengal ganja had in all probability diverted the export trade from Bengal to Bombay, so that instead of the carefully cultivated Bengal article finding its way into Europe, the much inferior but infinitely cheaper ganja of Bombay (known as guaza in the drug brokers' lists in London) and the Central Provinces was in all probability that now used in European pharmacy." Certainly the flat and inferior variety is that generally used in pharmacy in this country and is rendered official in the present Pharmacopœia by the use of the term "compressed," which can only apply to the flat ganja. The use of the Bengal ganja was suggested by the writer for adoption in the P.B., but it was thought that some risk might attach to its use, preparations made from it being much stronger. The Bengal drug was, however, in at least one wholesale warehouse in London last year and was used in physiological experiments by a well-known authority. It may at any time appear in quantity, and less danger would probably accrue from the stronger drug being official in the Pharmacopœia and regularly used than from its occasional appearance in place of the weaker article. That the Calcutta kind does come to this country for re-exportation for the use of coolies in other countries is evident, and at any time when the London market is overstocked with it and the ordinary article scarce, it might easily and unwittingly replace the latter, but not without some danger to patients. The Bengal ganja is in cylindrical, not compressed or flattened pieces, and is usually more resinous.

The Active Principle of Ergot.

Dr. J. S. Meulenhoff, who has carefully followed the observations and processes of previous investigators, finds that only one alkaloid is naturally present in ergot. This is the ergotinine of Keller. The ergotinine obtained by following the process of Tanret, was found by Meulenhoff to be impure and not wholly crystalline, but when the ethereal solution was precipitated by an ethereal solution of citric acid it yielded the pure ergotinine of Keller. The impurity was found to be due to the action of alkali, for on heating Keller's ergotinine with alcoholic solution of hydrate of sodium, the resulting altered alkaloid gave the same green colour with concentrated sulphuric acid that Tanret's ergotinine gives. By treating Keller's ergotinine with a 3 per cent. solution of hydrochloric acid and removing the unaltered ergotinine by acetic ether, Meulenhoff succeeded in obtaining an alkaloid giving the reactions of cornutine, which he, therefore, considers to be a decomposition product of ergotinine.

Besides the alkaloid ergotinine a second constituent is regarded as active, viz., an acid named sclerotic or ergotinic. Under these names four preparations are known; one described by Zweifel, and brought into commerce by Merck under the name of ergotinic acid, one by Dragendorff and Podwissotski, named sclerotic acid, and a form of it modified by Podwissotski, and one by Kobert, named ergotinic acid. But while the first three observers consider ergotinic or sclerotic acid active, Kobert says that his has absolutely no embolic action. Meulenhoff regards it as a more or less pure carbo-hydrate compound, which he succeeded in splitting up by means of boiling with dilute acid into galactose and another substance not yet described in chemical literature. He found that in frogs it produced gradual paralysis.

He further found that when exhausted with cold or warm water or with solution of chloride of sodium, powdered ergot was almost as active as before exhaustion; that petroleum ether did not remove the active constituent nor the alkaloid, but only fatty oil. Ether subsequently removes only a little of the active ingredients, but dissolves scleraurine and ergotinine, and the remains of the oil. Alcohol removed the greatest quantity of the active constituents, the alcoholic extract causing intense colouring of the combs of fowls, an excessive hypnotic condition and violent diarrhoea. But the powder, after exhaustion with petroleum ether, ether and alcohol, still possessed the same properties as the alcoholic extract.

He holds that sphacelinic acid must be considered the active ingredient, and after it the cramp-producing body which is pre-

sent to some extent in Kobert's cornutine and which Meulenhoff himself has detected in some samples of Spanish ergot. Sphacelinic acid he considers does not become so quickly inactive as has been stated. The activity of sphacelinic acid, however, is considerably lessened by the action of alkalis. Sphacelinic acid is soluble in ether to the extent of 0.02 per cent. only. The scleraurine of Meulenhoff is believed by him to be identical with the ergochrysin of Jacobi (1897). It is a weak acid. The secaline of that author Meulenhoff identifies with the ergotinine of Keller. A third very active body, to which Jacobi gave the name of sphacelotoxine, and which he obtained as a green resinous substance, is named by Meulenhoff sphacelia, and was obtained by the latter in larger quantity as a greyish-brown powder. So far as can be gathered, therefore, from recent investigations, ergot yields (1) an acid substance soluble in water, named by Dragendorff sclerotic acid, for which both hæmostatic and oxytoxic properties have been claimed by some authorities; (2) Ergotinine of Keller, a crystalline alkaloid, for which similar properties are claimed; (3) Sphacelinic acid, soluble in alcohol, which is now claimed to be the chief active ingredient; (4) An inactive, weak acid body, named scleraurine, and (5) a poisonous acid named sphacelia acid, or, more appropriately, sphacelotoxine, by Jacobi. In commerce ergotinine and its citrate, cornutine and its citrate, and sclerotic acid are quoted in price-lists, but a report from the medical profession as to their utility and from the chemical side as to the composition of the commercial products is still desirable before it can be said that the very difficult question of the really active constituents of ergot is settled. But there is no doubt that Tanret's ergotinine on exposure to light darkens in colour and on keeping becomes inactive. A portion of specimen presented by Tanret to the Museum of the Society, after it had become slightly brown by keeping, proved inactive as an embolic when experimented with by a medical practitioner.

Vegetable Drugs in the U.S.P.

Under the Editorial Notes and Comments in the *American Journal of Pharmacy* for May, pp. 236-238, some statements occur that almost lead to the supposition that the editor must have been away on a holiday when they were written. Under the heading of "Myrrh," we are told that the Arabian myrrh from Aden is more highly valued than that of the Somalis (the contrary being the case), and that the plants brought home by Mr. and Mrs. (Lort) Phillips were, "they were given to understand by the Somalis," the source of myrrh. As a matter of fact the bark taken from the same tree as the leaves by Mr. Lort Phillips had *genuine myrrh on it*, so that no doubt remains that the plant yielding Somali myrrh is the *Balsamodendron myrrha* figured by Nees von Esenbeck and Bentley and Trimen, and not the *Commiphora myrrha*, Engler, but the so-called variety of his species which he calls "mol-mol"—the native name of the drug with the Somalis—who call the plant "Didthin," see *Ph. Journ.* [4], 8, pp. 26, 27 and 295.

Balsam of Tolu.—We are told that another species, *T. peruvifera* (L.f.), Baill., is also said to yield small quantities of an aromatic balsam resembling that of Tolu. In the first place the proper genus is *Myroxylon*, and in the second *M. pereira*, as shown by Peckolt, yields a black balsamic liquid resembling not balsam of Tolu, but balsam of Peru.

Rheum.—Danmer is quoted as giving as sources of the commercial root, *R. australe*, Don., *R. leucorrhiza*, Pall. (of Central Asia), and *R. rhaponticum* (of Western China). The only rhubarbs the writer has seen in English commerce (except the Chinese rhubarb) have been derived from the roots of *R. rhaponticum* and *R. officinale*, grown in England, and from the roots of *R. undulatum* and *R. compactum*, grown on the Continent. It is very doubtful if the roots of either *R. australe* or *R. leucorrhizum* ever form part of the rhubarb of European commerce.

Ipecacuanha.—The root is referred to *Cephaelis ipecacuanha*, Brotero, whereas Richard is the authority for that name. To this statement is appended another, that "From the results of analyses it would appear that the latter (Carthagena ipecacuanha) is richer

in emetic alkaloids than the former. This remains, however, to be proved." If, instead of emetic alkaloids, the word cephaeline had been substituted it would have been more accurate, *Ph. Journ.* [iv.], 2, p. 321.

Ammoniacum.—Drude is quoted as the authority for African ammoniacum being yielded by *Ferula "tingitaria,"* L. (*tingitana*) and Battandier for the statement that *Ferula communis*, var. *gummifera*, of Algiers and Morocco, "yields a gum-resin which looks much the same as the African ammoniacum." *Ferula tingitana* is mentioned by Pereira as the source of African ammoniacum, and the leaves certainly have the taste of that drug, whilst a *Ferula* obtained by the late Dr. Leared from Morocco, through the Shereef, and which closely resembled *Ferula communis*, cultivated at my request at the Botanical Gardens at Regent's Park, had no taste whatever of the drug in the leaves.

Sumbul.—We are gravely told that this root is the product of not only *Ferula sumbul* (Kffm.) Hook. f., but also of *F. narthex*, Boiss! No one who has touched the leaves of *F. narthex*, could ever be persuaded that the odour was anything but alliaceous. The author has apparently got mixed up in his facts. The root of *Dorema ammoniacum*, scented with tincture or infusion of musk, has been substituted for sumbul, and is the false sumbul mentioned by Pereira. A specimen so treated and received as sumbul is in the Museum of this Society.

Storax.—This is represented as yielded by *Liquidambar orientalis*, and also by *L. styraciflua*, L. The product of the latter, an American tree, is known in the United States as sweet gum, and in this country as "liquidambar." Of this the author might have assured himself by a reference to the 'National Dispensary,' 1894, pp. 946 and 1532. Were it not that such statements appear under cover of the editorial authority in such an important journal, and that articles are so frequently copied from one journal to another, such inaccurate statements would hardly have been worth notice.

PRACTICAL NOTES.

BY F. H. ALCOCK.

TOUGHENED FILTER PAPERS.

During some experiments having for their object the determination of the best means of wholly extracting the alkaloids from cinchona bark, use was made of an aqueous solution of zinc chloride, the liquid was poured off and ammonium hydroxide added in excess, and the alkaloids thus precipitated separated by paper filtration. On drying the paper filter it was found to be tough and more like parchment paper, but retained its filtering power. Some paper was afterwards moistened with solution of ammonio-zinc chloride alone, and after washing with water and drying, it possessed this "toughened quality." Five inch filter papers which gave 2 m.g. of ash, after treatment gave 9 m.g. of ash which contained a little zinc compound. By more perfect washing the method may be found useful for the production of this kind of filtering media.

THE PURIFICATION OF CALCIUM CHLORIDE.

Where much carbon dioxide is required for experimental purposes there is an accumulation of solution of calcium chloride, and as this is made from marble the impurity present is chiefly ferrous chloride. The method of purification of this solution for reagent purposes is usually the addition of chlorinated lime, but if care be not used a trace of this will be found in the final product, or it may be contaminated with some calcium hydroxide, which is also added. A very simple plan, which has been proved to be successful, is to evaporate the solution of crude calcium chloride slowly in a large shallow evaporation dish to perfect dryness, raising the temperature until a light porous mass is obtained. On cooling and solution in distilled water and subsequent filtration the filtrate will be found to be practically neutral, and free from iron compounds.

BACTERIOLOGY FOR PHARMACISTS.—III.

BY C. EDWARD SAGE.

PREPARATION OF CULTURE MEDIA.

Bacteria require very careful feeding if they are to flourish, and successful cultivation depends entirely upon the choice of a suitable culture medium. Although individual specimens are not omnivorous, yet organisms of one kind or another are to be found in all manner of materials and consequently may be cultivated upon equally numerous substances.

Some organisms find the blood of living animals a suitable environment, others the juice of living plants, others water, milk, soil, or even sewage.

In nature it has been found that yeasts require a saccharine and albuminous food, lactic acid organisms grow best in milk, and the pathogenic organisms, *i.e.*, those capable of producing specific diseases, are propagated best on media which contain some of the constituents of flesh or blood. It has, therefore, always been the aim of bacteriologists to imitate nature and cultivate organisms on media which resemble those in which they are found. Needless to say, these media are very numerous, but the student will only require to prepare a few with which to begin the study of micro-organisms.

Pasteur's original experiments were made with liquids, but for purposes of isolation and observation solid media were soon introduced. Micro-organisms are so cosmopolitan that they are not always particular in what company they settle, and the aim of the student must be to rescue some one or other organism from the friends which would so soon overwhelm it by their close attention.

Gelatin offers facilities which enable workers to solidify a liquid medium and so fix each organism in a definite spot where it may multiply without moving far enough away to get mixed with other species. This property of a jelly to fix an organism and at the same time to give it a supply of moist nutriment is the principle on which the present system of cultivation and isolation has been developed.

Students who are careful observers may have noticed specks of mould in paste, by which they know that one single spore has probably started the speck of growth, which will soon extend over the whole surface of the paste. So with bacteria in jelly; where one organism is present a speck soon becomes visible, and, provided there are not too many organisms present, the speck soon extends in size, and forms what bacteriologists call a colony.

For pharmaceutical students only a few media need be mentioned here, as their preparation is essentially the same in most cases, and once the details of manipulation and sterilisation are understood any of the others can be prepared without difficulty. Beer wort, a solution of extract of malt, beef broth, or milk are the essential media, and the methods of preparing these for culture media entails some careful work which by itself teaches the student many things he may or may not do in subsequent experiments.

Beer wort can generally be obtained from a brewery, but in cases where students are not able to procure it, a solution prepared by dissolving one part of extract of malt in twenty of tap water will serve the purpose. Care, however, must be taken that the extract is fresh and contains no preservative antiseptic.

Whichever is used, about a quart should be taken and boiled in a clean 60-oz. flask for ten minutes. The neck of the flask should then be covered with a clean sterile beaker and allowed to stand twenty-four hours. At the end of this time put about a pint of water in another 60-oz. flask and place an 8-oz. funnel in its neck; plait a filter paper and lay it loosely in the funnel, then boil the water in the flask for ten or fifteen minutes with the funnel and paper remaining in the neck. Then place the funnel in a support and sprinkle about $\frac{1}{4}$ oz. of kaolin on the filter and pour the boiling water through the filter paper. This practically sterilises the filter,

so when all the water has run through, put the funnel back in the empty flask and through it filter the wort or malt solution. When it has all filtered, boil it for ten minutes and cover as before. This yields a bright golden yellow liquid which is practically sterile, but which must be absolutely sterilised by boiling again for ten minutes after twenty-four hours. A little of the original wort or solution before it has been sterilised or filtered should be put aside in a small flask and the neck plugged with cotton wool; subsequent observations will probably show that it is undergoing fermentation.

Having sterilised the bulk of the solution, it is best to pour it off into smaller sterile flasks or bottles, to plug these with cotton wool, and place them in the steam steriliser already mentioned and steam them for ten minutes. After this treatment the liquid will keep without fermenting, but to preserve the cotton wool plugs from dust they should each be lightly covered with a paper cap.

To illustrate the use of this wort, take a small portion and to it add as much dried yeast as can be picked up on the point of a needle. After plugging the flask with wool place it in the incubator at 37° C., or, failing this, in the shop window if it has a southern aspect. After a short time the liquid will become turbid, the liquid will froth up and give off CO₂, and all the signs of fermentation will be shown, whilst the yeast will have multiplied many thousand times, and a little can be examined under the microscope.

Bacteriologists are so often supposed to cultivate nothing but organisms connected with disease that the use of beef broth may seem to savour of animal organisms; but the truth is that beef broth has been found such an excellent food for most organisms that its employment is almost universal. The student should prepare some as follows:—

Take a pound of shin of beef, remove any fat there may happen to be attached, and mince it finely, then sprinkle two drachms of common salt over it and put into an enamelled saucepan with a quart of water; let it macerate for three hours, stirring it frequently, then boil for half an hour, and finally strain through muslin and pour enough water over the residue to make thirty-six fluid ounces. To this add 200 grains of Savory and Moore's Peptone and sufficient carbonate of soda solution to make the whole just faintly alkaline to litmus paper, then boil for ten minutes and cover with a clean beaker until it has cooled, and finally pass it through a filter prepared and sterilised as for wort. When it has all filtered, boil for ten minutes, set aside twenty-four hours, and repeat the boiling and setting aside twice, keeping it in the same flask all the time, or it may be bottled off into smaller flasks and sterilised and kept until wanted.

Its use may be demonstrated by making an infusion of chopped hay and adding one drop to a little of the peptone beef broth. After incubating for a short time the broth will most probably become quite cloudy, a scum will develop on its surface and possibly the liquid will stink. Do not shake the flask after starting the experiment or the changes will not be so apparent.

Milk may be almost completely sterilised by heating it in plugged flasks to 70° C., whereby its flavour and nutritive value are unimpaired; but for the student's purpose, when milk is required it should be boiled for fifteen minutes, strained through glass wool and the flask carefully plugged with wool. Heating in the steam steriliser on two successive days for fifteen minutes will generally complete the sterilisation, and milk so treated will keep for years.

If a cow is milked carefully into a sterile bottle by a person with clean hands and in a place free from dust, the milk will be found to contain very few organisms, but under the conditions in which milking is generally carried out the milk as it is retailed to consumers contains a tremendous number of organisms. Any number between one and ten million organisms per cubic centimetre is a common average, and it is quite as well some fastidious people do not know that the consumption of a glass of milk entails the swallowing of about 250 million micro-organisms; but they might be con-

soled by the fact that the majority of these are innocuous or else of some distinct use.

The preparation of these liquid media is very important, but the solid media are more often employed, and all that is necessary in order to prepare the latter is to take one pint of either clarified wort or peptone beef broth in a flask and add to it 3oz. of Coignet's best gelatin, previously cut up so that it can be entirely immersed, and when this has entirely softened, the whole is heated on a boiling water bath for ten minutes and then boiled for five minutes over a Bunsen burner. Care must be taken in applying the heat, for the contents are very likely to froth over, and when boiling the flask make it a rule to have another one close at hand, so that if the flask should crack when it is being boiled the preparation may be saved. The gelatin solutions will set to a jelly when cold, and melt again on warming at about 25° C.; but if they are boiled too long they lose the property of jelling.

For incubation at 37° C. it is essential to have a solid medium which does not melt at that temperature, and for this purpose agar-agar is substituted for gelatin.

To prepare agar-agar jelly, soak 1½oz. of agar-agar in water for half an hour, then rinse it well under the tap and drain off the excess of moisture. Dissolve the softened agar-agar in either wort or peptone beef broth by heating first on a water bath and afterwards over the gas. Gelatin or agar-agar jellies should be at once filled into test tubes and the process of sterilisation completed in them. Test tubes should be cleaned and sterilised as mentioned in the previous chapter, and the hot medium poured into them to the height of about 2in. The filling may be done by means of a stoppered separatory funnel, but after a little practice students will find it quite as easy to pour the medium direct into the tubes without allowing any to touch the sides of the tube.

As a rule the jelly will contain some bits of foreign matter, and in filling the tubes only the clear portion should be poured off. After filling, each tube is plugged with cotton wool and several of them are packed upright in tins or wire crates, these latter being put in the steam steriliser for ten minutes on three successive days. After the third steaming they will be sterilised completely, and while the contents are still liquid some tubes should be laid in a slanting position to cool, so that the jelly sets in a slanting shape on one side of the tube.

The remainder of the tubes are allowed to cool upright, but in all cases great care must be taken not to let the medium touch the cotton wool plugs. When the jelly has quite set, each tube should be capped with tinfoil to prevent loss of moisture, or little rubber caps may be employed for the same purpose.

Milk may be solidified in the same way, but it is generally best to mix a small proportion of milk with peptone beef broth and then add the gelatin or agar-agar to that.

Potatoes are useful for growing some organisms. Before use they must be scrubbed well with 1 in 1,000 perchloride of mercury solution and wiped dry; then cylindrical pieces are cut from them by means of a cork borer, and each piece cut into two diagonally and the pieces placed in test tubes. The tubes must be carefully plugged with cotton wool and heated in the steam steriliser on three successive days. In cutting the potatoes use a silver fruit knife in order to prevent staining the pieces with the iron knife.

CLOVE EXTRACT FOR CORNEAL OPACITY.—Krawtschenko has directed attention to the value of a thin aqueous extract of cloves in the treatment of the opacity of the cornea. It is applied either by instillation or with a camel's hair pencil. As it gives rise to a considerable amount of irritation, it should not be employed when acute inflammation is present. Repeated instillations at intervals of five to ten minutes are made twice daily, the pain produced by the instillation is of such short duration that it is stated that the use of an anæsthetic, such as cocaine, is not necessary.—*Merck's Report*, 1900, 71.

PHARMACOGNOSY—SCIENTIFIC AND APPLIED.*

BY HENRY G. GREENISH, F.I.C.; F.L.S.

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A short time ago a well-known lecturer on pharmacology, finding it necessary to distinguish between pharmacology and pharmacognosy, defined the latter as follows:—

“By pharmacognosy we mean the recognition of drugs by their physical and chemical characters with the detection of adulteration. It means practically the same thing as ‘spotting specimens,’ an expression in common use amongst students.”

This definition exhibits an ignorance of what pharmacognosy really is, that is the more lamentable as it emanated from a lecturer on an allied subject. I believe, however, that a similar impression of the nature of pharmacognosy is by no means unusual, and after reading the above definition I sketched an outline of a paper on the subject which, unfortunately, I had to set aside to make room for other more pressing duties. About the same time, and a little later, several addresses and papers bearing on the subject were published, mostly in German works and journals, and I have thought the present occasion afforded me an opportunity of taking up my deferred sketch, incorporating some of the observations of other writers and offering it to you as an expression of my views on the subject.

Thirty years ago Professor Flückiger, in the first edition of his ‘Lehrbuch der Pharmacognosie,’ defined pharmacognosy as “the simultaneous application of various scientific disciplines with the object of acquiring a knowledge of drugs from every point of view.”

I think we may accept Professor Flückiger’s definition, and proceed to enquire what the scientific disciplines are that would aid the pharmacognosist in acquiring a complete knowledge of drugs. I propose to arrange the steps by which he would endeavour to arrive at that end in order of their importance, and to deal with them in succession. I also suggest that we consider each step from a scientific as well as from a practical point of view; that we make clear to ourselves what knowledge it is desirable to acquire and how that knowledge can be made useful in the daily life of the pharmacist or druggist.

I.—Examination of the Drug.

In the first place, it is of primary importance that the drug should be subjected to a minute examination so that we may know everything that can be learnt by the study of the object itself.

I have no hesitation in assigning to this the first place, because an accurate knowledge of the drug itself is the very foundation stone of that complete knowledge of the drug from every point of view that we have just recognised as the aim of pharmacognosy. Without careful examination it is impossible to familiarise ourselves with the drug and equally impossible to describe it properly and thus render our labours useful to others.

The drugs derived from the animal kingdom being few in number, we may for present purposes restrict ourselves to the consideration of those of vegetable origin. The careful scrutiny of such a drug will show whether it is a part of a plant, as, for instance, leaf, bark, stem, root, etc., or a product of a plant, as gum, resin, inspissated juice, and so on. This is not necessarily so simple as at first sight might appear. Gutta-percha was at one time considered to be a kind of wood, and, indeed, a piece cut from a block of gutta-percha or balata gum is not at all unlike a fragment of reddish grey wood. The determination of the morphological nature of a drug also occasionally presents difficulties. Small fruits may resemble seeds, seeds may be simulated by small flower-heads, roots are often scarcely to be distinguished from rhizomes, and so on. Santonica was for a long time considered to be a seed. Even at the present day our Pharmacopœia describes, under the heading

Radix Rhei, a drug that contains no particle of a root, and the same is probably true of sumbul, which is usually regarded as a root, but which consists principally, if not entirely, of stem.

Not only must the macroscopical characters of the drug be carefully ascertained, but the minute structure must also be investigated by means of the microscope. The classical researches of Schleiden, Berg, Vogl, Tschirch, and others have shown how much is to be learnt in this way. The cells and tissues of which a drug is composed, their distribution and their contents, even in the minutest details, must all be carefully studied, for they all contribute, sometimes in unexpected ways, to a complete knowledge of the drug. Nay, more; it is often impossible to have a correct knowledge of the structure of a drug from the examination of the various tissues found in mature organs, and it then becomes necessary to follow the development from the immature to the mature stage. This is especially the case with fruits and seeds, and Professor Tschirch and his pupils have reaped a rich harvest from investigations that have been carried out on these lines. Meyer followed the development of various rhizomes, and was thus able to add to our knowledge of several drugs. Quite recently Schumann showed that the rhizomes of *Hydrastis canadensis* were obliquely erect branches of a disc-like subterranean organ, and so the form of the rhizome as determined by its growth became really intelligible. How can the origin of the shape of the lycopodium spore or of the structure of the lupulin gland be comprehended unless the development of these or of analogous organs had been followed? Scientific pharmacognosy demands such knowledge and, indeed, much more. The contents of the various cells must be examined and that, too, at different periods of development. Starch grains and their shapes, calcium oxalate and the form of the crystals, aleurone grains and their contents, mucilage and its nature, and so on, must all be patiently studied. The value of the shape of the starch grains in identifying drugs has long been known, and so, too, has that of the calcium oxalate crystals; but it is only recently that attention has been drawn to the fact that the aleurone grains can also be utilised. This is a point of considerable importance, for it may help us to discriminate between the various seeds, especially those that yield oil, even after they have been deprived of their seed-coats. The latter usually furnish the most striking distinctive features, the cells of the endosperm and embryo of the various seeds generally showing great resemblance to one another. Hence the identification of the husked seeds or the cake yielded after the expression of the oil is a task of some difficulty. It is impossible to say what results of eminently practical value may not be the fruit of minute scientific investigation. Indeed, one might almost say that results of practical value are usually the outcome of accurate scientific labour.

From this it will be seen that botany, and, to a less extent, chemistry, are the sciences that will assist the pharmacognosist. We must not, however, lose sight of the fact that whilst botany does assist the pharmacognosist, pharmacognosy in its turn assists the botanist. Pharmacognosists, indeed, have made, and cannot fail to make, valuable contributions to anatomical as well as to physiological botany. Many botanists consider alkaloids to be excreta of the plant, and assume that they are of no further use, but pharmacognosists have shown that the alkaloids contained in stramonium seeds disappear, are used up during germination; that the alkaloid in hemlock fruit rapidly diminishes during the process of ripening; whilst in perennials the alkaloids that are stored in the roots in the autumn are utilised by the plant in the spring. These facts are inconsistent with the hypothesis of the botanist.

Those drugs that consist of products of plants and possess, in themselves, no organised structure would not, you might think, repay minute investigation. By no means. Very interesting results have been obtained by the examination of araroba, aloes, gambier, etc. In the first-named Vogl detected three distinct crystalline substances. The vegetable *débris* accidentally present

* Read before the Chemists’ Assistants’ Association (London), April 26, 1900.

often yield valuable information. The slices of root found in commercial galbanum tell us how part, at least, of that drug is obtained. On one side they usually bear adhering gum-resin, on the other side there is none. If the gum-resin is removed the examination will show that several rows of cork-cells have formed underneath it, whilst on the other side there are none. This tells us that the slice remained long enough on the root to allow of the growth of these cells, during which time the gum resin exuded. The lower surface has no cork cells, because the cells had lost their vitality before any had formed. Evidently the root of the galbanum plant is cut, and several days are allowed for the gum-resin to exude and harden. During this time the plant produces protective cork. The drug is then collected and a slice cut off to facilitate further exudation. The upper surface of this slice has the cork cells upon it, but the lower has none, as the slice will quickly die. This observation, supported by the examination of the punctures in the pieces of ammoniacum stem, controvert the assertion that those plants that yield abundance of gum-resin form no cork when wounded, the secretion being supposed to act as a sufficient protection.

Mastich, when freshly collected, is in transparent glassy tears, and the dull surface of the commercial drug is usually attributed to attrition of the tears against one another. But this is not necessarily the case. Wiesner has shown that mastich tears kept quite free from friction become dull from the formation of minute cracks. These are produced by the gradual contraction of the tear and exhibit characteristic features.

So much for the scientific investigation of the drug. The practical man will ask what useful end this minute examination serves. The answer is as simple as it is practical. It affords us the best and surest means of distinguishing the drug from all other bodies whatsoever. The utility of the macroscopic examination is obvious, but it is often insufficient for the purpose, and we derive help from the microscopic investigation. The researches of Schleiden, Berg, and Vogl have sufficiently demonstrated the value of structure in identifying crude drugs. Van Tieghem, Radlkofer, and others have accumulated a mass of information that Solereder has sifted, enlarged, arranged, and given to the world in his 'Anatomy of the Dicotyledons,' a work that has involved an immense amount of patient labour, and is of infinite value both to the systematic botanist and pharmacognosist.

A knowledge of the anatomy of drugs is also necessary from a practical point of view as being the only definite means of identifying powdered drugs and food-stuffs, and ascertaining their purity. In many cases a knowledge of their minute structure can alone give direct, positive evidence of identity and of adulteration, all other means giving only circumstantial evidence, and that not always of the most reliable nature. This is now so generally recognised that the Institute of Chemistry have added the subject to their examination, although it is not compulsory, and the Local Government Board requires evidence of competence in microscopy from candidates for the post of public analyst.

Do not imagine that we are breaking new ground or heralding a new era in food and drug analysis. No; we are only slowly following our Austrian colleagues, and are now taking steps that ought, in the public interest, to have been taken five and twenty years ago.

But, you will say, the practical man has not the time to investigate each drug as accurately as this. Certainly, he has not. It is rather for those who make pharmacognosy their hobby or profession to read, collate, examine, work, and finally give their results to the world, to point out what characters are generally of value and what particular characters are of special value in individual cases. These are what are called diagnostic characters, and they are determined by comparison. We learn how to distinguish a leaf as such by comparing this organ with others and discovering what characters it possesses that the others do not. We learn how to distinguish one leaf from other leaves by comparing them and

finding out what characters the one leaf possesses that other leaves do not. From a number of such comparisons we learn what characters are likely to be reliable and what are not—that is, what characters are diagnostically valuable and what are not. When this has once been done, it is easy, in examining and describing a leaf, to pay minute attention to such characters as experience has shown are likely to possess a high diagnostic value. And so for all organs.

But the intelligent application of these tests can be made only by one who has had a thorough grounding in the science or sciences upon which they are based—viz., in the first place, comparative botanical anatomy.

II.—Description.

In order that the results of our labours may be made available for others, they must be recorded by suitable descriptions. These may in many cases be framed upon the model of botanical descriptions; but, whilst the pharmacognosist is called upon to describe a leaf so that it may be distinguished from all other leaves, the botanist is seldom so restricted, but has other organs to assist him. The pharmacognosist's description must therefore be more minute than the botanist's; it must include the odour, colour, and taste, as well as such details of the structure as may be necessary. This is by no means so easy a task, although it is extremely important. From a scientific point of view, the description should include every detail, but, from a practical standpoint, it is desirable to limit it chiefly to those characters that are diagnostically valuable.

(To be concluded.)

THE BOTANY AND MATERIA MEDICA OF THE BIBLE.*

BY CHARLES RIDLEY.

Notwithstanding our regard for the writings of our standard authors and poets, even those of the immortal bard, Shakespeare, of Scott, Byron, Burns, Dickens, or Tennyson, I question whether there is any book whose quotations are so familiar to us as the "Bible." This, with the fact that botany and materia medica constitute a part of our professional studies is my only excuse for imposing on you a paper nearly as dry as most of the specimens I am going to show you. The all important point to be remembered in studying this subject is that at the time the Scriptures were written the study of botany was unknown; all they knew about it was what they had been taught by observation. They knew that certain seeds produced certain plants, and afterwards certain fruits. Those of us who, during our school-days, had to struggle through the Latin Georgics will remember that it was all about agriculture and description of trees, but in it there was no attempt at classification or system. The next point to be remembered is the date when our versions were translated, beginning with Wycliffe's in 1380 A.D., and ending with the present authorised version, 1611, A.D., in which forty-seven divines took part, each of whom took a part of the Scriptures to translate, and then the whole was revised by the faithful forty-seven. Even at this time classification of plants was unknown, as these divines, in practically every case, as far as my subject is concerned, simply brought down the translations of Coverdale and Wycliffe. Another point is that the Hebrews named their herbs and fruit after some characteristic it possessed. This has been of very great service to modern botanists in specifying the plants referred to.

ALMOND, *Amygdalus communis*. (Gen. xliii., 11; Numbers xvii., 8; Ex. xxxvii., 17-21.) The almond grows wild, and for ages has been cultivated and improved in Syria and Palestine. The Hebrew name Shâked means to watch, referring to the fact that the flowers appear before the leaves. It is mentioned first when Jacob

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sent almonds as part of his gift to Joseph. Aaron's rod that budded was a branch of an almond tree; the bowls of the golden candlestick were designed from the almond blossom. Even at the present time English workmen call the glass drops for ornamenting candlesticks "almonds."

ALMUG or ALGUM. (1 Kings x., 11, 12.) This wood was used for the pillars and rails of the Temple, and also for musical instruments. It was imported by Solomon from Ophir. There is no doubt whatever that this was the red sandalwood (*Pterocarpus santalinus*), which is very heavy, fine grained, and still used largely in the East for similar purposes.

ALOES, *Aquilaria agallocha*, N.O. Aquilariaceæ. (Psalms lxx., 8; Proverbs vii., 17; Cant. iv., 14.) This is mentioned many times, and has no connection with our Aloes of Medicine, notwithstanding it is often mentioned in connection with Myrrh (Aloes et Myrrh). It was the odoriferous wood of the eagle tree or lign. aloe, which grew in India, which accounted for its high value, being brought several thousand miles by camel transports. It is still largely used as a fumigation amongst the Orientals. It has no odour unless burnt. Only small portions of the heartwood, too, contain the resin. Solomon, speaking of the harlot, says, "She perfumed her bed with myrrh, aloes, and cinnamon."

ANISE. (Matt. xxiii., 23.) Only once mentioned, and incorrectly translated. The *Peucedanum graveolens*, or dill plant, which has been cultivated and largely used as a medicine, stimulant, and condiment from the earliest times. According to the Talmud, its seeds, leaves, and stem were subject to tithe.

APPLE. (Cant. ii., 3; vii., 8; Joel i., 12.) This gives a splendid illustration as to the difficulties which our translators had to face the Hebrew word "Tappach," which has been translated apple, may stand for any fruit with a strong fruity aroma. We read in various parts that the fruit was sweet to taste, that it was pleasing to the nose, and also that the fruit and foliage looked like apples of gold in pictures of silver. There have been many fruits put down as the apple of Scripture, such as the lemon, quince, and orange, but none of them answer the descriptions I have referred to. The apple itself does not grow in Palestine, but the apricot, which is universal throughout the country, answers all these requirements as to taste, smell, and colour, and also the colour of the leaves, which are of a very pale green colour and very glossy, looking almost white in the bright sunlight. The apricot was not introduced into England till 1471 A.D., consequently our early translators were quite unacquainted with its characteristics.

BALM or BALSAM. (Jer. viii., 22; xlv., 11.) An oleo resin, which flows from the stem of the *Balsamodendron gilcadense*, Kunth, a native of Arabia and Abyssinia, but cultivated in Judæa. From Jericho, Cleopatra obtained some of the plants for her gardens at Heliopolis. It is mentioned in Genesis as part of the merchandise (Gen. xxxvii. 25), also as an article of commerce between the Jews and Tyrians (Ezek. xxvii. 17). Judging from the sayings, "Is there no balm in Gilead. Go up into Gilead and take balm," the Jews had evidently great faith in its medicinal properties.

BARLEY (Deut. viii. 8), *Hordeum distichon*, and other varieties, has been cultivated from the earliest times in Palestine; it is mentioned many times. It appears from the Scriptures to have been used for the poorer classes, and the Land of Promise was a land of wheat and barley (food for rich and poor).

BEAN, *Faba vulgaris* (Sam. II. xvii. 28; Ezek. iv. 9), was used both as a vegetable and flour by the Jews. The pulse given to Daniel and his companions was prepared from the bean.

BOX, *Buxus longifolia* (Is. xli. 19; ix. 13).—This is very similar to the box trees growing on Box Hill, but grows to a much larger size. It is largely used for making combs, forks, and spoons.

Brambles and Briers, mentioned in Judges and Ezekiel (Judges viii. 7 and 16; Ezek. xi. 6; xxviii. 24), were probably the blackberry;

the common species in Palestine is the *Rubus discolor*, and the butchers' broom, *Ruscus aculeatus*.

THISTLE (Star Thistle), *Centaurea calcitrapa* (Gen. iii. 18; Matt. vii. 16; Hebrews vi. 8).—Very common in the cornfields all over Southern Europe. It is the most common prickly plant of Palestine, great spines proceeding from the involucre of the flower. The Romans imitated this flower in the caltrop of their warfare, and called it, from "calx," Latin for heel, and "trappa," a snare. It was an iron ball with four spikes which, when resting on three, caused the fourth to be erect, and was used to impede cavalry. Thistles formed part of the punishment, recorded in Genesis.

THORNS (Matt. xxvii. 29).—The Crown of Thorns, mentioned in Matthew, might have been made either of the Christ thorn (*Paliurus aculeatus*, or *spina Zizyphus Christi*). Both grow freely about Jerusalem. Both belong to N.O. Rhamnaceæ.

BULRUSH, *Papyrus antiquorum* (Ex. ii. 3; Is. xviii. 2).—It grew at one time like a forest on the banks of the Nile; it is now extinct in Egypt, but is found in Nubia. The mother of Moses used this to make the ark in which she placed him; it was also used for making swift vessels to carry ambassadors to the scattered nations. Modern Abyssinians still make vessels of it. It was used for making paper till the seventh century, in fact, our word paper is derived from the Arabic name of the plant, "Babeer."

CINNAMON CASSIA, Calamus, *Cinnamomum zeylanicum*; *C. cassia*; *Acorus calamus* (Ex. xxx. 23; Ezek. xxvii. 19) were ingredients in the holy anointing oil; calamus was sold in the market of Tyre. I would like to call your notice to the composition of anointing oil:—

Take thou Myrrh, Cassia of each 500 shekels, Calamus and Cinnamon of each 250 shekels. Olive Oil 1 hin. Make after the art of the Apothecary. Roughly speaking, this would mean 15 lbs. Av. of myrrh and cassia $7\frac{1}{2}$ lbs. calamus and cinnamon, and 1.077 gallon of oil. I think the only way to dispense this very ancient prescription would be to powder the drugs and make into a thick paste.

CAMPHERE, the Henna plant, *Lawsonia alba*, N.O. Lythraceæ (Song of Songs).—The bruised leaves give a reddish orange colour to the nails, it is still used by the women of Cairo for this purpose, even the nails of mummies are found to be stained with it.

DESIRE, Caper berry (Eccl. xii. 5).—The unexpanded flower buds of various species of *Capparis*, abundant in Palestine, and largely used as a stimulating condiment.

CEDAR (Ezek. xxxi. 3; Is. ii. 13; Kings I. v. vi., 4; Ezra iii. 7).—The Cedar of Lebanon, *Cedrus libani*, was the glory of the vegetable kingdom in Palestine, is used in the Scriptures as the symbol of grandeur, and was used in the building of the second Temple. Owing to the want of proper planting it is now rapidly becoming extinct, as it grows to an average height of 100 feet. I could not very well bring a sample into this room, but I have here a section of the branch, and a photograph taken on the spot.

CORIANDEr, *Coriandrum sativum* (Ex. xvi. 31; Numbers xi. 7).—Only once mentioned to illustrate the size of Manna.

COTTON, *Gossypium herbaceum*.—This is not really mentioned in our version, but in Esther i. 6, the word *carpas* has been translated "green." All authorities agree it should have been translated cotton.

CUCUMBER, *Cucumis sativus*, L., *C. melo*, Linn., with the onion, leek, garlic and melon, grow very largely in Egypt, and constitute the principal diet (a very suitable one considering the climate) of the poorer classes. The Israelites acquired the taste for them, and we find them lusting after the good things of Egypt; all the plants I mentioned are enumerated in Numbers xi. 5. Evidently the onion and garlic had the same effect then as it has now on the breath exhaled, as we read the priests were forbidden to eat them.

CUMMIN, *Cuminum cyminum*, Umbelliferae (Is. xxviii. 25, 27; Matt. xxiii. 23).—Cultivated in Palestine, and used as a condiment. We read that the fruits were separated by beating with a rod. Also mentioned as being subject to tithe.

CYPRESS, *Cupressus sempervirens* (Gen. vi. 14; Is. xlv. 14).—A common tree in Palestine, especially about Lebanon. The wood is very hard, and suitable for shipbuilding, and is supposed to be the gopher wood which was used for the Ark. There is excellent corroboration of this, as the Hebrew name for the tree is "Gopher," and Celsius mentions the cypress tree as "Copher"; also it grows abundantly in Chaldæa and Armenia. Some authorities suggest the Syrian juniper (*Juniperus excelsa*).

EBONY, *Diospyros ebenum*, Ebenaceæ (Ezek. xxvii. 15).—The heart wood derived from the date plum tree of Ceylon and Africa. We read of it being imported into Tyre by the men of Dedan.

FIG, *Ficus carica*, Urticaceæ (Kings II. xx. 7).—The fruit was and still is cultivated largely, and used for food. It is generally mentioned along with grapes. The most interesting reference of it, to us, is from Kings, where we read: "Figs were applied to Hezekiah's boil." We all know that figs still are employed as a household remedy for boils, especially gumboils. I think this treatment will take some beating for antiquity.

FIR (Kings II. xix. 23; Kings I. vi. 15, 34; Sam. II. vi. 5).—The Hebrew word "berosh" is a generic name for several cone-bearing trees, the Aleppo pine, *Pinus halepensis*, and the stone pine, *Pinus pinea*, N.O. Coniferæ. We read of the timber being used for floors, ceilings, and doors, also for musical instruments, especially harps.

FITCHES, *Nigella sativa*, Ranunculaceæ (Is. xxviii. 25, 27).—Fitches are the seeds of the plant used for flavouring bread and cakes, much in the same way as we use caraway. The seeds occur in a capsule, and are too small to bear the threshing instrument, and must be beaten with a staff.

FLAX, *Linum usitatissimum*, Linaceæ (Prov. xxxi. 13).—The earliest material known to have been cultivated for the manufacture of clothing. Mummy cloth was invariably made of flax. Solomon, speaking of a good wife, says, "She seeketh wool and flax and worketh them." The process known as combing is referred to in Is. xix. 9.

FRANKINCENSE, *Boswellia carterii*, *B. bhau tajiana*, and *B. frereana*, Birdw., Burseraceæ (Is. lx. 6; Jer. vi. 20; Ex. xxx. 34, 36).—Olibanum is mentioned as being imported from Arabia, but was probably brought from India, "through" Arabia, one of the ingredients of the incense, as also were galbanum, *Ferula galbaniflua*, Stacte (storax), *Styrax officinale*, the other ingredients being "onycha," equal parts of each. This onycha was a horny shield attached to the shell of various shellfish, belonging to the Strombus tribe. When burnt it has a strong pungent odour, and is still used for this purpose in the East.

GALL (Matt. xxvii. 34).—The Hebrew word "rosh" signifies a head, and is supposed to be the capsule of the poppy, probably the *Papaver setigerum*. It was a custom with the Jews to give to dying persons some intoxicant to make them less sensitive to pain, just as we give morphine now-a-days, and, as we read, wine mingled with gall, was given to Christ on the Cross, I think the supposition that it was a poppy head fits in very well.

GOURD, Wild Vine (Kings II. xiv. 38, 41).—The story of the young prophet who mixed the fruit of the wild vine in mistake for a water melon (*Citrullus vulgaris*, Schrad.) into a dish of pottage, called by the prophet Elisha "death in the pot" was, doubtless, the colocynth (*Citrus colocynthis*), which grows plentifully about Gilgal. The gourd mentioned in Jonah (iv. 6, 10), *Lagenaria vulgaris*, N.O. Cucurbit., Gourd. Many old authorities took this to be the castor oil plant, the Hebrew name for which was very similar to that for the gourd, but the circumstances mentioned clearly point to the *Lagenaria* as the correct plant, which is still used as a climbing plant to cover and shade the arbours in the East.

GROVE, *Tamarix gallica*, Tamariscaceæ (Gen. xxi. 33).—The Hebrew word "eshel" denotes a tree, and the tamarisk, which grows plentifully on the Lower Jordan, is probably the correct solution. (It is marked in the margin of the revised version.)

HEATH (Jer. xvii. 6, xlviii. 6).—The word "Arar" has been translated heath. The Arabians have a shrub with this identical name, which is *Callistris quadrivalvis*; there can be little doubt as to identity.

HUSKS, mentioned in the parable of the Prodigal Son (Luke xv. 16), are the pods of the carob tree, *Ceratonia siliqua*, N.O. Leguminosæ, commonly called here the locust bean, containing about 63 per cent. of sugar. It is to be seen in great sacks on the stalls of the market in all Oriental towns. In April and May, these beans fall from the trees in enormous quantities. The natives, being a lazy lot, simply drive the cattle under the trees to feed them. Pigs especially are very fond of them.

HYSSOP, *Origanum* (?) or *Caper* (?) (Ex. xii. 22).—Some consider this was the caper plant, others consider it to be a *Marjoram origanum* sp. Probably in the Old Testament reference *Origanum egypticum*, which was tied up in bunches and used as a flavouring herb, is referred to. In the New Testament, John xix. 29, the caper, *Capparis spinosa*, would be the species intended.

JUNIPER (*Retama retam*, *Genista retam* of modern botanists), N.O. Leguminosæ (Kings I. xix. 4; Psalms cxx. 4).—A large variety of broom growing 12 feet high. Its roots are used for making charcoal still, as mentioned in the Psalms, where it is called coals of Juniper.

LADANUM, *Cistus creticus*, Cistaceæ (Gen. xxxvii. 25; xlii. 11).—It is possible that the word translated myrrh in Genesis should have been ladanum, the Hebrew word for it is "lot." A fragrant resin which was formerly collected from the beard of goats, which were fond of browsing on it. It is still used in Turkey as a perfume; it was part of the present sent to Joseph by Jacob.

LENTILS (Gen. xxv. 34; Sam. II. xxiii. 11).—The seeds of *Ervum lens*. N.O. Leguminosæ.

LILY (Cant. xi. 1, 2; Kings I. vii. 19; Matt. vi. 28, 29).—The Hebrew word "Shushan," which has been translated lily, also lily of the valley, was a generic name given to a mixture of flowers, exactly as we now talk of ferns, herbs, or grass. The Sermon on the Mount was preached near the plain of Gennesaret, and there flourish the anemone (*Anemone coronaria*, *Ranunculus asiaticus*) and *Adonis aestivalis* and *flaminea*, which are exactly of the same colour and succeed each other in close succession, painting the country red, exactly as poppies do in England. It is interesting here to note that the old Hebrews used the name of flowers for the Christian name of their little daughters, just as we christen our baby girls Lily, Poppy, Daisy, and Violet, and the word "Shushan" was the Christian name from which our "Susannah" or "Susan" is derived. A further proof that the *Anemone coronaria* is indicated is that the Arabic name for this plant is "Susan."

MALLOW (Job. xxx. 4).—The word "Malluch," which has been translated "mallow," points to some plant of salt taste. The sea purslane, *Atriplex halimus*, N.O. Chenopodiaceæ, is probably intended.

MANDRAKE, "Love apples," *Mandragora officinalis*, N.O. Solanaceæ (Gen. xxx. 14; Cant. vii. 13).—This has a yellow fruit very similar to our tomato. It acted, or was supposed to act, precisely the same as "Damiana" of the present time, as an aphrodisiac.

MYRRH.—Mentioned very frequently; in most cases our myrrh of commerce is indicated, *Balsamodendron myrrha*. It has been suggested that in certain cases in which the Hebrew word is different, ladanum (which see) may be indicated (Gen. xxxvii. 25; xliii. 11).

MILLET (Ezek. iv. 9).—The small seeds of at least two varieties of millet—*Panicum miliaceum*, N.O. Graminaceæ, *Sorghum vulgare*, N.O. Graminaceæ—which were ingredients in the bread made by Ezekiel.

MINT, *Mentha sativa*, *M. sylvestris*, N.O. Lamiaceæ (Matt. xxiii. 23).—Probably our favourite dinner, lamb and mint sauce, origi-

nated with the Jews, who were ordered to eat it at the Paschal Feast. It was carefully tithed by the Pharisees.

RUE, *Ruta graveolens*, also is mentioned as being tithed.

MUSTARD, *Brassica nigra*, Cruciferae, mentioned in Matthew (xiii 31, 32; xvii. 20) to illustrate the large tree growing from a small seed. In Palestine it grows to a height of 12 feet.

MYRTLE, *Myrtus communis*, Myrtaceae (Neh. viii. 15).—Used at the Feast of Tabernacles, and still used at the Synagogue by modern Jews.

NETTLES, the *Urtica pilulifera* (Is. xxxiv. 13).—The Roman nettle is the most abundant variety in Palestine.

NUTS, *Pistacia vera*, N.O. Anacardiaceae (Gen. xliii. 11).—At the present day these nuts do not grow in Egypt, although very abundant in Syria, and consequently the present sent by Jacob to Joseph would be very acceptable. In the Song of Solomon, "I went down into a garden of nuts," the Hebrew word Egôz should have been translated walnuts, *Juglans regia*.

OAK, *Quercus agrifolia* (Amos xi. 9).—Mentioned very often as an emblem of strength, just as in our patriotic song, "Hearts of Oak." The oaks of Bashan grow to a great size, some specimens attaining 23 feet in girth.

OLIVE, *Olea Europea*.—The olive has long been cultivated in Palestine, and there the oil is one of the first necessities of life. The Turks tax each tree annually. First mentioned when the dove returned to the Ark, and has been a symbol of peace and prosperity ever since.

OIL TREE, *Elæa nus angustifolia*, N.O. Elæagnaceae (Neh. viii. 15; Kings I. vi. 23).—This tree produces a small green fruit, from which an inferior oil is made.

PALM, Date Palm, *Phoenix dactylifera*, Palmaceae.—The Hebrew word was Tamar (from which the names "Tamarinds" and Tamar Indien had their origin). Palestine was known to the Greeks and Romans as "Phœnicia," meaning the "land of palms." When Vespasian wished to commemorate the capture of Jerusalem by Titus, he had a coin struck representing Judæa weeping under a palm tree. The leaves were an emblem of victory, as in the triumphal entry of Christ into Jerusalem.

PLANE, *Platanus orientalis* (Gen. xxx. 37; Is. xii. 19).—In the revised version the plane takes the place in the margin of the chesnut and pine tree of the authorised version, because the Hebrew word signifies "to be tall and naked," owing to the peculiar habit which plane trees have of annually shedding their bark.

POMEGRANATE, *Punica granatum* (Deut. viii. 8).—Mentioned as one of the blessings of Palestine; a most grateful fruit, suitable for the climate. We also read of pomegranate wine.

POPLAR, *Populus alba*.—First mentioned in the story of the peeled rods of Jacob, Gen. xxx. 37.

REED, *Arundo donax*.—A tall cane growing 12 feet high. The stems were used for flutes and pipes. Our English word cane is derived from the Hebrew word "kaneh."

RYE, *Triticum spelta* (Ex. ix. 32).—An inferior kind of wheat grown in Palestine.

ROSE (Cant. ii. 1; Is. xxxv. 1).—The root of the Hebrew suggests an acrid or sharp plant, the *Colchicum autumnale* has been suggested. The Rose of Sharon would probably be the *Narcissus tazetta*.

ROSE OF JERICHO, or Resurrection Flower.—*Anastatica hierochuntica*, N.O. Cruciferae, grows in hot sandy places of the Dead Sea. It derives its name from the curious way in which, when the flowers are dried up, the root becomes detached from the sandy soil, and blows about till it lodges in a damp place, when the closed flower expands and the seeds escape. It is supposed to be the plant referred to in Eccl. xxiv. 14, and the wheel, or rolling thing (Gulgal), Ps. lxxxiii. 13; Isaiah xvii. 13.

SAFFRON, *Crocus sativus* (Cant. iv. 14).—Mentioned only once as a perfume plant.

SHITTAH TREE, or SHITTIM TREE, *Acacia seyal* (Is. xli. 19).—The tree is only once mentioned. The wood was used in the construction of the Tabernacle. This tree yields an inferior gum arabic.

SPICERY.—Mentioned in Genesis xxxvii. 25, is believed by authorities to apply to gum tragacanth; why it should have been translated spicery I cannot fathom. The only reason for supposing it to be tragacanth is that the Hebrew word "nekôth" is similar to the Arabic name for tragacanth, "nakâat," and also that some twenty species of *Astragalus* grow in Palestine.

SPIKENARD, *Nardostachys jatamansi*, N.O. Valerianaceae.—A native plant of Nepal and Bhootan, hence cost of carriage made it very precious, as related in Mark (xiv. 3, 5) and John (xii. 3). Perfumers of to-day would not give a penny a pound for it.

SYCAMINE, *Morus nigra*, *Urticaceae* (Luke xvii. 6), is met everywhere in Palestine. There can be no doubt as to its identity. The Greek word for it being "Sycaminos."

SYCOMORE, *Ficus sycomorus*, N.O. Urticaceae (Chron. xxvii. 28; Kings I. x. 27).—This has no connection with our sycamore. The wood is used for furniture. The top of the fig fruit is cut off to, enable the insects which infest it to escape. It is used as food for the poorer classes. This is the tree up which Zaccheus climbed and Amos was a "gatherer" of these figs.

TARES (Matt. xiii. 24, 30), mentioned in the parable, was the bearded Darnel, *Lolium temulentum*, N.O. Graminaceae.—Compared with wheat the seeds are very dissimilar, but when growing the blades are very difficult to distinguish from those of wheat (*Triicum vulgare*) until the ear appears.

TEREBINTH, Tiel., *Pistacia terebinthus* (Gen. xiii. 18; xxxv. 4; Sam. xviii. 9).—Elâh is the Hebrew word for this, and in some parts it has been translated "oak." Absalom was caught by the head as his mule went under a "terebinth."

THYINE WOOD, *Callitris quadrivalvis*.—A small tree of the cypress family, found in the Atlas mountains, the wood of which is much prized for its beauty. This tree is the source of our gum sandarac. It is mentioned only once, as one of the priceless commodities of the Babylon of Revelation, xviii. 12.

VINE, *Vitis vinifera*.—More often alluded to in the Scriptures than any other plant. Vinegar was wine subjected to the acetous fermentation.

WILLOW, *Salix babylonica*, or other species (Psalms cxxxvii. 1, 2).—"I'll hang my harp on a weeping willow tree," and similar lines from our song books, are all taken from the Psalms.

WORMWOOD, *Artemisia absinthium* (Deut. xxi. 18; Lament. iii 15, 19).—Always used to symbolise calamity and sorrow.

NEW REMEDIES.

TORTOINE.—This name is applied to a product resulting from the action of formaldehyde on cotoine. It occurs in small, yellow, tasteless crystals, having a faint cinnamon odour. It is insoluble in water, sparingly soluble in alcohol and ether, but readily dissolved by chloroform, acetone, glacial acetic acid, and alkalies. It is given in doses of 25 centigrammes three times in 24 hours.—*Journ. de Pharm. d'Anvers*, 56, 138, after *Pharm. Zeit.*

GUAIASANOL.—This is a new preparation of guaiacol, introduced by Einhorn and Heinz, which possesses the advantage of being soluble in water. It is the hydrochloride of diethyl-glycocoll-guaiacol. It occurs in white prisms, melting at 184° C., has a faint odour of guaiacol, and dissolves readily in water. It is not poisonous, is easily absorbable, and possesses deodorising, antiseptic, and anæsthetic properties. It is given in doses of 3 Gms.; as much as 12 Gms. may be taken daily.—*Pharm. Post.*, 33, 35, after *Munich Med. Woch.*

THE APPLICATION OF THE ROENTGEN RAYS IN DENTISTRY.*

BY PROSPER H. MARSDEN.

A few months ago I was invited by a well-known Dental Society to tell them something about the Rays as applied to the particular profession in which the members were interested. Having in less than three years taken several cases requiring X-rays, either for observation or treatment, I approached the subject with a light heart. It was only upon looking through the literature of dentistry since the wonderful discovery of Roentgen that I found out how little had been done in this direction as compared with the great amount of work in general radiography.

A few words on the history of radiography may not be out of place here. In 1650 Otto von Guericke invented the air-pump—a very simple form it was compared with the double-action air-pump familiar to you all, which was the improved form of apparatus introduced a hundred years later by Hawksbee. This type of instrument was used by Faraday in his experiments with exhausted globes, through which currents of electricity were passed, showing strange phenomena. Heinrich Geissler, of Bonn, brought forward later some improved tubes, with platinum terminals sealed into the ends of the exhausted bulbs. A long series of experiments led to the manufacture of special vacuum tubes, and, subsequently, to the "focus" and other tubes now in use for the production of the X-rays. For creating the high vacua required in the Crookes tubes special forms of air-pump were found to be necessary, the general principle upon which their action depends being the exhaustion of the air of the attached bulb by means of a rapidly-interrupted fall of mercury. Crookes showed that the rays produced in these tubes, which he called Kathode rays, would cause gems, and even common glass, to fluoresce, and were capable of imparting motion to a small waggon running upon lines inside the exhausted bulb. In 1894 Hertz found that the rays would pass through a metal film, particularly one of aluminium; and in 1894 and 1895 Lenard succeeded in bringing the rays into the outer air through an aluminium window one ten-thousandth of an inch thick, let into the side of a very highly-exhausted tube. He found that these rays would act upon a fluorescent screen, and would make an impression upon a photographic dry plate.

Prof. Roentgen, of Wurzburg, then began his investigations of the work of Hertz and Lenard, and, employing a glass vacuum tube, he discovered, all by accident, the rays which he modestly described as "X"-rays, and which have made the name of the professor of physics in a small German University town famous throughout the world. At the same time Professor Oliver Lodge, of University College, Liverpool, was at work upon the rays of Hertz and Lenard, and it was just a chance that Liverpool was not the city in which the rays were discovered.

APPARATUS.—The first consideration is the source of electricity. The lighting main may be employed, the current being reduced by means of suitable resistances to the voltage required, at least twelve volts being necessary for the effective working of the 10-inch coil commonly in use in most large hospitals. The electricity may be obtained from primary or secondary batteries. The latter are preferable, as being more constant in output, and less likely to get out of order. At the same time, there is with them an absence of the acrid and odorous vapours usually associated with primary cells. A static machine may be employed for producing the electricity, and then a coil may be dispensed with.

The transformer may be a Rhumkorff or a Tesla apparatus. The induction coil is furnished either with the ordinary hammer break, familiar to you all on the smaller coils, or, better still, a contact breaker, in which the make and break are brought about by a trough of mercury with a wire dipping in and out, the mercury

itself being connected to the other side of the contact. This form of apparatus is worked by a small motor, and by increasing the strength of the current one may get an interruption varying up to some thousand per minute with a good apparatus.

The induced current at a very high potential passes into the generator of electrical radiation—the Crookes tube, before mentioned. This is made in several forms, the "focus" type of Newton and the "bi-anodal" of Dean having given the best results in my hands.

For purposes of observation the Roentgen rays may be allowed to fall upon a fluorescent screen, the object to be seen being between the light and the screen, or if a record is required a photographic plate or film is employed. A radiogram may be taken upon any make of plate, but preference should be given to such as have a thick coating of emulsion. The best results I have obtained have been upon Cadett "Lightning" and Edwards' "Cathodal" plates. Lumiere's special X-ray plates also give excellent detail, but they require a much longer time to develop and fix than the plates mentioned above. Of films I have used Kodak and Austin Edwards' Seteloid and double instantaneous, the last having afforded best results in my hands. The correct development of radiographic negatives requires very much more judgment than that of ordinary negatives, and it is only after much experience that the best results may be obtained.

USES.—The popular uses of the X-rays are numerous. Radiography has been applied to the detection of metallic articles in bales of goods and in passengers' luggage by the French customs authorities. Our neighbours across the Channel have also been able to discover infernal machines in books by means of the rays. The falsification of rubies and diamonds have been discovered by the same means. Coins and jewellery in sealed packages have been revealed, and there is a French-made machine on the "penny-in-the-slot" principle by means of which one can have "pour deux sous de rayon"!

And now we come to the most useful application of the X-rays—the detection of foreign bodies. The Græco-Turkish war was the first in which the rays were employed on the battle-field. The Roentgen rays were used in the Egyptian and in the Indian frontier wars, and ten sets of apparatus are at present working in South Africa. The rays have been useful in the discovery of calculi of various kinds in the bladder and kidneys. Fractures, dislocations, and diseases of bone are also demonstrated by their means. In tubercular diseases, as lupus, the Roentgen rays have been applied with some degree of success.

As one might expect, quite the tallest achievement in X-ray work has been accomplished in America. The entire body of a woman 5 feet 4 inches, was radiographed by Dr. W. J. Morton, of New York.

Now, we would have thought that, with such great possibilities for the discovery of the hidden and unknown, that the X-rays would have been much employed in dental work. Any who have had much experience of this kind of work will know how very frequently the dentist is called upon to decide the best way of treating a denture, maybe with a view of correcting irregularities, or perchance in the way of extraction, when—horrible thought!—there is no sound fang to replace that once removed. By means of the rays, although the screen work must perforce be but limited from the fact that the light from the Crookes tube must pass through both sides of the jaw, one can find out much of value.

In the *Journal of the British Dental Association*, 1896, Mr. Frank Harrison gave some excellent radiograms taken with an exposure of ten minutes with a Newton's focus tube. They showed incisors fitted with D and wire crowns, and right lower second bicuspid and first molar with two amalgam crown plugs. In a later communication (p. 624) the same operator gives full details of his work. The exposures varied from ten to forty minutes, and after a large number of experiments a radiogram was produced

* Read before the Liverpool Chemists' Association, April 26, 1900.

showing the teeth of a child seven years of age, in which "the six-year molar is distinctly seen at the extreme left, and the whole temporary set up to the lateral incisor on the extreme right; below the roots of the temporary molars may be seen the bicuspid enclosed in their respective bony crypts. The pulp cavities in the milk teeth are distinctly visible." Speaking of these results, the same journal in 1897 (p. 179) says:—"We cannot but think that there is still a future for this method of diagnosis in dental surgery, and with the more perfect knowledge of the nature of these mysterious rays, which time will assuredly bring, many of the difficulties attending the production of the radiograph will be removed."

Dr. Morton was also one of the pioneers in radiography as applied to dental surgery. In 1897 he read before the Odontological Society of New York a paper on the utility of the X-rays in dentistry. He holds a very strong opinion on the value of the rays in dental diagnosis. I cannot do better than quote the Doctor's own words. He states that "each errant fang is distinctly placed, however deeply situated, within its alveolar socket; teeth before their eruption stand forth in plain view; an unsuspected exostosis is revealed; a pocket of necrosis, of suppuration, or of tuberculosis is revealed in its exact outlines; the extent, area, and location of metallic fittings are sharply delineated, whether above or below the alveolar line. Most interesting is the fact that the pulp chamber is beautifully outlined, so that erosions and enlargements may be readily detected."

All this appears very simple, and it is only upon actual working that the difficulties become apparent. The first that meets us is the fact that the rays come from the anode in straight lines, and therefore only the one or two teeth which are immediately opposite the tube will be represented in their true value. The others at each side will be distorted, owing to the bending of the film. I have been unable to give as much attention to this branch of radiography as one could wish, chiefly owing to the want of dental subjects seen in a general hospital, but the following may not be without interest.

A young girl, aged seventeen, came to a local dental surgeon for advice. Her two front teeth in the upper jaw had separated in a very short time, and there was a question as to whether a supernumerary tooth was finding its way through and separating the front teeth, or if there was a bony tumour, which would require the extraction of some five teeth for its removal. The Roentgen rays were suggested, and the lady came under my care. Two negatives were taken, one with the plate between the jaws, the film side uppermost, pushed as far back as the patient could conveniently hold it; an exposure of six minutes was given, the distance from the anode to the plate being ten inches, the light being directed from above the nose. A second exposure of seven minutes was made, a corner of a $\frac{1}{4}$ -plate put far back in the upper jaw, and the light directed from in front of the face at an angle of some 45° with the film. Upon an examination of the second negative one can see a rudimentary tooth with its pulp-canal between the front teeth, thus demonstrating the cause of separation.

These negatives show the difficulty experienced in the use of plates, as one of the first rules in successful radiographic work is that the object to be taken must be placed as near the sensitive film as possible. One can readily see that even with a small plate—say, 1 by $1\frac{1}{2}$ inches—it is impossible to get apposition, and this fact led me to use for subsequent cases small films wrapped in black paper and gutta-percha tissue for the exposures. These I have had held in position either by the patient or an assistant; but a suggestion, for which I am indebted to Mr. J. A. Woods, L.D.S., Demonstrator of Dental Anatomy and Histology in the Dental Faculty of University College, that the films should be held *in situ* by means of the red composition used in modelling, is an excellent one.

THE OFFICIAL PROCESSES FOR THE ASSAY OF IPECACUANHA, BELLADONNA, AND NUX VOMICA.

BY F. C. J. BIRD.

II.—Belladonna.

Liquid Extract.—The analytical method given in the Pharmacopœia for the determination of total alkaloid in this preparation may be regarded as the type of a general process which is often successfully adopted in alkaloidal analysis, but it is also an example of the inapplicability, from a practical point of view, of any one process of assay under all conditions. Briefly, the B.P. method consists of three operations:—(1) The liberation of the alkaloid by ammonia and solution of the crude alkaloid in chloroform, (2) partial purification by conversion into sulphate, and (3) complete purification by again rendering alkaline with ammonia and shaking out the alkaloid with chloroform. The emulsification in stage (1) which has proved almost a complete bar to the use of this process as written, is well known, and some twelve months ago a modification was proposed (see *P.J.* [4], 8, 432) which consisted in first acidifying the diluted liquid extract, and then removing fatty and resinous bodies by agitation with chloroform, according to Dragendorff's plan, the acid chloroform being washed and the washings returned to the original liquid. Although this adds two more operations to the three already existing, infinitely less time is consumed in their performance; also the figures obtained are generally about 3 or 4 per cent. higher, owing to there being less loss of alkaloid. Since that time an extended experience of this modified method has proved it to be an absolute preventative of the troublesome emulsifications incidental to the strict process of the Pharmacopœia.

With regard to stage (3), mentioned above, J. A. Dewhirst has made an excellent suggestion (*P. J.* [4], 10, 358). He states that when the modified process has been employed, stage 3 may be omitted, and that if the final chloroform is washed with a little water the residue of alkaloid obtained is quite crystalline and colourless without resorting to further purification. This, however, depends entirely on the character of the liquid extract under examination, and certainly does not hold good of all samples. Colour is a ready means of judging of the amount of impurity present in the final chloroform. With some samples of liquid extract the chloroform washings possess a distinct yellow tint, which only disappears on extraction with acid and shaking out a second time. Other samples, however, yield nearly colourless residues containing but 4 or 5 per cent. of impurity, whilst this figure in the coloured residues rises as high as 15 per cent. No residue has been found too deep in colour to admit of exact titration, so that although the gravimetric results from the more coloured residues lose their value as checks on the volumetric figures, the latter are quite reliable and generally a trifle higher than when the process is continued on through stage (3).

The complete extraction of alkaloid from an alkaline solution containing other dissolved substances is much more difficult than at first sight appears, especially when the liquid is concentrated and the accompanying bodies are of the nature of fat, resin, or extractive. Generally speaking the passage of an alkaloid or an alkaloidal salt from one to another of two immiscible solvents depends on the relative solubilities of the alkaloid, its salt, and the solvents; the relative volumes of the solvents themselves; and the degree of solubility of one solvent in the other. Atropine and hyoscyamine, being freely soluble in chloroform and only very slightly soluble in water, would therefore, in view of the above considerations, be capable of being extracted from alkaline aqueous solution with unusual facility were it not for the presence of other bodies, chiefly of a fatty nature, which influence the behaviour of the alkaloid to a considerable extent. This is well evidenced by the

great difficulty of washing out the last traces of alkaloid removed in company with other substances by chloroform in the preliminary acid extraction in the modified process already mentioned, even repeated treatment with warm dilute acid still leaving an appreciable amount of alkaloid in solution in the chloroform. When the chloroform is evaporated to a soft extract and treated with warm diluted acid the resulting liquid gives a considerable precipitate with alkaloidal reagents, and this appears to be the only plan of recovering the whole of the alkaloid from the acid chloroformic extract. Water is sometimes recommended for washing out alkaloid associated with fatty and other substances in the preliminary acid washing of an assay process. This it does very imperfectly, however, as further washing with dilute acid will always take out more alkaloid. Both the modified and B.P. processes share in common a slight loss of alkaloid which remains dissolved in the mother liquor from the first alkaline chloroformic extraction.

The conclusion to be drawn from the foregoing is that whenever the modified B.P. process (*P.J.* [4], 8, 432) is adopted for the assay of liquid extract of belladonna, the first washing with alkaline chloroform, if quite white, may be evaporated and titrated at once, as advised by Dewhirst; but should the chloroform be at all coloured it is preferable to proceed with stage 3 of the B.P. process, omitting the final treatment with 3 C.c. of chloroform and water containing one drop of solution of ammonia.

It has been shown that the modified process, although avoiding the chief drawback of the official method, is subject to the disadvantage of a small loss of alkaloid and, occasionally, of requiring five operations for its complete performance. As the method does not appear to be susceptible of further improvement it seemed desirable to select a starting point more in harmony with the principles already alluded to, which govern alkaloidal extraction, and instead of attempting to remove the alkaloid from a large volume of aqueous liquid with a comparatively small volume of solvent to reverse the conditions, and treat a small volume of aqueous liquid with a large volume of a special solvent. The following process was, therefore, devised some time ago. It has proved rapid in execution, is free from emulsification of any kind, it extracts practically the whole of the alkaloid in a pure condition from any sample of extract, and the results are about 2 per cent. higher than by the modified method, and from 5 to 6 per cent. above those of the B.P. process. For this, of course, an allowance should be made when using it as an alternative method.

In the final extraction traces of amylic alcohol pass into the residue and prevent its immediate crystallisation, which may be considered a disadvantage. The alkaloid, however, readily crystallises after a short exposure to the heat of the water-oven.

ALTERNATIVE PROCESS FOR THE ASSAY OF LIQUID EXTRACT OF BELLADONNA.

Liquid extract of belladonna.....	10 C.c.
Strong solution of ammonia	2 C.c.
Amylic alcohol 3 vols. }	16 C.c.
Chloroform..... 1 vol. }	
Ether..... 4 vols. }	

Agitate vigorously in a separator, remove the ethereal layer and wash in a second separator with distilled water 4 C.c., added in two portions. Return the washings to the first separator and extract again with

Solvent (as above)	8 C.c.
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Transfer to the second separator and wash again with distilled water 1 C.c. which return to the first separator. Repeat the extraction with 7 C.c. of solvent and washing with 1 C.c. of water a third and a fourth time. Extract the mixed ethereal liquids four times successively with

Normal sulphuric acid	4 C.c.
Distilled water	6 C.c.
Distilled water	3 C.c.
Distilled water	3 C.c.
Distilled water	3 C.c.

To the mixed acid liquids add—

Solution of ammonia	q.s.
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to alkaline reaction, and shake out the alkaloid four times in succession with—

Chloroform	10 C.c.
Chloroform	5 C.c.
Chloroform	5 C.c.
Chloroform	5 C.c.

Evaporate the chloroform on a water bath, weigh, dry below 100 C. to constant weight and titrate as usual.

All the separations take place immediately, and if the liquids are not quite clear they become so on holding the separator over at steam bath for a few seconds. The difference between the results by weight and titration should not exceed 3 or 4 per cent., the final chloroform being colourless or very nearly so.

THE ASSAY OF BELLADONNA ROOT.

The maceration-pressure principle having been found so effective in the process given on page 415, for the determination of total alkaloid in ipecacuanha root, a method on similar lines was applied to belladonna, and with certain modifications was found to succeed equally well. In any method of assay dependent on the liberation of alkaloid by an alkali, at the first stage of the process preference must be given to that alkali which, whilst completely setting free the alkaloid from the particular state of combination in which it exists in the drug, at the same time has as little action as possible on the saponifiable and resinous substances accompanying the alkaloid. A carbonated alkali is on this account generally to be preferred to a caustic alkali, especially when dealing with a crude drug. The solvent also requires some attention. It should freely take up the whole of the alkaloid, but a minimum of the other constituents, for the purer the solution of the crude alkaloid the more completely and easily can the alkaloid be extracted in the subsequent operations of the process. For this reason it is obvious that no one solvent is capable of being employed with equal success in the extraction of every drug. Sodium bicarbonate, which answers well with ipecacuanha, fails to remove the whole of the alkaloid from belladonna root, recourse was, therefore, had to potassium carbonate. This proved quite effective and yielded the alkaloid in a state of great purity. Extraction by maceration pressure is very rapid with belladonna, about the fifth or sixth maceration the solvent, at first of a full greenish yellow, comes away almost colourless, and shows but a trace of alkaloid with alkaloidal reagents. The residual marc, macerated for two days with a considerable volume of ammoniated spirit, gives up yellow colouring matter and a fluorescent body, but the merest trace of alkaloid.

PROCESS FOR THE ASSAY OF BELLADONNA ROOT.

Belladonna root in fine powder	10 Gm.
Potassium carbonate	2 Gm.
Water.....	6 C.c.

Dissolve the potassium carbonate in the water, and rub the whole in a small mortar to a uniform moist granular powder.

Amyl alcohol	3 volumes	} q.s.
Chloroform	1 volume	
Ether.....	4 volumes	

Add the moistened powder to 20 C.c. of the above solvent, previously placed in D (plugged with cotton wool, as shown at page 176), and macerate for half-an-hour, with occasional shaking. Force out the liquid by compressing H, and cover the powder with 10 C.c. more menstruum. Agitate vigorously, let stand fifteen minutes and again force out the liquid. Repeat this at intervals of a quarter of an hour until six to ten quantities of menstruum have been used or the powder is exhausted.

Agitate the mixed ethereal liquids in a separator with

Half saturated solution of chloride of sodium..	10 C.c.
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Run this off and reject. Rotate with 1 C.c. water, separate and shake the mixed ethereal extracts successively with—

Normal sulphuric acid	4 C.c.	} q.s.
Water	6 C.c.	
Water	5 C.c.	
Water	5 C.c.	
Water	5 C.c.	

To the mixed acid solutions add—

Solution of ammonia *q.s.*

to render alkaline. Shake out the alkaloid with successive quantities of—

Chloroform 10 C.c.
Chloroform 10 C.c.
Chloroform 10 C.c.
Chloroform 5 C.c.

Run off the chloroform into a tared dish, evaporate, dry, weigh, and titrate as directed in the Pharmacopœia. The figures obtained by weight and titration should not differ by more than 1 or 2 per cent.

(To be continued.)

PHOTOGRAPHIC NOTES—SCIENTIFIC AND PRACTICAL.

BY A PHARMACEUTICAL PHOTOGRAPHER.

For many years now photographers have been accustomed to immerse themselves in dark rooms which have been but darkly illuminated with ruby glass of various kinds. It has for years been considered that no other light was safe, but there is now a considerable reaction against the ruby light, and though the present-day dry plate is far more rapid than even those of ten years ago, the majority of workers are coming round to the opinion that a very much more brilliant and yet equally safe light can be employed. There is also one other factor which has induced many workers to try a brighter light, and it is the intense frontal neuralgia that so frequently attacks a worker after some hours' work in red light. It has been stated on the Continent that a well-known firm of sensitive paper coaters found that it was almost impossible to keep order amongst their female hands whilst the coating rooms were illuminated with ruby light, but that as soon as this was replaced by green all was peace and quietness.

LIGHT FOR RAPID PLATES.

Whether the foregoing story is true I know not; it is, at any rate, *ben trovato*, and expresses a good deal that others have felt. With some of the most rapid plates it is necessary to use a fairly deep light, but a double-flashed orange, such as may be obtained of Hetley's, in Soho Square, is far less trying to the nerves and gives more light. For ordinary plates and bromide papers there is nothing to equal a double thickness of dark chromium green glass, with one thickness of canary fabric. Whilst with colour sensitive, particularly the red sensitive plates, another thickness of green glass will ensure safety, and yet give a good light all over the room. A still more brilliant screen may be made by soaking a gelatinised plate of the required size in a mixture of metanil yellow and eosine, about 12 of the former and 1 of the latter to about 5,000 parts of water, and allowing to dry. It must, of course, always be understood that the plate is kept covered during development, and not exposed more than necessary to the light.

USE OF A LIGHT FILTER.

For the use of some commercial plates a special safe light of extraordinary depth of colour is recommended, but I must confess that I have never found it necessary to use such lights, which serve but to make darkness visible. Still, such a light filter can be made very easily by anyone. All that is required is to obtain two sheets of glass of the required size and coat them with gelatin; personally we use a solution of Cox's gelatin in the proportion of 64 grammes to the litre, and allowing 10 C.c. to every 100 sq. centimetres. This is poured on to the glass, which should have been previously warmed and allowed to set in a level place, and then one is soaked in a saturated solution of aurantia $N(C_6H_2(NO_2)_3)_2 \cdot NH_4$; the other in a saturated solution of naphthol yellow. Both should be allowed to dry, and then one coated with a normal collodion containing 0.1 per cent. of methyl violet. The rationale of the three coatings is as follows: Aurantia cuts

off the bright blue and green of the spectrum, allowing red, orange, and yellow with some ultra-violet to pass; the naphthol yellow cuts off the blue and ultra violet, whilst the methyl violet cuts off the yellow and orange, and leaves nothing but a narrow band of spectral red from A to B. Naphthol yellow, it should be noted, is not very soluble, but the addition of a few drops of caustic soda will give a fairly deep solution.

NON-ACTINIC BACKING.

Considerable discussion has been raised as to the increase of exposure required when a plate has been backed by a non-actinic backing, and at times it has been somewhat acrimonious; but this has arisen purely on a misunderstanding. As all know, the object in backing a plate is to prevent the reflection from the back surface of the glass of those light rays which penetrate through the emulsion, and which, as the angle of reflection is equal to the angle of incidence, must be reflected back on to the emulsion; but as there must be considerable diffusion of the image and the reflected light must necessarily strike the back of the sensitive emulsion, it practically produces general fog, and thus gives the impression of a more fully exposed negative than when the backing has been applied.

OF BACKED PLATES.

The difference between a backed and unbacked plate in the character of the negative, at least as regards what is known as "pluck and sparkle," is very striking, and those who have once used backed plates will not be likely to go back to the ordinary again. It is, of course, but an obvious sequence of thought that if coating the back of the glass with a non-actinic backing reduces the fog generally, the use of a white or reflective surface would certainly shorten the exposure were it possible to reflect the light back direct on to the image without the intervention of the glass. And some experiments by Captain Colson, of Paris, certainly go to prove this, as he found a distinct increase in the light effect when the image was allowed to pass first through the glass, then on to a very transparent emulsion, which was in almost optical contact with white paper. From this one would imagine that some of the films of the present season's introduction will be found somewhat more rapid than when the emulsion is coated on glass.

CORRECTION OF OVER-EXPOSURE.

Talking of the effects of over-exposure reminds me of Mercier's experiments with various reagents to correct over-exposure, and when it is known that such exists I should strongly commend his process, which is to soak the exposed plate in a 2 per cent. solution of tartar emetic, allow to dry, and then develop with a normal hydroquinone developer.

DEVELOPMENT WITH FIXATION.

Development with fixation is one of those subjects which has cropped up during the past twelve months, and it forms the subject of a patent which has attracted some little attention. The sole advantage seems to be that one can thus reduce considerably the time required to develop and fix and also obtain a good negative, no matter what exposure has been given. Dr. Ellon, of Charlottenburg, who is the maker of the best form of pyrocatechin, gives the following formula:

CONCENTRATED DEVELOPER.

Pyrocatechin	7 Gm.
Potassium Hydrate	6 Gm.
Sodium Sulphate	30 Gm.
Distilled Water	75 C.c.

The developer is—

Concentrated Developer	10 C.c.
Sol. Sodæ Hypo (1.5)	20 C.c.
Water	20 C.c.

A perfect fixed negative is obtained in from three to five minutes.

ANNUAL DINNER OF THE PHARMACEUTICAL SOCIETY.

The annual dinner of the Pharmaceutical Society is always an interesting and enjoyable function, but there has, perhaps, never been an occasion in previous years at which greater interest and enthusiasm was displayed than at the annual dinner, 1900, held in the Whitehall Rooms, Hôtel Métropole, on Tuesday last, May 15. Those who have been acquainted with the annual social gathering of members of the Society from its commencement remarked that for the first time the chair was occupied by the Vice-President of the Society. That circumstance was explained, in due course, by the Chairman, Mr. G. T. W. Newsholme, who stated that he regretted to have to announce that, owing to the indifferent health of the President, Mr. Wm. Martindale, he had, on the advice of his medical attendant, gone on a voyage to South Africa.

After a most excellent dinner, the Chairman, in proposing "The Queen," spoke in eulogistic terms of the deep interest her Majesty has recently shown, at some sacrifice to herself, in her subjects, and the toast was honoured by an assembly of over two hundred pharmacists and their friends with enthusiastic loyalty, such as could scarcely have been surpassed had the Queen been present in person. The spirit of patriotism thus aroused was sustained by Mr. Walter Hills (the past-President), who, evidently speaking from the heart, proposed that old toast, "The Army, Navy, and Auxiliary Forces," under a new guise—viz., "The Imperial Forces," referring in terms of praise, not only to the soldiers and Volunteers from all parts of the Empire, but also to those of the medical and pharmaceutical professions who have volunteered for service at the front in South Africa. Colonel Sir Howard Vincent (M.P. for Sheffield), before replying to the toast, thanked the members of the Pharmaceutical Society, on behalf of the people of Sheffield, for the honour they had done that city in inviting his old friend Mr. Newsholme to take the chair that evening.

Leaving military matters—which permeated almost the whole of the evening's proceedings—Mr. R. A. Robinson, L.C.C., in proposing "The Houses of Parliament," turned to matters pharmaceutical by referring to Clause 2 of the Companies Bill, stating the case for pharmacists clearly and distinctly, at the same time pointing out to the members of both Houses present that the decision that the word "person" in the Pharmacy Act, 1868, does not cover a company, however unqualified, ought to be reconsidered, and that if that decision is again upheld, then there is no reason why it should not also apply to the professions of law and medicine. Lord Welby, who replied on behalf of the House of Lords, made no comment on the Companies Bill, except to say that in the present state of affairs he saw little chance of domestic legislation receiving much attention from the Government. Mr. Remnant, however, as the member for the district in which the Pharmaceutical Society has its headquarters, did briefly refer to Mr. Robinson's remarks in that connection, stating, very guardedly, that he would undertake to give very careful consideration to the Bill, and, so far as he could see at present, he had no reason to say that he should differ from what Mr. Robinson had stated.

The Treasurer of the Society, Mr. S. R. Atkins, in proposing "The Medical Profession," made one of the best-received speeches of the evening. Referring to the relations between medicine and pharmacy, he said that pharmacists not only claim to be the fourth estate of medicine, but to be part of it. In regard to the great progress of medicine, and especially surgery, during the Queen's reign, the progress had been past belief, so much so that the old fable of Humpty Dumpty was no longer true, for he ventured to think that a London surgeon would collect the particles and put him together again. Touching upon the services of medical men and pharmacists at the front, Mr. Atkins raised a storm of applause by

referring to his distinguished namesake, Tommy Atkins, of whom he was very proud. The President of the Royal College of Physicians, in reply, congratulated the Pharmaceutical Society on the good work it has accomplished during the last generation. The time had long passed when the pharmacist might be considered to be in any way subservient to the physician; each now has his own work to do, and he was sure both would do it nobly and well. Mr. Michael Carteighe, in his well-known genial style, gave the toast of "Science." He reminded his brethren present that pharmacy is not a science, but an art based upon science. He went on to speak of the enormous strides made by science during the Victorian Era and the beneficial effect of scientific teaching upon the community as distinct from the work of science. Sir William Abney replied, stating that in his opinion the toast of "Science" was misplaced because it should have been included in the three preceding toasts.

Mr. Bailey Saunders, M.A., Secretary of the London University Commission, then delivered what was, literally as well as pharmaceutically, the speech of the evening in proposing the toast of "The Pharmaceutical Society." The report of his remarks at page 537 should receive the careful consideration of all pharmacists interested in education. The Chairman, in responding to the toast, referred to the future connection between the School of Pharmacy and the London University and to the necessity for an Imperial compulsory curriculum if the scheme for reciprocity is ever to be brought to a successful issue. He then proposed "Our Guests," coupling with the toast the names of the Hon. G. Waldegrave Leslie, Sir James Crichton Browne, and Dr. T. E. Thorpe, all of whom replied, the remarks of Sir James being especially interesting, inasmuch as he spoke out very forcibly in regard to the enormous and increasing number of deaths from enteric fever, pneumonia, and dysentery among the troops in South Africa, expressing his regret that the Government had not, when sending out eminent surgeons to the front, also sent out a few great physicians. He thought there should be a careful inquiry into the matter by the sanitary authorities. The idea that medical treatment was of no avail in cases of enteric fever, he said, was fatalistic folly.

The toast list was interspersed by songs and part-songs by the Westminster Glee Singers, the proceedings terminating shortly before midnight.

REPORT OF THE SPEECHES.

The annual dinner of the members and friends of the Pharmaceutical Society took place on Tuesday evening at the Whitehall Rooms, Hôtel Métropole, Mr. G. T. W. NEWSHOLME (Vice-President) in the chair.

At the conclusion of the repast, grace having been sung by the Westminster Glee Singers, who also contributed during the evening a series of charming part-songs,

The CHAIRMAN proposed

The Queen,

a toast which, he said, had been drunk on many similar occasions, but never with more enthusiasm, he was sure, than now, for her Majesty had lately been showing her hearty sympathy with her subjects in all parts of the world, with her brave soldiers and sailors, especially with those who had been wounded in the war, and she had given up her usual trip to the South of Europe to pay a visit to the sister island, where she had been received with heartfelt enthusiasm.

Mr. WALTER HILLS next proposed

The Imperial Forces,

which, he said, ought to be considered the toast of the evening, for he was sure the brave men at the front, including Army, Navy, and Volunteers from all parts of the Empire, and their gallant efforts, were uppermost in the hearts of all. He coupled with the toast the name of Sir Howard Vincent, M.P. for Sheffield, and Colonel of the Queen's Westminsters, who had just returned from South Africa.

Sir HOWARD VINCENT, in responding, gave an interesting account of what he had seen on his recent visit, particularly in the hospitals, and after paying a high tribute to Lord Roberts, said he did not believe there had ever been an army in the field for which the medical and hospital arrangements had been so perfectly organised. He also spoke in eulogistic terms of the Volunteers, both English and Colonial, and reminded his hearers that Mr. Hills had a son serving at the front as a member of the H.A.C. He concluded an eloquent speech by expressing the hope and belief that this toast would always be received with enthusiasm.

Mr. R. A. ROBINSON, L.C.C., proposed

The Houses of Parliament,

which, he said, were always on the side of freedom and liberty of speech, and which had never stood higher in public esteem. He coupled with the toast the names of Lord Welby and Mr. Remnant, M.P. for Holborn, the constituency in which the headquarters of the Pharmaceutical Society were situated. After briefly referring to the Australian Commonwealth Bill, he said, another question to which he should like to refer was the Companies Bill, with regard to which the members of the Society felt they had some grievance. In 1868 the Pharmacy Act stated that no persons should deal in poisonous drugs unless they were properly qualified, and one would have thought that the language was plain, but, unfortunately, it had since been contended that seven or more persons forming themselves into a corporation did not come under that law. The late Lord Chief Justice Cockburn would not listen to that argument, and said that "no person" meant no person, or any number of persons; but, unfortunately, when the case came before the House of Lords it was decided that seven persons did not come under the heading of a person, and therefore, they might do with impunity that which not one of them could do legally in his individual capacity. This was a point in which the Society was intensely interested, and he was sure the members of the Legislature present would carefully consider whether, if that was the intention of Parliament in 1868, that view of the law should not be reconsidered. He only asked that a fair hearing should be given to the question. He also pointed out that the same principle would apply to medicine and law, and he ventured to think it was not to the interest of the community that companies should be able, under cover of qualified servants, to engage in pursuits which were forbidden to individuals.

Lord WELBY having returned thanks for the House of Lords, Mr. J. F. REMNANT, M.P., responded for the House of Commons. After referring briefly to military affairs, and saying he should support the Government in the policy of annexation, he said he should be quite prepared to give full consideration to the points raised by the Pharmaceutical Society with regard to the Companies Bill.

Mr. S. R. ATKINS then proposed

The Medical Profession,

to whom they were all indebted, for that profession assisted them in their arrival upon the earth, and did what they could to retard their departure, and in the interval rendered them every possible assistance. As pharmacists especially, who claimed to be a fourth estate of medicine, they felt beholden to the medical profession. The position which the Pharmaceutical Society had always taken up was that doctors should diagnose and prescribe, and pharmacists should prepare the remedies and dispense them, and he believed that, in the main, that practice had been followed. They all appreciated the enormous progress which medicine and surgery had made, and he hoped that medical men also appreciated the progress made by pharmacy. He was glad to know that they had now reached a point in which pharmacists were recognised in the preparation of the Pharmacopœia, and the Society was very pleased to place their unique laboratories and the services of the qualified professors of chemistry and pharmacy at

the disposal of the Committee of the General Medical Council. He concluded by referring in feeling terms to the great services rendered to the Army by the medical profession, and also by pharmacists. He coupled with the toast the name of Dr. Church, President of the Royal College of Physicians.

Dr. CHURCH, in responding, said medicine was practised in so many different ways and under such diverse conditions that it was extremely difficult for one person to properly represent the whole profession. He might safely say that there was no section of his profession which was not greatly indebted to the Pharmaceutical Society for the good it had done during the last generation, and he might congratulate it on the position it had achieved. When the Society was instituted its main objects were to unite chemists and druggists in order that their interest might be safeguarded, and still more to advance the art and science of pharmacy, and in both they had been highly successful. Every practitioner of medicine must feel grateful for the purity, activity, and portability of the drugs which were now supplied to alleviate the sufferings and cure the diseases of mankind, and he had learnt with great pleasure of the action of the Council during the last few days with regard to a certain question which had been laid before it, as it had also before the Royal Colleges. He could not say what would be the answer of the Royal Colleges, as the matter had not yet been considered, but he must say he heard with great satisfaction the answer which the Council of the Pharmaceutical Society had returned to the Home Office, and he did not think there would be any difference of opinion on the point. The questions he referred to were connected with the subject of standardisation. He had only lately ceased to be a member of the General Medical Council, and felt sure the arrangements now made between that Council and the Pharmaceutical Society with regard to the Pharmacopœia would give satisfaction to both bodies and be of benefit to the whole community.

Mr. MICHAEL CARTEIGHE next proposed

Science.

which he said might be regarded from two main points of view—first, the enormous strides which it had made during the Victorian Era, and, secondly, the effect of scientific teaching in connection with education. In his early days the teaching of science was hardly contemplated, and was certainly not recognised as a method of intellectual training; but the men who fought for it, such as Huxley, Tyndall, and Herbert Spencer, and those who gathered round them, were ultimately successful, and science was now recognised by the two old Universities, and long before was recognised by the Scottish Universities as a proper method of culture. The idea which was current for some time, that examinations would do everything, was falling into disfavour, and the proper teaching of science was being greatly developed. He had the greatest pleasure in associating with the toast the name of Sir William Abney, the head of the Science and Art Branch of the Government and the Controller of the General Elementary Education and Science throughout the country. He was not only a man of science, but an experimental philosopher of the highest type and distinguished for his researches in various branches of physics.

Sir WILLIAM ABNEY, in reply, after thanking Mr. Carteighe for what he had said of himself personally, said this toast really was unnecessary, as it was implicitly contained in the three previous ones, though he must admit that a little more science in Parliament would be welcome. It was with the greatest satisfaction that he found that scientific instruction was increasing so largely throughout the country. When he first had to do with scientific instruction under State control he found that all the laboratories he could muster up for the instruction of the poorer classes could be counted on one hand; at the present time there were nearly 700 scattered throughout the kingdom, giving instruction to between 18,000 and 20,000 students. That was something to boast of in fifteen years, and although Parliament did not quite understand

all scientific subjects, it was always ready to vote money for the purposes. Science was not out of place even in military matters, and was very useful, and had proved as useful in South Africa as the dogged perseverance and bravery of our soldiers, and it was also capable of revealing facts hitherto undreamt of in the realms of industry and commerce.

Mr. T. BAILEY SAUNDERS, M.A., Secretary of the London University Commission, proposed

The Pharmaceutical Society,

coupled with the name of the President. He said he had no special acquaintance with the field in which the Society carried on its work, but as a member of the public he recognised the essential importance of the work it did. The physician was now dependent on the skilled knowledge of others for the preparation of his medicines, which he no longer grew in his own garden, and it was difficult to exaggerate the usefulness of the part which the Society played as one of the recognised guardians of the public interest. It was to the educational side of the Society that he wished specially to refer. He understood that in the course of the present year they were to introduce a new scheme for the Preliminary Arts Examination, which was a matter for congratulation. This would no doubt help them to weed out the incompetent, and to prevent men whom Nature had not designed for the profession of pharmaceutical chemists from wasting their own time and that of their teachers on studies which they could not pursue to any advantage. It had also the special significance that it showed the Society was fully alive to the danger of the too exclusive pursuit of a special subject, and that they were determined that the men they sent out with the stamp of their approval should possess general as well as special education. Side by side with this new scheme there was another development in the educational work of the Society on which they were to be congratulated—a development in which he had had some share—namely, the connection which would henceforth exist between the School of Pharmacy and the University of London. Amongst the recognised teachers of the University, he was happy to say, would be the three professors of the School of Pharmacy—Professors Collie, Green, and Greenish—and all three would be members of the Faculty of Science. The Commissioners had also recommended the Senate to appoint in the University a special Board to look after the interests of pharmacy, and, though they could not pledge the action of the future Senate, he had little doubt that all three professors would be members of the Board, and would be able to advise the Senate on questions connected with pharmacy. A question had been raised as to what would be the practical effect on students of this connection between the School and the University, and it had been asked if students of the School would be able to obtain a degree in the University. He must disclaim any attempt at prophecy, but his personal opinion was that it was more than doubtful when a degree in science was likely to be conferred by examination alone in the subject of pharmaceuticals, but he thought it very likely that degrees in science might be conferred for pharmaceutical research. There was a special provision in the draft statutes providing that the higher degrees of the University might be obtained by research, and also the degree of Bachelor of Science, and he had little doubt that students of the School of Pharmacy who pursued some scientific research would be able to obtain such a degree, but, after all, there was another fact which seemed to him to be more important. The object of recognising the teachers at any Institution was to provide courses of study which the University could approve of, and he had no doubt when it became generally known that the School of Pharmacy was available for University purposes, there would be additional inducements to students to attend, and that in the not distant future no student of pharmacy would think of trying for the qualification who had not gone through a regular course of instruction. One of the main reasons for the reconstitution of the University of London was the recognition of the fact that the mere passing of an examination was not so important or beneficial to the student as the intelligent pursuit of a

regular course of instruction under proper guidance. The French pharmacien took a pride in telling you that not only he passed his examination, but that he studied under a particular teacher, and he remembered when in Brittany meeting a poor pharmacist in a rural village who told him with pride that he had studied under Frémy and Berthelot. He hoped the day would come when pharmaceutical chemists in England, no matter if they were only doing a small business, would in like manner feel proud of having studied under Collie, Green, or Greenish.

The VICE-PRESIDENT, in responding, said he had received telegrams from the President of the Medical Society, from the President of the Royal College of Veterinary Surgeons, and from Sir Frederick Abel, apologising for their absence. He had regretted that Mr. Martindale, the President, could not occupy the chair, but, as they all knew, during the past few months his health had not been very good, and, under medical advice, he had gone for a holiday. Mr. Sanders had referred to the abolition of the Preliminary Examination, the desirability of which had been long recognised by the Council, as it was felt that the standard was far too low. The most important portion of his remarks was that which referred to the further connection of the Society with the London University. This was a very important step in advance, and could not fail to be of immense service to the Society in the future. They were looking forward to a compulsory curriculum, because they felt that any scheme for a degree in science must rest not only on examination, but on evidence of training. However, as he should have to speak at some length on these topics to-morrow, he would not detain them longer on that occasion, but would at once propose the last toast, namely, "The Guests," which he coupled with the names of the Hon. G. Waldegrave Leslie, who took a prominent part in connection with the passing of the Pharmacy Act of 1868; Sir J. Crichton Browne, and Dr. Thorpe, President of the Chemical Society.

The Hon. G. WALDEGRAVE LESLIE having briefly responded and expressed the satisfaction it gave him to assist in the passing of the Pharmacy Act,

Sir J. CRICHTON BROWNE said it was only within the last two minutes that he had the slightest conception that he should be called upon to speak, and, there, unshrived, unhoucelled, and unannealed, with all his imperfections on his head, he came before them. He remembered in the report of a benevolent institution published lately in Dublin the committee stated that "Notwithstanding the large amount paid for medicines, the deaths during the last year had been comparatively few." That statement conveyed a somewhat pessimistic view of the position of pharmacy, and as they knew, the lethal effect of drugs formed a foundation of many of the current jokes of the period. He was accustomed, having been born north of the Tweed, to the slander first provoked by Sidney Smith as to the insensibility of a Scotchman to a joke without a surgical operation; but he always listened to such banter with equanimity, knowing well that there was no more richly humorous nation on the face of the earth than the Scotch. So the pharmacist, when lampooned as to the ravages they worked, might receive that nonsense as the homage of their youthfulness and to the potency of the agents they dispensed. The sceptical views which they often expressed as to the power of medicines was sheer affectation. Never in the history of the world were more drugs consumed than at the present time. Never was there such a multiplication of drugs, and he supposed in this as in other cases the supply must have some relation to the demand. Never before was there a Pharmaceutical Society doing such work, and surely the prosperity of a Pharmaceutical Society must depend mainly on the faith of the public in the materia medica. Sanitation, hygiene, diet, hydrotherapy, massage, and the open air were all playing their part in the conflict with disease and doing good work, and still drugs held their own; and he should be inclined to say that in every department of medicine there was a revival of belief in the beneficial influence of

drugs, both of those old well-established drugs, that had survived from the swarm and swelter unaffected, and in those modern drugs that organoseropathy was giving them. In his own department of drugs, as regarded diseases of the brain and the nervous system, he might say that drugs were sometimes almost magical in their effects, and that in the cases, numerous as they must inevitably be, where they could not affect a cure, they procured an alleviation of suffering to an unquestionable extent. So far as his department of practice was concerned, the pharmacists might rely on continued patronage, but unquestionably they would derive their larger profits from a zone just outside, the zone composed of neuropathic persons, who were, if he might coin a word, drugiferous, and who formed the prey to those lavish bodies of quacks that infested our modern civilisation. It might sound paradoxical, but it was true to say that men and women suffered most from the maladies with which they were not afflicted. Hypochondriasis was widespread, hysteria was abroad, neurasthenia was all but universal. There were many robust invalids who would be greatly shocked to be told there was nothing the matter with them or to be entirely cut off from those drops and tablets and tabloids in which they gloried. There were many unfortunate beings who went through the whole nosology in their own persons. Every epidemic was accompanied by its spurious imitation, and he should be glad to see a man, woman, or child in these islands who had not suffered from influenza on several occasions. There were certain maladies which loomed darkly in the public imagination, such as cancer, that had their counterfeits, and cause terrible alarm, until science had turned her searchlight on them, and he often thought that doctors were entitled to as much credit for dispelling unnecessary fears as irradiating actual diseases. He was not there to suggest means of dealing with the drugiferous classes, but perhaps something might be done for them by satisfying harmlessly their craving by innocuous combinations with very impressive and appalling names, and perhaps in that direction their German cousins might be able to assist, for they were sending the medical profession lists and pamphlets recommending methylpropylpetronium and such-like compounds, the contemplation of which was calculated to produce giddiness in any brain that had not been steeped and hardened in prolonged chemical study. He did not know that the Pharmaceutical Society had been directly concerned in this great and grievous war in South Africa, so often referred to, but the members were entitled to share to some extent in the praise that had been bestowed on the care of the sick and wounded. He had heard no breath of complaint against the medical stores or the surgical appliances that had been supplied. He might express a regret that while a number of great surgeons had been sent out to the seat of war, a few great physicians had not been sent out also. The long lists that were appearing daily of deaths from enteric fever, pneumonia, and dysentery were very distressing, and especially to those who had relatives at the front. The number of deaths from enteric fever alone must very nearly equal to those who had been killed in action or who had died of wounds, and it was now increasing out of all proportion to the strictly military casualties, which, thanks to the careful strategy of Lord Roberts and the economy of life in this campaign, were now comparatively trifling. Every death of enteric fever probably represents four cases of that disease, so that there must be an enormous amount of disability and crippling of our forces from this malady, and every case of enteric fever in which recovery took place was not over when the fever had subsided. It left after effects which were far reaching and serious, and for many a long year to come this country will have to bear the trial of this war, not merely in sorrowful remembrance of those who were lost, but in actual infirmity and diminished health. But enteric fever and pneumonia were preventable diseases. When introduced into a beleaguered place like Ladysmith they must spread, and no doubt enteric fever was epidemic in South Africa, and always prevalent amongst the civil population, but still he thought the occurrence of these maladies at a great number of different stations and camps, some in typically

healthy stations, suggested careful inquiry by eminent sanitary authorities, who might suggest precautions and might, at any rate, collect information which would be useful on future occasions. The idea that in enteric fever medical treatment was of no avail was fatalistic folly. There was no disease in which skilled medical treatment could do more to ward off death, to alleviate suffering, and to promote recovery, and he did think it would be a satisfaction to the friends of those who were struck down by this disease to know that they had had the advice of persons who had devoted their lives to the study of fever, and who were especially skilled in all the niceties of management of that malady.

Dr. THORPE also briefly responded, and the proceedings terminated.

List of Those who were Present.

The following is the official list of those who were present at the Annual Dinner of the Pharmaceutical Society:—

- | | | |
|---|--|---|
| Abney, Sir W. de W.,
K.C.B., F.R.S. (Board of
Education, Science
and Art Branch) | Gerrard, A. W. | Ridley, R. |
| Allen, C. B. | Glyn-Jones, W. S. | Robertson, Dr. W. M. |
| Allen, — | Greenish, Prof. H. G. | Robins, J. |
| Anderson, G. | Gregory, A. C. | Robinson, R. A., L.C.C. |
| Arkininstall, W. | Grosc, N. M. | Robinson, W. P. |
| Arnold, H. | Gulliver, W. F. | Roe, G. |
| Arrow, J. J. | Gunn, A. | Rogers, F. A. |
| Arrowsmith, A. A. | Hall, H. E. | Rogerson, W. J. |
| Atkins, S. R. (Treasurer) | Hanson, A. W. | Royle, H. W. |
| Attfield, Dr. J., F.R.S. | Hardwicke, Dr. R. R. | Royle, J. W. |
| Baiss, Arnold | Harrington, J. F. | Saunders, T. Bailey,
M.A. (Secretary, Lon-
don University Com-
mission). |
| Baiss, W. H. | Harrison, J. | Savory, A. L. |
| Barron, R. | Harvey, Roger M. | Shannon, R. J. |
| Boa, Feter (Chairman
of Executive N.B.
Branch) | Harvey, W. | Sherwood, N. |
| Bolton, H. N. | Heighington, T. G. | Siverlock, H. T. |
| Bolton, H. N., jun. | Hill, A. T. | Simpson, Alderman H. |
| Bottle, A. | Hill, C. A. | Smith, F. Adams |
| Bourdais, I. | Hillen. — | Smith, F. A. Upsher |
| Bourdais, I., jun. | Hills, Walter | Smith, J. H. |
| Boutall, G. S. | Hills, Dr. Rowland | Smith, S. |
| Bowen, J. W. | Hodgkinson, C. | Solomon, A. H. |
| Boxall, Fred | Hodgkinson, — | Squire, G. |
| Bremridge, R. (Secre-
tary) | Hodgson, C.R. (College
of Preceptors) | Stacey, H. G. |
| Bremridge, R. Harding | Holmes, C. J. | Stevenson, H. E. |
| Browne, Sir J. Crichton,
F.R.S. (Treasurer Royal
Institution) | Holmes, E. M. (Presi-
dent, British Pharma-
ceutical Conference) | Stickland, W. |
| Bush, E. | Howie, W. L. | Stickland, W. H. |
| Butt, E. N. | Humphrey, J. | Symes, Dr. C. |
| Carteighe, M. | Ison, E. | Tanner, A. E. |
| Carter, R. C. | Jarvis, C. | Taubman, R. |
| Castle, J. W. | Jones, A. O. | Taylor, G. S. |
| Chalmers, W. | Jone, G. E. | Thompson, Sydney |
| Chater, A. J. | Jones, R. H. | Thomson, Professor J.
Millar, F.R.S. (Presi-
dent, Institute of
Chemistry) |
| Church, Dr. Selby
(President Royal Col-
lege of Physicians) | Joyce, T. G., B.Sc. | Thorpe, Dr. T. E., F.R.S.
(President, Chemical
Society) |
| Clarke, R. Feaver | Kingan, D. | Thurston, J. |
| Collie, Prof. J. N., F.B.S. | Knight, C. J. | Trimmer, E. (Secretary
Royal College of Sur-
geons). |
| Cooper, A. | Lamb, Dr. W. H. (Prosi-
dent Harvean Society) | Tucker, — |
| Cooper, A. J. B. | Lansdown, G. A. | Umney, C. |
| Cooper, J. | Leslie, Hon. G. Walde-
grave | Umney, J. C. |
| Copeland, Dr. W. L. | Lewis, D. | Vincent, Sir Howard,
K.C.M.G., M.P. |
| Cottle, Dr. Wyndham | Linstead, E. | Walker, H. J. D. |
| Coulson, T. | Lloyd, J. | Walker, H. |
| Cownley, A. J. | Lorimer, J. | Want, W. P. |
| Cross, W. Gowen | MacEwan, P. | Waring, A. W. |
| Davidson, P. | Martin, C. T. | Warren, F. W. |
| Davies, T. | Martin, T. C. W. | Warren, W. |
| Davis, W. A. | Martindale, Dr. W. H. | Welby, Lord, G.C.B.,
L.C.C. |
| Dixon, R. | Mathews, J. H. | Weston, S. J. |
| Doran, A. (President,
Obstetrical Society) | Moon, H. | Whiffin, T. G. |
| Duckworth, Sir Dyce
(Treasurer Royal Col-
lege of Physicians) | Moore, J. E. Langford | „ Friend |
| Dumayne, F. J. | Morgan, — | White, Edmund |
| Dunn, C. | Morris, E. W. | White, G. |
| Edden, T. L. | Morson, T. P. | Wiggington, A. |
| Everett, J. G. | Murison, J. | Wilbe, Dr. Haydock. |
| Farquarhanson, Dr., M.P. | Naylor, W. A. H. | Will, W. Watson |
| Fisher, W. W., M.A.
(President, Society of
Public Analysts) | Newsholme, G. T. W.
(Chairman) | Williams, H. |
| Flux, W. | Newton, A. | Williams, T. R. |
| Fogerthy, W. | Ord, S. W. | Wilson, Harold |
| Francis, G. B. | Padman, John | Wilson, J. |
| Francis, W. H. | Pain, R. | Wink, J. A. |
| Frankish, Dr. | Parsons, W. | Woolley, S. W. |
| Frost, S. T. | Patterson, J. | Woodsnam, W. |
| Gamble, F. W. (Presi-
dent, Chemists' As-
sistants' Association) | Paul, A. | Worsley, A. G. |
| | Paul, Dr. B. H. | Wretts, J. R. |
| | Phillips, A. J. | Wright, A. |
| | Philp, W. J. I. | Wright, H. C. |
| | Preston, Major A. C. | Young, J. Rymer |
| | Pryke, W. R. | |
| | Raper, J. R. | |
| | Rayner, A. | |
| | Remnant, J. F., M.P.,
L.C.C. | |
| | Reynolds, R. J. | |
| | Ridgwell, J. B. | |

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

A Poet on the Situation.

I think Mr. Alexander Laing's letter in last week's *P. J.* introduced the needed element of humour among so much exceedingly serious matter. Not that Mr. Laing is to be taken other than seriously, apart from his eccentricities of language, any more than his "Currie" would be taken by ordinary pharmacists just for the fun of the thing. But in a friendly contest, such as our Council election ought always to be, the effects of the introduction of unavoidable personalities can be greatly softened if the humorous element is not entirely lacking during the inevitable discussion of controversial matter. Mr. Laing has supplied the humour which has been lacking during the last few weeks and urges the maintenance of the "no-surrender policy" in a manner which imparts to the subject a distinct flavour of novelty. He has not written a lot of nonsense about companies and the supposed "right divine" of pharmacists, he does not "cry for the moon," he has not even "dropped into poetry," but nevertheless his letter gives the impression that a definite policy can be formulated, which shall commend itself to ordinary pharmacists, though not necessarily to Mr. Glyn-Jones or to Mr. Lord Gifford. Mr. Currie may or may not be the individual destined to formulate that policy—on the whole I am of opinion that he is not—but the whole-hearted advocacy of his claims by Mr. Laing should appeal to him strongly. And whether Mr. Currie secures a seat on the Council or not, the Larbert poet-pharmacist has now put his hand to the helm and means to make someone or something bump. It does not appear altogether a wise thing to make a drifting ship bump, especially if her boilers are badly corroded, but perhaps the condition of the vessel is not so bad as Mr. Laing, with his poetic licence, would make out.

The P.A.T.A. and the Council Election.

Some members of the P.A.T.A. do not appear to view with equanimity the fact that Mr. Glyn-Jones is the proprietor of the *Anti-Cutting Record*, and that is not altogether surprising if they have been under the impression that the paper was their own property. It seems to me, however, that it is entirely their own fault if any such impression has existed among them, for nothing was easier than that they should ask for and obtain full information on the subject from Stonecutter Street. At the same time, I can sympathise with Mr. Waddington if the facts be as he states, though the conclusions he draws are probably exaggerated. In effect, the position, as it appears to Mr. Waddington, is that the P.A.T.A. has subscribed for copies of the *Record* supplied to its members, and has thereby become committed to advocacy of the candidature of certain individuals who have been seeking election on the Council of the Pharmaceutical Society, owing to the insertion of Mr. Glyn-Jones's circular in the last number of the paper. But Mr. Glyn-Jones doubtless has a satisfactory answer to the implied charge of unduly attempting to involve the P.A.T.A. in the Pharmaceutical Society's affairs, though, if that be so, the sooner it is forthcoming the better, as such interference by another body will not be tolerated by the members. Even though every member of the P.A.T.A. were also a member of the Pharmaceutical Society, it would be decidedly improper for the first body to make use of its organisation to attempt to influence the affairs of the other.

How the Point of View Varies.

In his comparison of Mr. Glyn-Jones with the Society's leaders, I think the local secretary for Bradford distinctly scores, *i.e.*, assuming the accuracy of his contention—that the individual he criticises is "doing exactly the things which he blames our present leaders for doing." I may say, however, that my opinion is that Mr. Glyn-Jones is probably not doing exactly the things he blames others for doing, but refutation of such a charge may safely be left to himself. It may be true that he dominates

the P.A.T.A., but, if so, that is likely to prove advantageous to the body dominated; any success achieved by the P.A.T.A. is chiefly due to him, and it will be an evil day for the organisation when it loses his services. And, in any case, that is entirely a matter for the members of the P.A.T.A. to settle among themselves; if they, or the majority of them, prefer one-man rule and success to a multiplicity of rulers and disaster, they are simply displaying their common-sense and are to be congratulated accordingly. But I should doubt much whether Mr. Glyn-Jones can fairly be accused of carrying on his business in anything approaching an illegal manner. As regards the reference to exercise of economy in publishing the *Pharmaceutical Journal*, much has apparently been effected in that direction since Mr. Glyn-Jones was elected on the Council, though it is not necessarily a case of *post hoc propter hoc*. But, in any case, I fail to see that comparison of the cost and contents of the *P. J.* with the *Anti-Cutting Record* proves much one way or the other.

How the Journal Should Develop.

Reference to the contents of the *P. J.* reminds me, by the way, that the idea of a trade supplement to the Journal, suggested by me last week, has presented itself to at least one other member of the Society. Not that there is anything surprising in the coincidence, for, as a matter of fact, "T. G." represents a large and increasing number of pharmacists who are of opinion that one journal—and that their own property—may well be made to include everything that is of interest to them in their daily round. And though, as "T. G." remarks, it may seem a large order to demand that the official organ shall be the best trade journal as well as the best scientific journal, "that is the order." How long or how short a time may elapse before the order is filled depends largely upon the actual proprietors of the *P. J.*—the members of the Pharmaceutical Society. I suppose we may assume that all the numerous changes in the Journal which have taken place during recent years have been due, directly or indirectly, to demands made by members for such information as they were being driven elsewhere to procure; that being so, past experience would seem to indicate clearly what "T. G." and others who share his views must do to secure the realisation of their desire that the official organ—in its supplement or elsewhere—should contain, week by week, the fullest collection of matter and advertisements interesting to the pharmacist in his business.

Of Pharmaceutical Research.

Mr. Butt's notice of motion recalls the fact that the Pharmaceutical Society's Research Laboratory was instituted as far back as January, 1888, for the purpose of furthering "pharmaceutical research." How that term has since been interpreted may be judged from the fact that, according to the 'Calendar,' students who seek admission are expected to be "desirous of obtaining information concerning the application of chemistry to the higher branches of pharmacy, or of undertaking scientific inquiries." Again, it is stated that, in the Research Laboratory, advanced instruction is given "in chemistry in its relations to pharmacy and in the methods of chemical investigation." Mr. Butt, who was a member of the Council when the Laboratory was instituted, is apparently desirous that the investigations pursued there should savour less of abstruse chemistry than has been customary for some time past, and that such work as is done should have a more direct bearing on subjects of pharmaceutical interest. In that he is only proposing to adhere to the original proposition and, judging from the somewhat scanty allusions to the work of the Research Laboratory which have recently been published, it appears as though investigations such as Mr. Butt would approve of are already proceeding. But of that we shall doubtless know more when the report of the special general meeting is published. It is gratifying to learn, however, that in connection with future revision of the Pharmacopœia work is now being done under the control of the Council of the Pharmaceutical Society.

LETTERS TO THE EDITOR.

Mr. Glyn-Jones Replies to Mr. Waddington.

A reply to the attack made upon me by Mr. Waddington in your columns last week will perhaps be expected of me. The first part of his letter dealt with my connection with the P. A. T. A. and the *Anti-Cutting Record*; but, as it suggests that the members of the Council of that Association have allowed me to "dominate" them, and that they have paid me moneys for which they have not received value, I have called the attention of the President to it and have left the matter with him. I would simply say that on the 5th instant I received from Mr. Waddington a list of the payments he refers to, with a request for an explanation of them. I wrote him on the 7th instant, fully explaining the items, yet he sent for publication to the Journal a letter, dated the 9th instant, which was full of insinuations but completely ignored my explanations.

Your readers may naturally wonder why, seeing that Mr. Waddington wrote to me for information as to the P.A.T.A. accounts, he did not in the same letter ask for replies to the inquiries he now thinks fit to put to me publicly in your columns as to the conduct of my retail business. I think I can give them the reason. Towards the end of last year I was in Bradford for two or three days on Association business. On one of those days Mr. Waddington entertained me at luncheon. We freely discussed "shop" in general and our own shops in particular, and in reply to his inquiries I explained that I was able to leave my business, because I was fortunate in having a younger brother as one of my assistants. Mr. Waddington further learnt from me, in the course of this friendly chat, that my brother, who has since taken another engagement, was not yet registered, and I had therefore employed a qualified man as manager. There was nothing to justify Mr. Waddington's foolish suggestion that the qualified manager of my business was subordinate to my brother, though there would have been nothing illegal in that. The facts relating to my business are these. I, its sole proprietor, use the trade name of "Glyn and Co.," and if Mr. Waddington's name were "Jones" he might have found it convenient to have adopted a trade name for distinguishing purposes. My trade name appears on my poison and other labels. I employ, and always have, since I ceased giving to the business my close personal attention, a qualified chemist, and he has always been my responsible manager. These are the bare facts, which I am certainly not ashamed for all the world to know.

My work in connection with the trade is public property, and I do not shrink from criticism in connection with it, but I suggest to Mr. Waddington that it is, to say the least, not particularly manly or courageous to attack me by veiled insinuations and questions, which are by most honourable men regarded as a contemptible method of controversy. Mr. Waddington desires your readers to suppose that there is something improper in my mode of conducting my business, and here he is making libellous suggestions; but I prefer to seek no other protection against him than a public statement of the facts and the judgment of my fellow-traders upon them.

London, May 15, 1900.

W. S. GLYN-JONES.

The P.A.T.A. and the Anti-Cutting Record.

May I ask you, in fairness to the Proprietary Articles Trade Association, to insert in your next issue my reply to a letter appearing in your Journal of May 12, and signed Alfred H. Waddington, Bradford. Now, the P.A.T.A., I can positively assert, has no interest in the Pharmaceutical Council election. I found the heading of Mr. Waddington's letter, "P.A.T.A. and the Council election," explained by a statement in the letter "that Mr. Glyn-Jones is practically the P.A.T.A.," and supposed that the letter referred to some personal action taken by our Secretary in his capacity as a member of the Pharmaceutical Society. The Council of the P.A.T.A. consists of ten retail

chemists, elected by over three thousand pharmacists, and twenty of the principals of leading wholesale and manufacturing houses in the drug trade. To suggest that such men are dominated by one man—a servant—however able he might be, is as insulting as it is untrue. It is my duty to defend that Council from the reflection cast upon it by Mr. Waddington that it has put money into Mr. Glyn-Jones's possession without getting adequate value in return. Mr. Waddington's suggestion is due either to malice or ignorance of the facts. It is based upon figures taken from our 1897-98 balance-sheet. Of the items to which Mr. Waddington directs the very serious attention of the members of the Pharmaceutical Society, as well as our own members, he selects for comment that of £635 for salaries, and £244 paid to the *Record*. Those figures cover fifteen months. The item of £635 included the salaries of Messrs. Glyn-Jones and Johnston (two qualified chemists) and four clerks. Even Mr. Waddington will perhaps see that somebody was underpaid during those fifteen months. Knowing nothing about the matter, he suggests that our Secretary did not go short.

Mr. Waddington thinks our payment of £24 towards the *Anti-Cutting Record* expenses was extravagant. Mr. Glyn-Jones, by means of the *Record*, founded the P.A.T.A., and when that organisation came into existence he suggested that the Council should take the responsibility of publishing the *Record*. It was, and is, however, a convenience to us that he should continue to publish it. It is the duty of the P.A.T.A. to send monthly to every chemist in the United Kingdom in business the protected list, with its alterations and additions. We used the *Record* for this purpose. It prints and circulates the list for us—to have printed and posted that list alone would have cost us over £450. The *Record* did it for £244. If Mr. Waddington has a better offer to make we will gladly consider it. So much for our defence as a Council. I think, however, most of our members, indeed, I believe most non-members also, will deplore the personal tone adopted by Mr. Waddington towards our Secretary—the insinuation that to him his work for the trade is a matter of money-making is an extremely mean one. I may tell Mr. Waddington, with the full knowledge of the facts contained in the Association and *Record* balance-sheets, that Mr. Glyn-Jones's connection with the Association and the *Record* involves a pecuniary sacrifice on his part—in plain English, a loss of income. Those of us who best know Mr. Glyn-Jones and his work on behalf of his fellow chemists feel that no money could repay him for the nights—many spent in a railway carriage—as well as days, spent in their service. The energy he has put into his work—his whole-hearted devotion—are worthy of something better from chemists as a body. If Mr. Glyn-Jones had received the whole of the £635 I should even then consider him underpaid for the work he has accomplished.

London, May 15, 1900.

A. TEBBUTT,

President of the Proprietary Articles Trade Association.

Mr. Percy Bean's Explanation.

The fact of my subscription to the Pharmaceutical Society not having been paid is due entirely to oversight. I have been out of the business as a retail chemist for the last five years, and am only interested from a professional point of view—i.e., the protection of my title as a chemist. In excuse for the oversight, I might say that I am just recovering from a four months' illness, ten weeks of which were spent in bed. When I interested myself on Mr. Gifford's behalf it was my intention to at once subscribe to the Society, in order to place myself in touch again. Through a relapse I have not been able to take an active part for the last three weeks, and the letter bearing my signature in the *Pharmaceutical Journal* this week was not signed by me, nor was I at the meeting. Had I been I should have remembered that I had not yet sent up my guinea. Being on the committee for election purposes, my name was attached as usual.

For this I am entirely to blame, as I feel sure not one of the election committee knew that I was not at present a member of the Society. The Journal has just been placed before me, and I am writing at once to put the matter right by sending my subscription. As I am willing to take the responsibility on my own shoulders, I trust you will give my letter the necessary publicity. I am only anxious for the welfare not only of members of the Society, but of all chemists—hence my interest in the work at all.

Blackburn, May 11, 1900.

PERCY BEAN.

Subscriptions to the Pharmaceutical Society.

Does paying the subscription to the Pharmaceutical Society to the local secretary count as if paid to the secretary in London? I paid mine to the local secretary here on April 28, and received a letter from Mr. Bremridge about May 5 saying my subscription had been received after May 1, and my name would have to be submitted to the Council, etc. I wrote him, giving him the particulars, but have received no reply. It is a bit of red-tapeism, I suppose, but it is rather hard, as it disenfranchises me for the Council election. I have been a student, associate, and member for twelve years.

Exeter, May 11, 1900.

GEO. R. HARRIS.

*** All annual subscriptions become due on January 1 in every year, and, in accordance with the Bye-law, must be paid before May 1. They may be paid to local secretaries before March 31, but after that date should be sent direct to Mr. Bremridge. In the present instance, apparently, the difficulty has been caused by the local secretary accepting the subscription after the proper date and neglecting to forward it at once or with an explanation of the circumstances. [Ed., P. J.]

The Companies Bill.

I enclose herewith copy of a letter received to-day from Mr. Alexander Ure, M.P., Linlithgow County, in answer to one I sent him on March 12.

ALEXANDER SPENCE,

Local Secretary, Linlithgow County.

Linlithgow, May 11, 1900.

[ENCLOSURE.]

House of Commons, May 9, 1900.

My Dear Sir,—I have been postponing my reply to your letter of March 12, relative to the clause found objectionable by pharmaceutical chemists in the Companies Bill, until I could say something definite about the prospects of the measure. I now think its chances of passing this session are somewhat remote. But I shall keep carefully in view your proposals relative to the objectionable clause. I may say that I entirely agree with the views you and those who are acting with you urge.—Yours faithfully,

(Signed) ALEX. URE.

To Alexander Spence, Esq., Chemist,
133, High Street, Linlithgow, N.B.

The Pharmacy Acts in Theory and Practice.

For some time past my lot has been cast with a pharmacist of the old school, and I have frequently heard him declare that neither the Pharmacy Act nor the Poisons Bill ever did the trade "a ha'porth of good." Being youthful and optimistic, I at one time frequently joined issue with him on this score. I am wiser now, for facts are stubborn things. Theoretically, the Pharmacy Act, in its essentials, was to provide a body of public servants capable of compounding doctors' prescriptions. Practically, the men who have qualified themselves for the office, according to the Act, are frequently superseded by the errand boy, cook, or groom of the doctor himself. *Vide the Nottingham Evening Post*: "Errand boy wanted by doctor. A suitable one would be taught to dispense and found regular work." Theoretically, the Poisons Act was to protect the public by providing that poisons could only be obtained from those who by their knowledge and experience would be in a position to reduce the possibility of accidents to a minimum. Practically, if you feel tired of life, and want to end it, as the majority

do, go to your oil and colourman, or your grocer, and get a penny-worth of carbolic acid in a tea-cup.

This brings me to the point raised by Mr. Frank R. Dudderidge in the last issue of the Journal. Like him, I have often been amazed by the absurdities perpetrated in the name of the Poisons Schedule; but, unlike him, I have come to the conclusion that to try to explain them is useless, as I am persuaded that they have their rise, not from the plain and straightforward wording of the Schedule, but from the frantic but mistaken efforts of the Pharmaceutical Society to enlarge the scope of the Bill by stretching the list to its utmost limit. I would respectfully suggest that it is undignified for the Society to attempt to get recognised as included in the Schedule articles which, if plain English means anything, should be left out; rather, would it not be better for them to concentrate their efforts on drawing up an amendment of the Bill which would satisfy modern requirements, and then, like the importunate widow, weary the powers that be till they gain their ends? The stereotyped answer to this is, of course, that it is useless to attempt to create a monopoly. Why? The lawyer qualifies in law and enjoys a monopoly, and so does a doctor in medicine with an equally delightful result. Why should not a pharmacist who qualifies in pharmacy enjoy a monopoly, too?

Bridgnorth, May 13, 1900.

WILLIAM J. BROWN.

Glaucium Luteum.

I quite agree with Mr. Druce that ordinary floras and text-books are very deficient in information concerning the soil in which plants grow in a state of nature. A few words, stating whether the soil is calcareous, silicious, peaty or clayey, or volcanic, would be of great benefit to those interested in horticulture. But the conditions as regards soil under which plants can be made to grow are by no means always the same as those under which the plants occur in nature. The degree of moisture normally present in the atmosphere and the retentiveness or porosity of the soil as regards the amount of water it contains, as well as the soluble constituents of the soil itself, have a great deal to do with the conditions under which a plant grows.

I have in my garden three healthy plants of *Glaucium luteum*, which I brought from Devonshire last year. They were growing on the beach at Torcross in shingle, mixed with much finer shingle, almost like sand, and were growing in the blazing sun. Their roots found ample drainage, but sufficient moisture. In my garden they are growing in a mixture of sandy loam, peat, and a little clay, and in the full sun, and have never been given any salt. But plants which prefer the slightly saline soil of the seaside will often occur in the wild state hundreds of miles distant from the sea where the soil is saline, as in the deserts of Turkestan, where varieties of *Artemisia maritima* grow, and in Persia and the N.W. Himalaya, where *Tamarix gallica* flourishes. Doubtless a little salt in the soil is an advantage to seaside plants under cultivation, such as asparagus and seakale. *Cochlearia officinalis* is also growing luxuriantly in my garden without any salt.

Sevenoaks, May 12, 1900.

E. M. HOLMES.

Standardisation of Tincture and Liquid Extract of Cinchona.

In the Journal of April 7 Mr. Dewhirst states in his "Notes on the B.P. Standardisations" that the ether-chloroform solvent recommended by me for the extraction of alkaloid from tincture and liquid extract of cinchona "gives a low result." It is difficult to understand how he arrives at this conclusion. Preliminary treatment with ether in acid solution and then with ether-chloroform and ammonia, as recommended by him, I had formerly discarded, as giving rise to a more unmanageable emulsion than that obtained by the B.P. method of assay, and further attempts to get the process to work satisfactorily have resulted in failure. As regards the tincture, the removal of the alcohol by the ether in the initial step

of the process is anything but advantageous, as it is found that the addition of alcohol to the intractable emulsion causes an immediate separation of the solvent. If the tincture be simply treated with ammonia and ether-chloroform, the solvent separates without difficulty. This would seem to indicate that the removal of the alcohol—the result of the treatment with ether in acid solution—is objectionable. I see no reason for departing from the method of assay which I proposed in my note to the Journal of January last. Ether-chloroform (1 : 9) amply ensures the removal of the alkaloid, and there is rarely any trouble with emulsification, any occasional tendency in this direction is readily overcome by the addition of a few drops of alcohol to the contents of the separator after standing for a few minutes. 5 C.c. of a weak liquid extract of cinchona, which I had in my possession, gave, on assay of the above method, 0.2095 Gm. of alkaloid. Further extraction of the alkaline liquid with ether-chloroform gave a minute residue, which was found unweighable. A third extraction with benzolated amylic alcohol gave a residue weighing 0.0001 Gm. Tincture of cinchona, assayed by the same process, using 3×20 C.c. of the solvent, gave for 10 C.c., 0.1032 Gm. of alkaloid. A second agitation of the alkaline liquid with the same amounts of ether-chloroform gave on reweighing 0.1036 Gm. of alkaloid, an increase of 0.0004 Gm. Ten C.c. of the same tincture, assayed as per B.P., the benzolated amylic alcohol being separated from the alkaline liquid with much difficulty and loss of time, gave 0.0915 Gm. of alkaloid. Additional extraction with ether-chloroform gave an increase of 0.0006 Gm. of alkaloid. These fractions of a milligramme of residue—presumably alkaloid—obtained on additional extraction can scarcely, however, represent the loss of alkaloid that Mr. Dewhurst refers to, and I am still unable to understand how the use of ether-chloroform (1 : 9) “gives a low result.”

Edinburgh, May 15, 1900.

J. STENHOUSE.

Pharmacognosy, Pharmacography, Etc.

I had, up to the present, been under the impression that pharmacognosy was what it meant—viz., the knowledge of drugs, but this, according to “a well-known lecturer on pharmacology,” and also according to Mr. W. A. Knight, is quite wrong. This much, however, is certain, that the *pharmacologist*, or talker about drugs, is not limited to any one class.

In view of the difficulties which encompass those who are anxious to use the right word in the right place, I have attempted the subjoined classification, arranged in a tabular form for the convenience of examination candidates. This I humbly submit to Mr. Knight's consideration:—

Materia Medica or Pharmacognosy (in the broad sense).	Pharmacognosy (in the correct sense)	{	Zoopharmacognosy	{ Megazoopharmacoscropy
			Phytopharmacognosy	{ Microzoopharmacoscropy
			Heteropharmacognosy	{ Megaphytopharmacoscropy
				{ Microphytopharmacoscropy
Pharmacography	{	Pharmacoeology	{ Zoopharmacoeology	
		Pharmacogeography	{ Phytopharmacoeology	
			{ Zoopharmacogeography	
		Pharmacoeconomics	{ Phytopharmacogeography	
{ Heteropharmacogeography				
Pharmacology and Therapeutics	{	Pharmacoeconomics	{ Megapharmacoeconomics	
		Pharmacoeconomics	{ Micropharmacoeconomics	
			Pharmacochemistry (To be carefully distinguished from Pharmaceutical chemistry)	
Pharmacoadulteries	{	Pharmacoadulteries	{ Megapharmacoadulteries	
			{ Micropharmacoadulteries	
With these the pharmacist should have nothing to do. Suffice it to know that Pharmacology consists mainly of animalochemicals, whereas therapeutics is a subject of great complexity, subdivided into a great many branches which are quite beyond the reach of the pharmacist's ken.				

In conclusion, it is to be noted that in most of the above words the letter “k” may be advantageously substituted for the letter “c,” inasmuch as it will show outsiders that we, as pharmacists, are an educated body, well conversant with the Greek language, and worthy of protection at the hands of the British Government.

London, N., May 15, 1900.

P. E. F. PERRÉDÈS.

The Dewsbury Ballot.

“Xrayser” in the *Chemist and Druggist* describes our ballot at Dewsbury as a solemn farce. As the voters were all members of the Pharmaceutical Society, what sort of a farce does he consider a ballot which included non-franchised outsiders and all their progeny? Surely it is time that sensible chemists and druggists had their eyes opened to the ridiculous transparency of such inflated misrepresentations. Whatever our business capacity may be, this constant underrating of our mental calibre is somewhat nauseating.

Batley, May 15, 1900.

R. BROADHEAD.

ANSWERS TO QUERIES.

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

MARKING INK (S. E. D.—42/6).—You will find a formula for such a preparation in the *P. J.* for September 23 last, page 314.

COD LIVER OIL WINE (S. W.—42/5).—It is probably cod liver oil with iron wine, a combination which is frequently supplied for children.

SHAMPOO POWDER (E. J. L.—42/7).—You would doubtless be liable if you used the name without permission, especially as you say he makes a similar preparation.

NAME OF PLANT (J. A.—42/9).—It is a foreign species of *Epimedium*, probably *E. macranthum* (N. O. Berberidaceæ). Can you procure and send on a root of the plant?

PINOLINE (R. D.—40/16).—Mr. S. Stephenson, pharmaceutical chemist, 98, Kensington, Liverpool, informs us that he is the manufacturer of a preparation named “pinoline.”

TRADE PRICES OF IVORY (M. T. F.—42/2).—The following are the prices:—Elephant tusks, weighing from 50 lbs. and upwards, £50 to £67 per cwt.; 30 lbs. to 50 lbs., £42 to £59; 20 lbs. to 30 lbs., £30 to £50; small stuff, £27 to £36; river horse teeth fetch from 8½d. to 1s. 9d. per lb. The variation in price is due to quality and shape of tusks and the use to which the ivory may be put.

Information Wanted.

*** The Editor will be obliged to any readers who can supply the information asked for by correspondents.

ACME BRAND CAMPHOR OIL.—Address of proprietors?—(A. B.—41/6.)

SULPHOCALCINE.—Particulars regarding liquid named “sulphocalcine,” said to be used as a vaginal injection?—(F. W. H.—40/8.)

Notices to Correspondents.

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

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

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

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LONDON: SATURDAY, MAY 19, 1900.

THE SOCIETY'S ANNIVERSARY.

PERHAPS the most remarkable feature of the annual meeting last Wednesday was the very slight reference made to the matter which has lately received so much attention from chemists and druggists throughout the kingdom. That circumstance is remarkable because of the wide difference of the opinions held by chemists and druggists as to the mode in which the proposed legislation affecting companies should be dealt with on their behalf, some insisting that on no consideration should departure from the principle of the Pharmacy Act be conceded, while others are in favour of some sort of compromise, although compromise to any extent involves sacrifice of the principle involved in qualification. The VICE-PRESIDENT, in his opening address, spoke of the position taken by the Council as being clearly defined in the report, but Mr. CAMPKIN, who chiefly spoke on that subject—while expressing himself in favour of decided opposition to Clause 2 of the Companies Bill or to any temporising with those who would attempt to legalise companies trading as chemists and druggists and, as might therefore be inferred, approving of the decision of the Council to oppose that clause—appeared, from what he said, to complain of being unable to ascertain what the Council has done, or what is likely to be the position it would take up when the clause came up for discussion in Parliament.

It is difficult to understand what reason there could be for uncertainty on that point, although the Council's decision has been the work of a majority, unless it were that Mr. CAMPKIN anticipated that the result of the election would alter the preponderance of opinion in the Council, and have the effect of placing the opponents of Clause 2 in a minority. Moreover, Mr. CAMPKIN appeared to be under the impression that enough had not been done towards giving greater effect to the original intention of the Pharmacy Act of 1868, and that something was wanting in that respect to enable the Council to command the confidence of members of the Society. He

appeared to forget, or to ignore, the repeated attempts that have been made by the Council in that direction during the last nineteen years, and to overlook the fact that those attempts have been defeated by the unwillingness on the part of chemists and druggists to give up or curtail the "Widow's Clause"—which is the foundation of the House of Lords decision, and of Clause 2 of the Companies Bill. The want of unity prevailing in connection with organisation, opinion, and action has had the effect of making the body which the Pharmaceutical Society represents of less account in public opinion than it might have been. In spite of the astonishment felt by Mr. MACKENZIE at the recognition of physicians, surgeons, dentists, and even midwives in the Companies Bill, while a Society with a Royal Charter and Acts of Parliament is absolutely ignored, that position is a perfectly natural one, for highly as the Pharmaceutical Society is esteemed in some quarters, it is still open to the countervailing reproach that the rank and file of chemists and druggists are not of it, that it does not represent the interests which they hold to be of the greatest importance. Hence it is that by the suicidal negligence of those the Society was established to benefit, opportunity has been provided for their enemies to counteract the Society's influence, and to give a false direction to public opinion.

The result of the Council Election—a report of which will be found at page 562—is to give emphatic expression to the divided opinion which Mr. HILLS spoke of some months ago as being a hopeless condition. Two out of the three late members of Council who are not re-elected formed part of the majority which decided to oppose Clause 2 of the Companies Bill, the other one was to some extent in favour of a compromise. Of the newly-elected members who take their places, one is in favour of opposing altogether Clause 2, but the other two, judging from their previous expressions of opinion, may be expected to take an opposite position. The result of the Election, therefore, does not very materially affect the position of the Council in regard to the Companies Bill, as there will still be a considerable majority of the members who support the policy of decided opposition to the provisions of Clause 2 of that Bill. The lamentable indication of incoherence even among members of the Pharmaceutical Society in regard to such an important matter is, however, a most disquieting fact, especially if it may be assumed to represent the existence of a similar condition of the two or three thousand who have not voted. As to what may be the state of mind of the much larger number of registered chemists and druggists who are not members of the Society it would be rash to offer an opinion, though it does point to a general inheritance of chaos such as Mr. LAING lately referred to. The reference made by Mr. R. A. ROBINSON to the recent change in the constitution of the Society, by which every registered chemist has now the opportunity of sharing the privileges of membership and representation, should meet with consideration in that quarter, for if, as Mr. ROBINSON said, the body were so consolidated that in going to Parliament its full influence could be brought to bear, through the Pharmaceutical Society, he fully anticipated that happier results might certainly be looked for when the necessary amendment of the Pharmacy Acts is taken in hand, as it evidently must be before long.

ANNOTATIONS.

THE ANNUAL DINNER of the Pharmaceutical Society, held at the Whitehall Rooms on Tuesday last, must take its place as one of the most successful affairs of the kind on record. It is true the head of the Society was unfortunately absent, but the position of chairman was admirably filled by the Vice-President, Mr. G. T. W. Newsholme. A somewhat novel feature of the evening's entertainment was that the Chairman wisely placed some of the more important toasts in the hands of other members of the Society. Thus, Mr. Walter Hills proposed the toast of "The Imperial Forces," Mr. R. A. Robinson proposed that of "The Houses of Parliament," Mr. S. R. Atkins was in his best form when eulogising "The Medical Profession," and Mr. Michael Carteighe was quite at home when he discoursed upon "Science." The responses to all the toasts were in equally able hands, and the general interest attaching to the utterances of the visitors is clearly shown by the unusual space devoted to the reports of the proceedings in the daily Press. A word of praise must be spared for the excellent dinner arrangements. Everything went as smoothly as possible, and the Dinner Committee, together with the capable Hon. Secretary and his staff, are to be cordially congratulated upon the great success which has attended their joint efforts.

THE ANNUAL MEETING was likewise presided over by the Vice-President, who showed marked ability in dealing with the numerous and varied items in the annual report and statement of accounts. He began with a well-deserved compliment to the gentlemen who have presided over the destinies of the Society for so many years past, and then plunged straightway into one of the most lucid expositions of the Society's financial position that the members have ever been favoured with. It is peculiarly gratifying to note Mr. Newsholme's appreciative reference to the affairs of the *Pharmaceutical Journal*, and his expression of opinion that the considerable saving on the past year's working has been effected without any alteration in the official organ "except in the way of improvement." The examinations, the School of Pharmacy, the Benevolent and Orphan Funds, and the various directions in which the Council has manifested activity during the past year, were all touched upon by the Vice-President—briefly, but yet satisfactorily—and at the conclusion of his long speech Mr. Newsholme was rewarded with earnest and hearty applause. The Society's Treasurer seconded the adoption of the report in his usual eloquent manner, "apologising" for the Society in a most graceful style. The dislike frequently expressed for the Society and its Council, as Mr. Atkins pointed out, is largely explained by the fact that a body which is empowered by Statute to conduct examinations and prosecutions must necessarily be unpopular with a very large number of people affected.

THE COUNCIL WAS CRITICISED upon this occasion, as usual, but the business of the meeting generally was conducted in a spirit of marked good humour. Mr. Mackenzie asked for information which it is not considered necessary or desirable to publish, and Mr. Wells expressed regret that more detailed accounts are not supplied to the members. The Vice-President, however, made it clear why the prevailing conditions are, on the whole, those best adapted to the Society's needs, and the opinion of the meeting evidently was that the Council ought to be trusted fully in such matters. Mr. Umney clearly explained the position of himself and his fellow-auditors, and congratulated the Society upon the excellence of the accounts presented to the members. Mr. Robinson, again, congratulated the Society upon the improved position of its affairs, whilst Mr. Gaubert proved a great success as a humourist, enlivening the tedium of the proceedings, which is almost inseparable on such occasions. Finally, the Vice-President smartly summed up the discussion, replied briefly to such criticisms as had been offered, and put the motion for the adoption of the annual report. That the motion was carried unanimously, it is almost needless to say, for the

critics were all friendly ones, more desirous apparently of gleaning information and testing the capacity of the Executive than of obstructing business for the mere pleasure of the thing.

MR. PERCY WELLS' ABORTIVE MOTION came on for consideration in due course, and it was satisfactory to learn that Mr. Wells does not wish to exclude from the *Pharmaceutical Journal* anything that may interest others. His point is that reports of local meetings and many other matters are of too ephemeral a nature to be made an integral part of the Journal and bound up with it. He would like the official organ to be as it was originally intended by Jacob Bell—a record of pharmacy. But that is just what the Journal now is, and it would be difficult for Mr. Wells to point to anything in, say, the current number of the paper which would have been omitted by Jacob Bell. Mr. Wells, however, would like to see the bulk of the matter now appearing in the Journal published in a separate supplement which could be thrown away after perusal. But his seconder, Mr. Naylor, took an opposite view; he would prefer that the scientific matter should take the form of a supplement. Apparently, then, two distinct journals and supplements will be required to meet the wishes of Messrs. Wells and Naylor. Both cannot be satisfied, and it is perhaps doubtful if either can be. It may be noted, however, that the question of a trade supplement—the Journal's chief need at present—is, as the Vice-President stated, now under consideration. It might be well, therefore, if members of the Society who have views on the subject would communicate with the Editor, explaining clearly to him what they need in the Journal and how they think their needs can best be met.

THE SPECIAL GENERAL MEETING was called to deal with a delicate subject, and the manner in which that was dealt with is worthy of all admiration. Mr. Butt explained his position in a well-considered and judicious speech. Mr. Carteighe, to whom everyone naturally looked for the reply, was equally happy in his explanation of the existing state of affairs, and that, as it happened, sufficed for Mr. Butt's purpose, so that he finally consented to withdraw his motion. As bearing upon his subject, Mr. Carteighe referred to the recognition of the Society's School and professors by the new University of London. He also stated that the General Medical Council has requested the assistance of the Pharmaceutical Society in the attempt to ascertain to what extent the standardising of potent drugs can be carried on with accuracy and success. Moreover, work having that object in view is now being done in the Society's laboratories. There is at present no research laboratory distinct from any other laboratory in the Society's house, but research work is being carried on under the direction of Professors Collie and Greenish in part of the School laboratories. The premises originally used for research work only are now partly employed for teaching purposes and partly for pharmaceutical research under the supervision of Professor Greenish. In fact, the matter may fitly be summed up in Mr. Carteighe's statement that the Society's research work is now merged in that of the School of Pharmacy.

THE RESULT OF THE COUNCIL ELECTION (see p. 562) is that Messrs. Cooper, Cross, Hills, Storrar, Symes, Taylor, and Wootton are returned to represent the interests of the members of the Society for the next three years. The retiring members were Messrs. Bateson, Cross, Grose, Hills, Storrar, Symes, and Warren, so that Messrs. Cooper, Taylor, and Wootton take the place of Messrs. Bateson, Grose, and Warren. The number of voting papers issued was 5,541, or 73 more than last year; the number returned was 3,707, or 26 less than last year, a curious commentary on the apparently increased interest taken in the election by the members on this occasion. The obvious inference is that 1,834 members are so little troubled by the company pharmacy problem, or any other of the questions which concern them so closely, that it is immaterial to them whether

vacancies on the Council are filled or not. Presumably they are content to let things drift; anyhow, they have shown no anxiety to help to shape the course of events, and, if that course should not prove to be altogether what they could have wished, they must be prepared to bear the responsibility and the blame of inaction. Assuming that the company pharmacy problem has been an important factor in determining the issue of the electoral struggle, the result proves nothing so far as that problem is concerned, except that the members of the Society who have taken the trouble to vote are as divided on the subject as they have been for some time past, and that the prospect of unanimity on that subject is still remote.

MR. PERCY BEAN, of Blackburn, has explained his position, in connection with Mr. Gifford's election committee, in a very satisfactory manner, so far as he personally is concerned, but we are unable to agree with his suggestion that the blame in the matter is entirely his. In his letter published at page 540, he very handsomely expresses his willingness to take the responsibility on his own shoulders, but it would not be just to allow him to do so, in view of the fact that he had no hand in drawing up the letter published last week, and, according to his own statement he did not sign that communication, though his name was attached thereto. The blame and the responsibility alike rest with the other members of the committee and with Mr. Gifford. So far as Mr. Bean is concerned, his explanation puts the affair in a proper light, and it may be stated that he has made such further amends as lie in his power by sending up the amount of a year's subscription and asking that his name may be submitted to the Council for election as a member of the Society.

IN REPLY TO MR. WADDINGTON, the President of the Proprietary Articles Trade Association writes to explain Mr. Glyn-Jones's position in connection with that body, more especially as proprietor of the *Anti-Cutting Record* (see p. 540). With all that Mr. Tebbutt says concerning Mr. Glyn-Jones we are most heartily in accord, but it is difficult to agree with the implied suggestion that Mr. Waddington was not within his rights in sending his letter for publication last week. As a member of the P. A. T. A. Mr. Waddington is perfectly justified in criticising the action of that body and its officials; as a member of the Pharmaceutical Society, he is equally justified in making use of the official organ to express his opinion on what he thinks is an unjustifiable method of influencing the election of the Society's Council. Objection might reasonably have been taken to the publication of such statements as those of Mr. Waddington in an anonymous communication, but the latter was properly signed and otherwise quite in order. Moreover, it is always quite open to Mr. Glyn-Jones to reply to any criticism on his conduct which may appear in this Journal, as in fact he has done in this week's issue (see p. 540). But we regret that he should have taken offence at what, after all, should seem very mild criticism to a person of his experience and resourcefulness.

THE DEATH OF M. GRIMAUX last week (see p. 564) removes one who was known to his French *c nfrères* as the politician chemist. As pointed out by the *Lancet*, his studies related chiefly to the constitution of matter, to the position of atoms and molecules and to their relative weights. M. Grimaux will also be remembered for his very interesting literary contributions, amongst which was an important document relating to the death of Lavoisier, who, as is well known, was impeached under the Reign of Terror and condemned to death and executed in the spring of 1794. The nature of the real charge against him was not clear until M. Grimaux published his work, in which it was shown that Lavoisier was condemned to death for originating or participating in an alleged plot against the French nation, the aim of which was to aid the enemies of France. He was alleged to have practised every kind of extortion

upon the people, and to have caused tobacco to be admixed with water and pernicious substances to the detriment of the health of the citizens who used it. In spite of this warning in front of him, as the *Lancet* remarks, M. Grimaux associated himself very keenly with political affairs, and was a conspicuous believer in the innocence of Captain Dreyfus and a vigorous supporter of M. Zola's contentions.

AN INTERESTING DISCOVERY, announced by Sir W. Roberts-Austen, at a meeting of the Royal Society, held on May 10, and reported in the *Standard*, indicates a remarkable advance on former knowledge. Some four years ago, in his Bakerian Lecture, he stated that if gold be placed underneath a column of lead, and the two metals be kept hot, though at a temperature well below that at which the lead melts, the gold will diffuse itself in the lead, so that even in twenty-four hours an appreciable quantity of the gold can be detected in the lower portion of the lead. At that time Sir W. Roberts-Austen put aside similar cylinders of the two metals, keeping them for four years at a temperature of about 65° F. At the end of that period the gold was found to have made its way into the lead; the quantity, as might be expected, diminishing with the distance from the precious metal. Apparently the gold practically evaporates when brought into contact with solid lead, passing into the latter metal as steam might pass into wood. The action, of course, is slow, but it is sure, metal mixing with metal without melting—without any notable elevation of temperature.

THE HUNT AFTER AN ELEMENT, described by Sir William Crookes at the same meeting of the Royal Society, also possesses considerable interest. The compounds of uranium have been shown by M. Henri Becquerel to emit rays capable of affecting a sensitive photographic plate through a material which is opaque to ordinary light. Two other substances, much more rare, called polonium and radium, possess this property in a still greater degree, and it had been suggested that the apparent activity of the uranium compounds might really be caused by small quantities of those metals. But M. and Madame Curie, their discoverers, deemed that to be impossible, and affirmed that the property of emitting rays which can act in the dark on photographic plates belongs to uranium and to thorium. A series of preliminary experiments showed Sir W. Crookes that pitchblende, an oxide of uranium, from which the metal is chiefly obtained for commercial purposes, possesses the property more than any other substance. So active is the compound that a slab in which it occurs in streaks among more ordinary minerals, after being laid in darkness upon a sensitive photographic plate for twenty-four hours, so much affected it that when a print was taken most of the minerals were invisible while the streaks of pitchblende were quite white, and even their edges seemed to emit a faintly luminous haze. It has been found that this singular action does not in any way depend on the particular salt of uranium, and that the effect diminished as the purity of the salt increased. Clearly, then, it could not be due to the uranium, but to some substance present in the compound as an impurity. That substance is, apparently, neither polonium nor radium, both of which occur in pitchblende, but a substance, probably hitherto unrecognised; which possesses the property of affecting a sensitised plate to such an extent that quite small quantities produce these striking effects.

SIR THOMAS LAUDER BRUNTON has informed the Food Preservatives Committee that he has come to the general conclusion that it is almost impossible to prevent the use of preservatives in food, but he thinks that their use should be strictly regulated. If preservatives are not used, he stated, there is a risk of injury from eating food which is decomposing, but, on the other hand, if the preservatives are used in too large a quantity, harm may be done through the preservatives themselves. By the unregulated

use of preservatives there may be a double danger—namely, that from the drug itself which is used as a preservative, and also that from the decomposing food, which may, in spite of the addition of a certain quantity of preservative, still undergo change and become dangerous to health. He is of opinion that it is possible to conduct the milk supply of a large town without the use of preservatives, by cooling and by sterilisation, and that it is desirable to do so. But the data relating to the effect of different chemical preservatives are very imperfect, and, though we are able to form opinions regarding the action of certain drugs, from their administration either to animals or men, the length of time over which such experiments extend is too short to allow a complete opinion being formed with regard to their action. He suggested, therefore, that an authority should be constituted as recommended by the Select Committee on Food Products Adulteration, to act as a Court of Reference upon scientific and other questions arising under the Acts, and empowered to prescribe standards and limits of the quality and purity of food. In order to procure the necessary data, it will be necessary to insist upon the presence, nature, and proportion of the preservative in each article of food being notified by label or otherwise. As an objection to such a declaration, it has been said that it would interfere with trade, but it seems to Sir Thomas that it would not do so. All that would be necessary would be that each article should bear a label stating that it contained such and such a preservative in the proportion licensed or approved of by the authority which it is proposed to constitute. People would then take the article readily enough, and there would be no interference with trade, but, on the other hand, there would be a great security for the consumer.

A CO-OPERATIVE DRUG STORE has been an unknown institution in Edinburgh up to the present, but one has now been started by the St. Cuthbert's Co-operative Association, Limited, a large and wealthy corporation which has a large number of branches in all parts of Edinburgh. Hitherto the Association has let drugs and dispensing severally alone, but it is now to have a fully equipped drug department at its central establishment in Bread Street, and possibly others elsewhere. As the Association numbers many thousands of members who are customers of individual pharmacists the movement is one of serious significance. The initiation of the new department adds immensely to the vested interest on the side of co-operative trading, and will, if it succeeds, prejudicially affect many ordinary retail pharmacies.

THE CULTIVATION OF TONKA BEANS at Borbiviato, in Venezuela, is described by Preuss in his work 'Le Planteur des Tropiques,' from which the *Journal de Pharmacie* quotes the following description:—"The trees, which are of considerable size, have a handsome dark green foliage. The oblong fruits, resembling medium-sized mangos in form, are the product of violet papilionaceous flowers. The flesh of the fruit is yellow and has an unpleasant odour; it covers a hard, very fibrous endocarp, which surrounds the brownish, violet, long, flattened seed. An adult tree will yield 100 lb. of these seeds. The dipterix requires the same conditions of soil and position as cacao trees, which were cultivated in the same plantation under their shade. Ripening of the fruit takes place in August, but the harvest is prolonged for a considerable period, since both flowers and fruit occur on the same tree. Dipterix wood is also much prized." Seeing the facility with which these trees may be grown beside cacao trees, and the ready demand for the "beans" which exists, it is probable that their more extended cultivation would be remunerative.

THE FORMOSA CAMPHOR MONOPOLY has, according to *Commercial Intelligence*, been secured by Messrs. Samuel and Co., an English firm, who have outbid American and other foreign firms and secured it for ten years. The Formosa Government buys crude camphor at

35 yen per picul, and will receive from Samuel and Co. 95 yen per picul for first-class and 85 yen for second-class camphor. The contract provides that the company must place it upon the Hong Kong and London markets at certain prices, and must furnish the Formosan Government with securities to the amount of nearly 2,000,000 yen. The firm is required to keep 3,500,000 yen invested in the business for at least eight years. Formosa will furnish the world's chief camphor supply.

A NUMBER OF WELSH MEMBERS, headed by Mr. Brynmor Jones (Swansea), have introduced a little Bill to place the graduates of the University of Wales on the same footing, as regards privileges and exemptions, as the graduates of the more ancient seats of learning in England. The measure prescribes that whatever office is open to the graduates of the English Universities shall be open to those of the University of Wales, and that the privileges created, or to be created, by Statute or Regulation in favour of persons rejoicing in an English degree, shall be deemed to apply equally to the Principality—a reciprocity project of an extremely satisfactory kind, from the Welsh point of view, at any rate. The weak point about the proposal from a parliamentary standpoint is that one does not know, and cannot readily ascertain, what its effect might be; in fact, it is one of those attempts at *multum-in-parvo* legislation against which many members of the House resolutely set their faces. Next Wednesday is the date assigned for the second stage of Mr. Brynmor Jones's Bill, but it is understood that progress with it then would occasion some surprise, even among its promoters.

ARCHITECTS AND PLUMBERS occupied the attention of the House of Commons on Tuesday, when Mr. Atherley-Jones brought in his Bill for the incorporation of the former, and Mr. Lees Knowles made his annual attempt to persuade his colleagues to acquiesce in the registration of the latter. Though neither of these callings bear directly upon pharmacy, yet the remarks made by Mr. Knowles and his critics are of some interest as indicating the attitude the House of Commons take up in regard to registration and registered—or, as it is viewed in some quarters, privileged—persons. The member for Salford, W., after referring to the sixteen-year-old agitation for national registration of plumbers, had to confess that practically the only argument against the proposals embodied in the Bill of 1892 was the cry of "monopoly," and that cry had been sufficient to stop any advance being made. He disclaimed any idea of monopoly, and pointed out that it was not suggested that the practice of sanitary plumbing (if one may use the phrase) should be restricted to registered persons, but he failed to convince his hearers. Subsequent speakers, even when sympathetic, threw out broad hints of monopolies, aggrandisement of city companies, and so forth, for all the world as though the subject under discussion were pharmacy and the greedy corporate body were the Pharmaceutical Society. Mr. T. W. Russell, on behalf of the Government, expressed sympathy with the principles for which Mr. Knowles was striving, but said that as that gentleman had not succeeded in reconciling the various interests concerned, the Government could not be expected to take up the tangled skein and attempt to harmonise the opinions of those who were not agreed as to what they wanted. There is a moral in those words that merits the consideration of pharmaceutical politicians. A Government, said Mr. Russell, might well be called upon to submit legislative proposals relating to the public health, if there were general agreement on the subject, but could not take the responsibility of forcing upon the nation the particular panacea of any special group of reformers. Is it not possible that an appeal to the Government to undertake or promote the amendment of the Pharmacy Act might meet a similar response?

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, MAY 16, 1900.

Present:—

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

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

Several members and student-associates who had paid their subscriptions since April 30 were restored to their respective positions. The Council having arranged the order of business at the annual meeting, adjourned.

THE ANNUAL MEETING.

The fifty-ninth annual general meeting of the Pharmaceutical Society of Great Britain was held on Wednesday, May 16, in the Lecture Hall of the Society at twelve o'clock, Mr. G. T. W. NEWSHOLME, Vice-President, in the chair.

The SECRETARY read the notice convening the meeting. The report and accounts were taken as read.

The Annual Report.

The VICE-PRESIDENT, in rising to move that the report be received, adopted, and entered on the transactions, said:—I should like first to apologise for my position in the chair to-day. You know, most of you at any rate, that I am here because our President (Mr. Martindale) is unfortunately not in good health, and on the advice of his physician has had to take a lengthened holiday. He will be away, I believe, for some weeks, and I am quite certain that I am only expressing your wishes in saying that we all hope he may come back to this country fully restored to health. For a great many years past, certainly, the Vice-President has not been called upon to occupy the chair at an annual meeting—certainly not within my recollection, and I thought it never had happened, but I have been informed on good authority that on one or two previous occasions the Vice-President has had to take the place of his chief. This shows one that our past Presidents for a great number of years have always been willing and ready to do their duty, and I do not remember since I have been a member of the Council, until the last month, that the President on any occasion has been absent from any of the ordinary meetings of the Society. We know that if a gentleman takes up that duty it is a very onerous one, and demands strict attendance to duty, and none of our Presidents have neglected it in the least.

THE SOCIETY'S REVENUE.

Twelve months ago my friend, Mr. Walter Hills, the past-President, in referring to the annual report, prophesied that probably during the coming year the financial affairs of the Society would be in a much better position, and I am here now to say, in the name of the Council, that the prophesy has been in a large measure fulfilled. It has been fulfilled in many ways, as to which I will not occupy your time this morning. You have placed before you the financial statement and the report for the year, which in themselves are explanatory. To deal first with the revenue account, you have placed before you figures which I think will be clear to every member. I know you have looked through and read the report, and therefore it will be unnecessary to refer in detail to many of the items; but I will shortly call attention to some of the more prominent ones, and, first of all, I will take the revenue account. On the income side, we have in connection with the first examinations received £279 more than last year, but perhaps this is rather an exceptional year, because in July next there will be no longer a preliminary examination conducted by the Society.

Whether it is that our young men feel that there will be greater difficulty in getting through the examination in the future or not I do not know, but the fact remains that they seem to prefer to go in for the ills they know than to encounter those they know not of. At any rate, before any change is made they seem very anxious to get through the preliminary in greater numbers this year. The income account is therefore increased by £279, which means that 1,711 entered for that examination, instead of 1,512 last year. With reference to that examination, there will be a little difference in the accounts next year, because we shall have a fixed sum of two guineas, which will appear on the income side of this statement. There will be no expenses incurred in carrying on an examination, because the Society will accept certain certificates which are well known to most of you. Then, to deal with the Minor Examination, we have had an increase over last year in revenue of £648, which means that those who have entered for the Minor this year were 1,830, instead of 1,708 in the previous year. With reference to the Major examination there is, unfortunately, a smaller amount credited. This year the number is 106 as against 111 last year, and if my memory serves me, I think last year was slightly smaller than the year before. It is a little unfortunate that men do not go in for the Major Examination more than they do, because many of us think it is at any rate well worth while to go in for that higher examination. With reference to the School, it will be gratifying to you all to see that it is now in a very flourishing condition, and that we have an increase in fees of about £80 over last year. The most gratifying feature of all to the Council and to the Society is that the membership has increased very largely, the subscriptions being £6,871, as against £4,802, an increase of £2,000 a year. I was sanguine that on the passing of the 1898 Pharmacy Act the increase of membership would be considerable, but I am rather inclined to say that it ought to have been still greater than it is. One thing, I think, shows the satisfactory position of the members of the craft at the present time, that under the heading of subscriptions you will see, Life Subscriptions, £672. That is a very large item, and to my mind it shows that amongst our people money is fairly plentiful, and that rather than pay one guinea per annum, they prefer to pay down a lump sum of £10 for life membership.

THE SOCIETY'S EXPENDITURE.

Taking the other side of the revenue account, the expenditure, I will refer first to a very small item—the carriage of books, which this year is £13 odd, as against £16 last year. Being a provincial man, I am naturally very much interested in provincial pharmacists, and I do think our Library and Museum, particularly the Library, might be made a great deal more use of than it is; and considering the small amount of money it takes to get books down to the country, I am surprised that a great deal more use is not made of the Library. However, it rests with the members themselves. Whether it is too much trouble, or that they can get books in provincial towns easier than they used to do, I do not know; but I think, with such a magnificent Library as we have, greater use should be made of it in the provinces. With reference to the First examination fees, which you will see amounted to £526 for superintendence, hire of rooms, and other charges, and to the College of Preceptors for conducting that examination, these after July next will practically disappear, so that in the next statement of accounts a much smaller sum will appear. There will be a clear two guineas accepted by the Society for each candidate without any expense attached to it for those who wish to be registered before they can pass the Minor Examination. The fixtures and fittings amounted to £180. This sum has been spent in improving the school accommodation and in adding to the shelf space in the Library.

THE SOCIETY'S JOURNAL.

Now I come to the Journal. I think the improved position of the Journal, as appears by its less cost this year, must be very gratify-

ing to the members, as it is to the Council. The balance against the Journal is £1,675 odd, as against £2,252 for the year 1898, which means a saving of £576 on the year's working. This result is the more satisfactory because the Journal has not been pinched in any way, but I venture to think it has been improved. But perhaps what is still more important is this—that whilst the cost has been very much less, there has been an increase of one thousand in the circulation, which is very gratifying. Mr. Hills ventured to prophesy last year with reference to the affairs of the Society, and more particularly to the Journal, that there would be a saving in that year, and I think I may safely make a similar prophecy, because, as far as we have gone, there is a tendency to more economy in that respect, and I venture to say that the President who occupies the chair next year will be able, at any rate, to come to the same conclusion—that he will have profitted by my prophesy, and be able to say, "The Chairman last year said there would be a saving, and there has been." As I have already said, this has been done without any alteration in the Journal except in the way of improvement. I will not say anything more on this now, as I have notice of a resolution dealing with that subject on which, no doubt, there will be some discussion.

OTHER EXPENSES.

With reference to the repairs, if you look you will see on the statement before you that repairs and alterations have amounted to £714 odd. That looks like a large sum, but it has been expended very largely in redecorating the interior of No. 16. You will remember that some money was spent on that in 1891, but practically it has not been touched until the present time, and you will admit that it was necessary after eight years that something should be done, and we do not think the amount is very large, considering the amount of work which had to be done. There is also this to be said: that, having larger premises and increased activity in various departments, there must necessarily be a growing necessity for repairs and alterations. This building is very much larger than it was when I first came on the Council. Therefore the expense of carrying on the work and providing for necessary things in connection with it must necessarily cost more every year. There is a new charge here respecting the electric service and fittings, £299. I do not think anybody will cavil at that, because it was felt by the Council that it was a necessity that the electric light should be put in. You know that our staff have to work on many occasions, particularly at the time of the annual meetings and so on, very late in the evenings. I have found it out more during the last week or two, when I have frequently found the staff working very late at night, and I am quite sure you will all be only too glad to think that they should work under the most comfortable circumstances. There is another item referred to there—expenses of the Pharmacy Act, 1898—which I need not say much about. This is the last occasion that will appear. We are all of opinion that it was money well spent, and, notwithstanding what was said with reference to it being a very small Act, I am inclined to think it was about one of the best things ever done for the Society, and I again venture to hope that it will be the means of increasing very largely the membership. The most gratifying thing of all, of course, is that the balance is on the right side, the balance transferred to the accumulated funds being £1,943 odd, whilst last year there was a balance on the other side of £840. I think, therefore, you will be perfectly satisfied now the balance on the right side is largely accounted for by the increased membership.

THE SOCIETY'S EXAMINATIONS.

Now I will go to the Annual Report, and I will take first of all the paragraph referring to the examinations. The statistics given in the report are self-explanatory. It is worthy of note, however, that the percentage of rejections in the qualifying test appears to have a tendency to still further increase. This may perhaps be due to the rather abnormal conditions brought about by the near approach of the ten guinea fee. At any rate, the experience of the Boards of Examiners during the past year has been that a

very large proportion of the candidates presenting themselves have had an inadequate training, or have been trained on wrong lines, which is worse than no training at all. The Government visitor, in his annual reports for some years past has persistently pointed out the necessity for a definite curriculum, and some of the more sanguine amongst us are not without hope that this much-needed step in the evolution of pharmacy may be taken in the course of the next few years. Certain it is that until an adequate compulsory curriculum has been established, such questions as the division of the qualifying examination must necessarily remain in abeyance. It is perhaps a very important thing, because we frequently see letters and hear from members complaining about the qualifying examination being taken at one sitting. We frequently have suggestions made that the examination should not only be taken in twice, but by subjects, which I think would be most unfortunate. I think there can be no division of the Minor until there is evidence of some good training by a curriculum. With reference to the first examination, as I have already said, it comes to an end in July, and I think it is desirable that local secretaries and members of the Society should take some little trouble to convey to the scholastic institutions in their neighbourhoods the fact that after July next there will be no preliminary examination conducted by the Society. If that is done, I think it should well save a great deal of trouble, because I know at the present time some schools are advertising that they coach students for the preliminary examination, and it would save a great deal of time on the part of schoolmasters and others if they were informed by someone that it no longer exists. There is no doubt that for some time to come there will be a considerable difficulty (those who take apprentices know the difficulty there is now) in getting suitable young men. For some time there will be some difficulty, but our friends must bear with that, because I am satisfied it is a step in the right direction. It may perhaps bring it down to rather a low level to make the suggestion, but it may be some advantage to the pharmacist of the future that there should be fewer men coming into the ranks.

EARLY CLOSING OF THE LIBRARY AND MUSEUM.

With reference to the Library and Museum, there has been a good deal of correspondence in the Journal lately on the question of the Library being kept open in the evening. The reason for the action of the Council in closing the Library and Museum at six o'clock is an extremely simple one—namely, that it is not required. It is evidently not required for use by members and student-associates of the Society. The Council has not acted hastily in the matter, and has not based its action on theoretical statements or expressions of opinion. It has simply consulted the records in the attendance books, and there can be no doubt that those records form a perfect justification for what has been done. If there were the slightest real need for an extension of the time during which the Library and Museum should be available for study, I have no doubt the Council would be prepared to meet that need.

THE SCHOOL OF PHARMACY.

With reference to the school, I need not refer to anything in particular, except perhaps to the last few items under that heading. One event, at least, in connection with the school during the past year appears to call for favourable comment, and that is the recognition of the School of Pharmacy as a part of the new Teaching University of London. Those who were at the dinner last night would have been very gratified to have heard the speech made by Mr. Bailey Saunders on this point, and it was a speech which would be extremely useful to those of our guests who were not intimately connected with us. In the new regulations for the University there is provision for including among the thirty-two Boards of Studies a Board of Pharmacy, and the Society's professorial staff has been added to the list of members of the Faculty of Science of the University. In connection with this, I may also point out that there has been a change in the designa-

tion of one of the branches of study in the Society's School, and I have to formally give notice now that henceforth Professor Greenish is to be known, not as Professor of *Materia Medica and Pharmacy*, but as Professor of *Pharmaceutics*. This title has been adopted by the University Commissioners as a convenient official designation of the scientific subjects hitherto included in our School under the heads of *Materia Medica and Pharmacy*. Such recognition of the School is not only gratifying, but it appears to me to be fraught with possibilities of considerable import, for no doubt some of our pharmacists who have been trained in the Society's School will proceed to utilise that training in obtaining a degree under the new regulations, and in that process I understand that a pass in pharmaceutics in the Science Faculty is likely to play a rather useful part.

THE CARBOLIC ACID QUESTION.

I need not say anything about British Pharmacopœia, or about the evening meetings, but I may be pardoned saying one word about the carbohc acid question, which is not new to us. With regard to the question of placing carbohc acid upon the schedule of poisons, I am glad to be able to tell the members of the Society that there is every reason to hope that this potent substance will shortly be placed under the restrictions imposed by the Pharmacy Act, 1868. When the history of the movement in favour of scheduling carbohc acid comes to be written, I do not think the Pharmaceutical Council need be afraid of criticism, for it has undoubtedly done its duty to the public by repeatedly directing the attention of the Privy Councils to the dangers arising from an indiscriminate distribution of the acid; nor perhaps is the Privy Council so much to blame as one would imagine without looking more closely to all the factors of the case. It is not difficult to perceive that for some years past there has been a suspicion in the official mind that the extension of the schedule is only one of the Pharmaceutical Society's little ways of securing a trade monopoly. I am glad to say that the efforts of our President and Council have resulted in a considerable modification of the official idea in this respect, and I think that I may truthfully say that the Privy Council and the Board of Agriculture have now a more correct perception of the real facts of the case than they had a few months ago.

THE BENEVOLENT AND ORPHAN FUNDS.

The next point is that of the Benevolent Fund. I am sorry to observe, from the Benevolent Fund Revenue account, that the decrease in the income from subscriptions in 1898 was still further accentuated last year. The amount expended on the payment of annuities absorbs the whole of the revenue from invested capital, and nearly £100 a year from annual subscriptions. Sound finance would demand that the annuities should be paid entirely by the interest on capital, but there seems to me to be very little prospect of our reaching that ideal state unless a little more interest in the fund can be aroused among members of our calling. I do not think that we need trouble ourselves very much during the present year about the subscriptions and donations being rather less, because we know that everybody in this kingdom has had to put his hand very deep into his pocket for benevolence in another direction in connection with the war in South Africa. There never was a time in the history of the Society when Britishers have shown their charity more lavishly in connection with the sick and wounded and those left penniless by soldiers who have gone to fight our battles, and therefore, I say, we need not regret that the money is a little less this year. But I do not want to preach or beg for the Benevolent Fund, nor do I feel very strongly that we need provide for the future, because the pharmacists of this country, as well as other people, have always been willing to come forward to help the sick and aged. Whilst on this subject, I should like to direct the attention of the members of the Orphan Fund, of which very little seems to be known. It was founded in 1891 by a legacy from Mr. Thomas Hyde Hills, and the revenue

from the Fund is applicable for the maintenance of an orphan in a public institution. The beneficiary must be the orphan of a person who has been a member of the Society and has been a subscriber to the Benevolent Fund for over three years. These conditions appear to be very simple and easy, but for several years no case has come before the Committee which has fulfilled the conditions, and the revenue has therefore accumulated. I am glad now to say that an excellent case for this particular fund has come before us, and the child will be admitted to the London Orphan Asylum to-morrow, all the necessary preliminary arrangements having been completed. The payment for his admission into and maintenance at the Asylum will therefore absorb some of the accumulated funds.

THE WATERALL LEGACY.

Next I would refer to the paragraph marked Waterall Legacy. The conditions of the Waterall Legacy have been fully published in the *Pharmaceutical Journal*, and I do not think I need refer to them further here, but I will take this opportunity of saying that it is a source of some embarrassment to have money left in trust to the Society under conditions which prevent the Council from administering it in the terms and spirit of the Pharmacy Act—namely, "to all persons who may be or have been duly registered as pharmaceutical chemists and chemists and druggists." The creation of a preferential area by the Waterall bequest is distinctly against that catholic administration of the fund, of which the Council makes a great point. I hope if any of my hearers contemplate benefiting their less fortunate brethren they will bear in mind the remarks I have made.

LAW AND PARLIAMENTARY.

Now I come to Parliamentary. I do not purpose saying anything about this subject, because the Council have had a great deal to say about it during the past few months, and there has been a good deal of correspondence in the *Journal*, especially during the last few weeks, when there has been an election campaign—I might say several election campaigns—and I cannot say anything further about it. You know exactly how it stands and the action the Council has taken. The position is clearly defined in the report, and there is nothing new to be said. As some of you know, the Bill is postponed to May 17—which is to-morrow—but it is not likely to be taken, and there is really nothing to say on that point.

With reference to the legal paragraph, we have spent £240 less this year in law costs than in 1898, but I do not think we have exhibited less statutory activity than usual, though we may have gone more economically to work. I always feel with regard to our legal work that we have a ground for complaint against the public, inasmuch as we are called upon to spend £500 or £600 a year to protect its interests. Logically, the public should as much bear the cost of administering the penal clauses of the Pharmacy Act as it does the cost of putting into operation the Sale of Food and Drugs and similar statutes. It seems rather hard on members of the Society that they have to bear the cost of carrying out the law, and though one does not see how it can be altered, it would appear to most of us that it would be more fair if it were put on the same lines as the Food and Drugs Act.

LOCAL ORGANISATION.

Local organisation is a matter which is at the present time occupying the attention of the Council, and there have been one or two meetings of committees to deal with it. It is a subject which I have very much at heart, and I think it is necessary something should be done—I will not say in the way of altering the system on which our local secretaries are elected, but my wish is that more responsibility should attach to the holders of the office, and in some cases I am bound to say the work of the local secretaries might be better done than it is, although, on the other hand, we have a great number of men who do an immense amount of

honorary work for the Society. Our thanks are due to them, and have been over and over again, for the valuable services they have rendered on many occasions. I do not think I need say more on this at the present time, because it is occupying the attention of the Council, and I may remind you also that there is to be a meeting of local secretaries during the Conference week, and probably they will then give us the benefit of their views.

NAVAL DISPENSERS.

The next paragraph is headed "Naval Dispensers," and you will see what has been done, and I may say that this is only part of persistent attempts by the Council for some years to improve the status and conditions of service, not only of dispensers in naval hospitals, but also of Poor-law dispensers and qualified dispensers in public institutions. The Council are always watching over the interests, I will not say altogether of its own members, but of every person on the Register. We are sometimes charged with not doing this and with neglecting our duty in various ways; but I say that the charge is not true. On all occasions we have representative men on the Council from various parts of the country, and they are constantly looking after the interests of members of the craft. I will take this opportunity of referring again to my friend Mr. Hills, because we on the Council know that he was at a great deal of trouble in connection with this matter of Naval dispensers. He saw the department having this matter in hand on several occasions, and to some extent, one might say, they were somewhat inclined not to improve the position of the qualified men; yet by his persistent persuasiveness and the manner in which he went about it he showed them that men who had been educated and passed the examination ought at any rate to be treated far better than ordinary seamen—for that was what it practically amounted to, for they were treated very little better. A full account of this matter appeared in the Journal of April 14, which shows that the position of the Naval dispensers has been very much improved, and that the thanks of the Society are due to Mr. Hills for the trouble he took.

THE NORTH BRITISH BRANCH.

Now you will see a short paragraph with reference to the North British Branch. There are not many lines, nor does the paragraph, by its language, show the immense value of the services that branch has rendered to the Society, but, in the words of the report, the work of the Society in Scotland is efficiently conducted. You cannot have anything better than that, and there I leave it.

THE OBITUARY.

I now come to the last paragraph—the Obituary. The hand of death has been very heavy, not only on members of the Society, but on those who have been closely connected with us on the Council, and many others directly and indirectly connected with us. I simply mention the names of those who have—at any rate during my recollection on the Council—died during the last twelve months, and first of all there is Mr. Greenish. Reference has been made to the death of these gentlemen on the Council, and it is not necessary for me to say anything about it, but I, as a member of the Council, in my short time remember all these gentlemen—Mr. Greenish, Mr. Richardson, Mr. Watt, Mr. Reynolds, and Mr. Fraser. These men, in their day, did great work for the Society, and they took an active part on the Council. Then there is Mr. Bird, who is perhaps the most recent of all, and who, although not a member of the Council, was a member of the Board of Examiners, and, as most of us know, was a very benevolent man, and not only did a great deal for the funds of the Society, but helped any poor person whenever his attention was called to the matter. We have also lost the distinguished men whose names you see here, but it is not necessary for me to refer to them, because I believe some of you know them better than I did myself. We are all sorry to think there should be such a large loss this year. Perhaps I ought to refer a little more

to the death of Mr. Richard Reynolds, who died recently. He was a Yorkshireman. I was proud to have his acquaintance, being a Yorkshireman too, and I have had on many occasions had conferences with him of different kinds. We corresponded very frequently, and during the whole of the time I was a member of the Council he was exceedingly kind to me. There were several points, of course, that a young member of Council felt he did not know much about, and, naturally, he appealed to one like Mr. Reynolds; who was a father in more senses than one to many young members of our craft. At all times Mr. Reynolds was willing to assist me in every way he could, not only in connection with the Council, and he was also a great friend to pharmacists generally, and was not afraid even of pharmacists in another town, or even in his own, getting into the same position as Richard Reynolds. In fact, he was always ready to help another to get into the same position he himself occupied. He will be missed, no doubt. You have seen in the papers of the Journal his work in years gone by; you know his work as a member of the Council, and you know the distinguished position he held in his own city.

I do not think there is anything more I have to say, and I move the resolution for the adoption of the report.

Discussion.

Mr. R. ATKINS (Treasurer) said: I formally second the adoption of the report. It has been our general rule, and a very wise one I think, on these occasions that the Council should be silent, and leave the discussion in the hands of the official spokesman, whom I congratulate on the able manner in which he has analysed the report presented to the meeting; but let me say before the criticism begins, as the flood will no doubt be open in the course of a few moments, that as a body we do not in the slightest degree deprecate criticism. We absolutely invite it. It is the very salt of our life; but there are two conditions, I think, that ought to attach to criticism on which I lay great stress. The first is that the critic should be well informed; that he should know what he is talking about, and the second is that he should be fair. If criticism be well informed and fair, we cannot have too much of it, at least, within the limits of time. Now, gentlemen, I have often found this—not in this Pharmaceutical Society, but outside it—in going through life that the greatest amount of dogmatism is associated with the least amount of information, and that prejudice is frequently based upon ignorance. I make no personal reference whatever; but you do remember in an ancient document there was an establishment somewhere in the City in which three gentlemen were engaged in the clothing line, and I believe they undertook to regulate the affairs of the Empire. Sometimes it has been the case that we have been proffered an amount of advice which is absolutely overwhelming. Now I venture to think that really to-day this Society occupies a greater position in the nation and in the world than it ever did before. I may be perhaps told that as an apologist for the Society I am playing a very ancient game. I do not agree for an instant with what is said on that point. If I have a conviction and a belief resting on evidence that satisfies my own judgment I shall express it, and I do believe that to-day, notwithstanding our shortcomings, we occupy a more influential position in the world—not limited to Great Britain—than we have ever done before. If that be the case, why in the world should we be disliked as a Society and a Council? You have not far to go to find the reasons for that. A body that examines and that painfully rejects, as it is bound to do by Statute, on evidence, must be unpopular with a very large number of people affected. There are certain friends of mine who have not a kindly word to say of us because their relatives did not pass through the examination room satisfactorily. I am very sorry, but we cannot help ourselves. We are bound to do what the Statute imposes upon us. And you cannot have a body that deals with prosecutions, as we are called upon to do, without becoming unpopular.

But the greatest reason of all perhaps why there is so much dissatisfaction abroad in the pharmaceutical world is one that I have the profoundest sympathy for, and that is the acute and increasing illegal competition of the stores. I am not surprised that men who are feeling the pressure should be dissatisfied. I have a letter to-day from one of the most cultured pharmacists I know, who is "passing rich on £40 a year," who asks me to have his name withdrawn from the British Pharmaceutical Conference, because, he says absolutely, with the pressure of educating his four children, he is unable to continue that small contribution. Yet this man I am proud to recognise as my friend, pharmaceutically; but the outside pressure has been too much for him. It is distressing, and I know how it affects a number of men, and the charge that is sometimes brought against us as a Council is that we have been either unsympathetic or indolent. I deny in the most deliberate terms both those charges. I have had a long innings on this Council, perhaps too long. Let me say, by the way, parenthetically, not a man is living but my friend Mr. Bottle (whom I am delighted to see here to-day, and whom I wish was still on the Council) who was on the Council when I entered it, and two or three times over has the hand of death changed the constitution of that Council. I have known the Council long years, and I say it emphatically to the critics who differ from me that I have in the course of a life given up, perhaps unwisely, to public work, never met with a body of men who were more faithful or more conscientiously seek to perform their duties. I am not here as an apologist for the Council because my seat is imperilled and I am appealing to the voting urn. It is too late to-day. I have no doubt the die is cast, but I stand here loyally to support and defend my comrades on the Council as men of ability, integrity and wide representative capacity in their knowledge of pharmacy throughout the country. I hope you will excuse these observations, because I know from the pressure of business that if I did not get my innings now I should not get it at all.

Mr. J. MACKENZIE said: In the prospect of so much of importance coming forward, it is not so much criticism I have to offer as to seek for the information which our good friend who has just sat down referred to. It would be a strange meeting of the Pharmaceutical Society if we did not see Mr. Atkins here; but I want to call attention to the North British branch, and I endorse what you have said as to the very concrete form in which you have put all reference to the North British branch in the few lines you have in the report. It was not always so, and I want to know why. There are gentlemen who could tell us, but I am ignorant, and I should like a little information; and there are some of my countrymen, and those deeply interested in the welfare of this Society, who would also like to know a little more. We notice under the revenue account for the North British branch what is refreshing in its peculiarity and singularity—an official of the Society having his salary stated £250, the only one which is now to be seen in the list. Unfortunately, there is no statement given either there or in the accounts showing those details which we used to see regarding the work of that branch of the Society, but which has been omitted for some little time. I do not go into particulars—you all know what they are, and I will not take up time. The annual report of the North British branch always did appear, or a summary at least, and I think gentlemen in this hall know there was a sort of promise given that it would be so in future; but it has not appeared. This year it is represented by the few paltry lines to which you have referred. Now, after what was reported in the Journal the other day from Mr. Carteighe, which I know to be true, it is obvious that the Branch in Edinburgh has done a great deal to establish before Scotland, and before the medical faculty of Scotland, that pharmacy is a real thing. It has a man at its head who is noted for his ability, he has almost encyclopædic knowledge in pharmacy and chemistry, and you can get any information from him, and his civility is unequalled. Everyone who goes there is delighted with

him, and they come away expressing how much they enjoyed their interview. I am sure there is no monument in the long history of Mr. Carteighe's connection with pharmacy which will more redound to his credit than the Edinburgh rooms, and the good basis which pharmacy is put on in Scotland, as represented by the North British branch. I am not on the Executive there now, and I take this opportunity because some of my friends there do not like the condition of things which is springing up. They cannot find a reason for it, and it is not conducive to the interests of the Society. I make bold to make this statement at the annual meeting, which I have had the pleasure of attending for so many years, and have always received a fair hearing, and I trust we shall see even yet something that will show us what has been done by this branch of the Society, and also the numbers that enter therein. I had a complaint lately from a young man that the associates and students are not informed of the meetings. There are meetings and lectures which they cannot attend because they are not invited. There was a complaint lodged with the assistant Secretary, and he says: "I am not supplied with any list of you gentlemen, and consequently I cannot help you; but I send a notice to all I know of." If you would kindly look into that I think you would have more young men become associates. Then I think we should get on better if we knew something more of the organisation in detail. The Secretary who draws this up is Secretary to the Society, and the Society naturally looks to him.

Mr. CARTEIGHE: Mr. Mackenzie is a very good financier. May I be pardoned for saying what has been stated many times, that the statement is drawn up by a chartered accountant for the Finance Committee.

Mr. MACKENZIE: The chartered accountant might have instructions to make it as convenient as it used to be. We are getting more important, large sums are passing, and it would be as well to know what they represent. For instance, I will take the very first item—annuities, £500. We used to be told who was getting the annuities, but we are not told that now. I presume that represents the £400 which began in 1881, which represents now over £6,000 paid to our late secretary.

The VICE-PRESIDENT: I think, Mr. Mackenzie, that it is not wise to go into these details.

Mr. MACKENZIE: I see no harm in the names being given. I believe there is another one here represented, who has fallen upon hard times, who was once in our School of Pharmacy, and it used to be put under the column for the School, and not under the general account. I think that is the proper way, and I do not see why it should not be done so now. Then we do not know what the Secretary's salary is here at all. I know it went up from £400 to £600 about 1892 or 1893, but we do not know what it is now. We should know that, too.

A MEMBER: What are the Council elected for? Can we trust the Council or can we not?

Mr. MACKENZIE: It is not a question of trusting the Council at all. Now I come to the question that has been referred to from the chair with regard to the coming Bill which has occupied so much attention. I hope we shall have something better. We have been told about Clause No. 2, but if any pharmacist reads Clause 3, if he is not startled he might be, to think that we, a Society existing so long with a Royal Charter and Acts of Parliament, are absolutely ignored in that Bill, while physicians, surgeons, dentists, and even midwives are to have their position acknowledged and secured. I think we ought to be acknowledged, and I think if a number of gentlemen on the Society would just take the trouble to inform their members in the various localities that there is a Pharmaceutical Society of Great Britain, that it is doing good work, that it has grand intentions which are hampered by restrictions, that some good might be done. All that you and Mr. Atkins have said is right and proper. I only differ from you in what you have said in regard to the time for it. Restrictions are a good

thing and beneficial, but we ought not to have restrictions applied by the Council before we are in a position to have something to live by. If our Council would only cling to that for a time, and our friends would also help the Council, we should be in a far better position than we are now, as we expected twenty years ago. I hope there will be an effort made either to expunge the Bill or to get our position recognised in a way it has never been yet.

Mr. C. UMNEY: Mr. Chairman,—As one of the four auditors appointed to audit the accounts of the Society, I would offer to the Society our congratulations on the excellence of the accounts that you and the chartered accountants have put forward this year. The most pleasing thing there is the balance of £1,906 to the credit; but if I may make a recommendation with regard to it, it would be, Do not accumulate the money, but spend it judiciously. If you accumulate it you will have to pay income-tax upon it, and you had better by half spend the greater part of it judiciously. You alluded to some little drop in the Benevolent Fund, and put it to the credit of Messrs. Kruger and Steyn; but those men have done a harm even deeper than that, and it is to one point in connection with that in the balance-sheet of the Benevolent Fund that I want to call special attention. I have already spoken to the President on the subject. We have there an item of £7,000 worth of Consols, which appear in the balance-sheet as £7,658. I know the practice has been to take everything at cost price, a practice which has worked well in the past, and it is an excellent rule so far as ground rents, freeholds, and other assets are concerned, but with Consols it is not customary when they depreciate, as they did last year, to put them in a balance-sheet at any other sum than the market price of the day. Now, the market price on December 31 was about 99½, and I certainly think the Consols should have been written down to par value. It would not have made any difference to the income, but it would have put the account in a more elegant form. The Bank write their Consols down to 95, and I think ours should be written down to 100, and kept there, not at 114, which they are not very likely to reach again. Then with reference to the assets generally, I think it would not be amiss sometimes, say, decennially, for a sub-committee of the Council to re-value the Society's assets—of course, with power to call in experts—to see that the Society has assets to the value put down. I would suggest that that should be done this year, the closing one of the century. My brother auditors and myself think the accounts this year are excellent, but they hope the little alteration I have mentioned may be made, and I personally hope you will not accumulate money, but spend it.

Mr. GRIFFITHS: You, sir, expressed regret that the Library is not made more use of, especially by country members, and I would suggest that in order to bring its usefulness up to date that a new catalogue be compiled and that a copy be sent to each local secretary, so that chemists in the country may be able to ascertain easily what really the Library does contain. A large Library like ours is no doubt most valuable, but will be much more so when it is known what it contains, especially in the country.

Mr. BARNETT thought young members particularly had not a sufficient knowledge of the Library and how to make use of it. When he first came to London he hardly dared set his foot in the Library, or in the house at all, and had never yet been in the laboratories except on the occasion of his examination. As to the Research Laboratory, he had heard of it, but that was all; he should have liked to go inside it. He feared there was not sufficient welcome given to strangers belonging to the Society, and while that was lacking the Society would not be so popular as it ought to be. They all recognised that it was difficult to leave their business without running great risks, and that prevented their being more social. They were often told they were brakes on the wheel, and complained at for not joining the Society, but if there were something given them to join it would be better. He did not mean in

the way of money, but in the way of welcome. They could not alter the existing circumstances with regard to the stores, and, as Mr. Atkins had well said, there were deserving men who were unable to contribute to the Society simply from outside pressure. He thought ways and means might be found to tempt the younger members to spend more of their time there, and suggested that even non-members might have the use of the Library on the recommendation of a member.

Mr. CLARKE said he could give an unqualified denial to what had just been said. He had at present a young fellow from South Wales who had come up for the purpose of passing his examination, who had never been in London before. When he came there Mr. Holmes took him over the Museum and Mr. Knapman took him over the Library, and he spent a considerable part of his time there.

Mr. STOOK said he was a student there thirty years ago, and he thought it was mainly a question of nervousness. He was only a private student, but he made free use of the Library and Museum, and even went up into the laboratories. The only time he felt nervous was on the day of examination.

Mr. SINCLAIR also said that his first visit to the Society's premises was made about two months ago, when he was received very kindly by an official, who showed and explained everything to him, including the Research Laboratory.

Mr. PERCY WELLS, who said he was probably speaking there for the last time, as he had passed considerably beyond the allotted span of human life, wished to call the attention of the Council and the members to what he considered an omission of duty on the part of the auditors, in not giving that complete information which they ought in the balance-sheet. He wished to draw attention again to an item he had mentioned more than once, as one of the most unsatisfactory—namely, "Journal: Balance of account." He wanted to see the accounts showing the balance. He had always been a seeker after information, and he prided himself that, however small the information conveyed to him might be, he garnered it up, and it might prove of use hereafter. In the accounts of large railway and other companies it was customary to give supplemental accounts, explanatory of certain lines in the general account, and that was what he wanted. The balance given did not include postage, which appeared lower down, but in common fairness the two ought to go together, which would make the balance against the Journal £2,549 16s. 9d. If they had not large funds to fall back upon, how long would the Journal continue at that rate? They would be in the *Gazette* very quickly. It amounted within a fraction to 9s. 5d. for each member of the Society, even with the increased numbers. They did not know how much was paid to the editor, or if he had an assistant to help him use the scissors and paste. Again, in the expenses of the office, why not state the salary of the Secretary? He was a very good man, and they could not pay too much to a good man who had all the responsibility on his shoulders; he was the last to ask anyone to do anything without adequate remuneration, but there was no reason why the amount should not be stated. This was probably the last time he should speak there, but he hoped the seed would not fall on barren ground, but would produce results which he might perhaps live to see.

Mr. CAMPKIN said the Treasurer, in seconding the adoption of the Report, appealed to the sympathy of the members, and assumed that the Society was unpopular with the craft because of its connection with examinations and prosecutions. He (Mr. Campkin) was not prepared to admit that the Society was unpopular in any direction, and certainly not on that account. If there were any criticism that could be passed on the acts of the Council, although it might be made from an imperfect knowledge of the details, still, it was only right that that criticism should be made if it were fair criticism. As a member of an Executive of many years' standing, occupying a responsible position, he could entirely enter into the feelings with which the various criticisms might be regarded by the

members of the Council, every one of whom undoubtedly possessed the confidence of the Society from the fact that they were the elected representatives of the Society from time to time, and that the Council was exactly as the members made it. The members had an opportunity of changing the Council from time to time, and, therefore, there should be no unfair criticism directed to the members of the Council as a body; but what they did desire to know was the action that the Council took from time to time. The question before them at the present moment was one upon which depended their very existence as a body of men connected with a business which should be protected by Act of Parliament. The past year had been a very eventful one, and they found that although the Council as a body was acting on behalf of the members of the Society upon this great question that was so vital to their existence, it was not entirely united. Hence, he took it, they could not expect other than that there should be some amount of criticism at the hands of the members. He would refer chemists generally back to themselves, and ask those who were outside the Society if they criticised and declared the Society unworthy of their membership, if they should not first of all assume the position of members of the Society, which had been thrown open to them by recent legislation, so that as a united body they might have greater power than they had at the present time. They asked if the Council had taken every means in its power to enforce upon Parliament the position to which as a body they were entitled. Some of them had in their respective neighbourhoods, and by association with some who occupied seats in one or other of the Houses of Legislature, endeavoured to bring an influence to bear upon members of the House of Commons with regard to the Bill that was now before them, and more particularly to educate them with regard to the clause of the Bill now before the House which was exercising them so much. But they had not been able to ascertain the extent of what the Council had done in that direction, nor had they been told that morning, for obvious reasons probably, the position that was likely to be taken up when that clause came on for discussion. He was one of those who entirely approved of the action of the Law and Parliamentary Committee, and of the majority of the Pharmaceutical Council in the action that had been taken with regard to that clause, and he had no sympathy with those who attempted to temporise with the clause by amending it in any way whatever, or, at all events, by the means that were open to them. He accepted the assurance of those who were responsible in connection with the Council that the Minister in charge of the clause would not accept an amendment. He was sure he would be speaking the feeling of hundreds and thousands of members in the country when he said that if that was so they would have none of it. Sooner than that clause should pass as it was he would rather that there should be no clause at all, that it should not be amended, and that they should not temporise with those who would in any way attempt to legalise company trading. In that, as the majority of the Council had taken that course, the Council had the confidence of the body of chemists throughout the country, because they were governed by majorities, but what they did wish in addition was that, having secured the rejection of that clause, which was very probable, something should then be done to further define the position of registered and qualified chemists in accordance with the original intention of the promoters of the Pharmacy Act of 1868. Probably enough had not been done in that direction, and although it might be from want of knowledge, there were those who thought that after that monstrous decision was given by the House of Lords some twenty years ago, the Pharmaceutical Council should have taken upon itself to secure further legislation, which should have the effect of defining for good and all the position of chemists under the Pharmacy Act of 1868. He took it that this was all that was asked of the Council at the present time, and if the Council showed itself alive to that it would undoubtedly possess their continued confidence. The subject was

a very wide one, and he hoped there were others who would be able to speak upon it to a fuller extent than he had done. It might be that despite the various criticisms that had been made there would be no change in the constitution of the Council, but he did not think that those who were responsible for the contest that arose from time to time were to be criticised unfairly, because these contests and these extra nominations had this good effect—that they caused an outspokenness on the part of the members of the Council from time to time which was unknown to those who had watched the proceedings of the Council some twenty years ago, and in that direction they had brought up the members of the Council to a higher level, and had caused them to exhibit a greater regard for the interests of chemists generally than they probably had done previously. They confined themselves undoubtedly to matters of detail, and strictly discharged the duties imposed upon them, but, as a body, they asked them to do more in the future than they had done in the past in the directions he had indicated, and if that was the case, the Council would not only possess the confidence of the members of the Pharmaceutical Society, as it did to-day, but that it would be in an increasing ratio, and he trusted that the time would never arise when it would be necessary to pass any resolution suggesting a want of confidence in the Council as a body of their own selection and election.

Mr. R. A. ROBINSON congratulated the Society upon the improved condition of its affairs. He was very glad indeed to see that the revenue account had now taken a turn, and that they were able to put away money which, he thought, would be useful in future years. He noticed that it was said that the subscriptions from members and associates were £2,000 more than last year, and this must be exceedingly satisfactory. He thought none of them would regret the action that was taken in changing the former membership. It appeared to him that this change was admirably fulfilling its conditions, and he quite agreed that it was to the interest of every one in the country who was not as yet connected with the Society to join it. If men would only do this in order to get the body consolidated so that when they had to go to Parliament, as they would have to go, they would not find there was opposition from any body of chemists throughout the country; if they formulated a policy which had the approval of the vast majority of the chemists of the country, and there were no divergent interests between the London and the country chemists, then he ventured to think they would be much happier and much more likely to successfully go to Parliament to amend their Act. They had seen that the President of the Board of Trade did not see his way in the Companies Acts to himself introduce a clause dealing with medicine and with pharmacy. He fancied, from what he had been told, that it was exceedingly likely that if there was much opposition to the present clauses in the Bill the President of the Board of Trade would declare that he did not think them essential to the Bill, and that they would be dropped out. With regard to the Journal account, as he understood, the Journal was now doing much better, and he thought it a little unfair of Mr. Percy Wells to still say that the Journal was still in such an inferior position. As he understood, the Journal now contained more news than formerly. This is what some of them had asked that it should do, but that it should still keep up its scientific character. He understood that the Council had seen to this, and that the Journal was now much more appreciated than it was before. A much larger number had been printed to the extent of 1,000, and still, with all that, there was a saving on the Journal in six months' work of £500 or £600. They were getting a better Journal distributed among a much larger number of persons, and at the same time they were saving £1,000 a year, which he considered to be most satisfactory. The other point that he wished to refer to was with regard to something not in the report that was the question of Colonial Federation as regards pharmaceuticals. He was very anxious indeed that the Council should take the present opportunity, which was a favourable one, for giving Federation in

pharmaceutics to the Colonies. He had heard the delegates say a night or two ago, in most powerful and eloquent speeches, that they regretted very much any attempt to assume that they were less worthy or less able to manage their own affairs than other Englishmen. They said they were part and parcel of them, which, of course, they were, and they were very anxious indeed for it not to be assumed that in their arrangements they were less capable of managing their own affairs than any other body of Englishmen. With regard to the examinations for the pharmaceutical diploma, he ventured to suggest to the Society to see if they could not give reciprocity so that a man who got his title in England might use it in all their Colonies, and that the degree taken in the Colonies might be available here. Of course, he knew that there must be some safeguard, but he did not regard it at all as an insuperable difficulty to find out sufficient safeguard. Was it too early for the Council to get into communication with the Pharmaceutical Board of Examiners in the Colonies and study their synopsis? He had heard it stated last night that there must be a curriculum. If there must be, the sooner the curriculum came the better; but he ventured to say that this was a most favourable opportunity for advancing in that way, and he would have a clause to that effect in the next Pharmacy Bill. In conclusion, he congratulated the Society upon the improved condition it appeared to be attaining, and also the Council, who had so well managed the affairs of the Society.

Mr. GAUBERT said he took it that there was no one in that room who was inimical to the Council or to the Society. The gentleman sitting at the head of the board of green cloth had courted criticism, and he remembered last year hearing the President say that there was nothing he so much enjoyed as coming down to these annual meetings and listening to the criticisms. He supposed it was on the analogy of being allowed to talk about the sausages because it did not hurt the sausages. The position which Mr. Atkins took up was very much like the clergyman who was very fond of strawberries. He had a most luscious one in his hand. Looking at it he said, "Doubtless God could have made a better berry, but doubtless God never did"—for he said they never had such a Council, and he did not think they would ever get a better. There were some who thought that the Council might be improved by the addition of a little fresh blood, but that was not saying that they were disloyal to the Council, but individually they might change it and like it as much as ever. Something had been said about the members not joining in such numbers as it was hoped they would join; but it struck him that if the Council had done a little more than it had done they would have a larger number of members than they had got. When the Council were asked to do something they turned round and said they might have done it twenty years ago when interests were not so strong; but when they were asked twenty years ago they said they had not sufficient numbers. It did not seem to matter which end of the stick they were. What they wanted to see was something coming out of the Council. It reminded him of the little girl who, on being asked about the natural history of the cuckoo, said it was a bird that did not lay its own eggs. They had been waiting for the Pharmaceutical body to lay an egg; they had laid one in the poisons' bottle, but it was not hatched yet. Whether the Council remained the same or became changed, he hoped to see a good big egg come out of it.

The VICE-PRESIDENT: If no other gentleman wishes to make any observations, I will shortly refer to one or two of the statements that have been made. On the whole, I think I may say that the criticism has been favourable to the Council; at any rate, we have had a good deal of humour put into it, which perhaps has made it more pleasant. I will refer first to what Mr. Mackenzie said with reference to the North British Branch. I think things have altered somewhat during the last few years; at any rate, they are very different to the time Mr. Mackenzie referred to with regard to the report, and so on. You have heard a good deal this morning about the *Pharmaceutical Journal* and the reports of the

proceedings of the North British Branch. I may say that those proceedings are fully reported from time to time in the *Pharmaceutical Journal*, and that there is no necessity now to give any fuller reports. As I said in my opening remarks, although the paragraph referring to the North British Branch was short, it did say that the Branch had done excellent work. I am in the fullest sympathy with that paragraph, and am only too glad to refer to the immense amount of work which has been done in Scotland. I do not want to refer in any particular detail to the question of the salaries. Mr. Mackenzie made it rather a point that the Assistant Secretary's salary was the only one stated in the report. He is, as you know, the principal officer in Scotland—in fact, the only officer, one might say. We all know that Mr. Hill has done for the Society a great amount of work. He is always at hand. I fully endorse what Mr. Mackenzie said—that the establishment of that branch in Scotland has been of immense value to the members of our Society in the North of England and Scotland, and it has a large educational influence on the outside public and the medical profession. With reference to what Mr. Umney has said, I know he is a man of figures, and knows more about accounts than I do, but of course the Council will take into consideration the suggestions that he has made. You will remember that two or three years ago it was decided that it was better to put down the cost price of everything stated here, because the prices of things were fluctuating, and I believe Mr. Umney fell in with that suggestion; but if we think it desirable to alter that we shall do so. With reference to what Mr. Griffiths said about the Library, a catalogue is now being prepared, and will in the course of a short time be ready, and one will be sent to every local secretary. I think that meets the remarks that Mr. Griffiths made with reference to that. Now, Mr. Barnett says that many young people are afraid to come to this house. I have been connected with the Pharmaceutical Society from a very early age, and I must say that I never had that fear, because I well remember the father of our friend the Secretary, Mr. Elias Bremridge, the first time I appeared in this place, was most ready to show me about, and to give a hearty welcome to everyone. The same spirit exists to-day. I was glad to have the testimony of some other gentlemen in the room in answer to Mr. Barnett's criticism, who said that they had the fullest opportunity of seeing the Society's Museum, the Library, and so on. We have had these statements made year after year, that we do not give the accounts in detail with reference to the Journal. But I would ask you, is it good business for us to publish the details concerning the Journal? It is a property that we are very much interested in, and I think there are other journals connected with our own craft which would be very glad to avail themselves of the details which might be given. I think it is better that it should be stated as a balance of account, as it is now. Mr. Wells gave us credit for being men of business. [Mr. Wells: No, he did not.] At any rate, Mr. Wells said the Council had the good sense to value a good officer, and paid him well for his services, and I say that amounts to the same thing as being good men of business. With reference to the Journal, I would remind you that the amount for the Journal is not a loss, but it is the cost of supplying it to the members of the Society. There are a great many things in connection with this which might go to reduce this adverse balance; for instance, I think we are entitled to charge so much per page for the insertion of the official advertisements of the Society, and if we were so disposed we might set that on the other side, and so reduce the balance. I think the other speakers were so fully complimentary to the Society that I need not refer to them. I would just refer to one point that Mr. Robinson raised about the Colonial Federation, and as to there being reciprocity. The Council will not lose sight of that. They have considered this matter for some time. It has been brought forward by Mr. Chater, a member of the Queensland Board of Pharmacy, and I may say that we should be ready to recognise examinations which were carried on on the same lines as our own.

What we have to contend with is the fact that it is very difficult to compare examination with examination. Australia and our other colonies, as you know, are many miles away from this country, and there would be very great difficulty in accepting their examinations, and I would say again that I think the only evidence that we can accept in connection with this is evidence based upon a curriculum. Gentlemen, I am much obliged to you for having listened to me so long. You heard the resolution which I moved at the commencement. Is it your pleasure that that resolution does pass? On the contrary? It is carried unanimously.

Motion by Mr. Wells.

The VICE-PRESIDENT: I now ask Mr. Percy Wells to deal with the motion of which he has given notice. I am not quite sure that it is in the form that Mr. Wells meant, but it is an exact reproduction of his notice of motion. There is a point in it which I might refer to, and that is the date. I am a little doubtful as to what is meant—whether we are to go back for ten years or not. With reference to that point I might ask if you wish to correct it, because, strictly speaking, the whole thing will be out of order unless that is altered.

Mr. PERCY WELLS: If you rule this out of order, I shall ask you, sir, to state the grounds on which you so rule. If, on the other hand, I may, by your graciousness, be permitted to move it, I will go on at once.

The VICE-PRESIDENT: I should like to know whether the date you have inserted here is to stand?

Mr. PERCY WELLS: If I have put 1890 in the paper that I sent to the Secretary, I beg permission to withdraw that and substitute the figures 1900.

The VICE-PRESIDENT: That is all I require. Now you are at liberty to go on.

Mr. PERCY WELLS: I suppose we all know the meaning of the word "annotation," but there has been a remark made, I conclude either by the editor of the Journal, or if not by him then it has passed his criticism, and it appears on page 428 of the issue of the Journal under date May 5 in the present year, in which it is said that possibly the whole thing may be meant as a joke. I believe, as a rule, that chemists are a reflective body, they are taught to think, and they are taught to deal in facts, not fancies, mind. Just realise if you can that if anybody sent you something to analyse you would not deal in fancies, you would deal in facts. Now I put it to any reflective being, how is it possible—and you may hit me as hard as you like, you will never get anything from me but a laugh, and the harder you hit me I will not lose my temper, yet I want to show the wisdom of the annotator, or the commentator if you like, and ask you how is it possible for an austere-minded person to indulge in a joke. I never was more sincere in my life, and it is only in consequence of ill-health that this matter has not been brought on before. I will not waste your time, because I do not like my own time to be wasted, in going through any of these details that are in my notice of motion. I naturally conclude that I have had the courtesy extended to me of their being perused by everybody here. Pray, do not let any speaker who follows me lose sight of what I am going to say. I do not by this notice of motion wish to exclude from the *Pharmaceutical Journal* one single item under the reports, or whatever they may be called under these various headings, but what I say is that they should not be made an integral portion of the Journal and bound up with it. That is my great point. I have no doubt that there are a great many of our members who will not object to see their names in print when they have these local meetings. If so, in heaven's name continue it, let them be published to the world, but what I do say is that you should not treat them differently to what they would be treated in an ordinary newspaper, rather after being perused the communication is frequently consigned to the kitchen fire or for other purposes. With a preliminary remark, I venture to hope that the members present will take it into their serious consideration whether it is advisable to continue that these various matters which I have referred to,

on and after June 13, 1900, shall continue to form a portion of the Journal proper. I will not designate it by its proper name, but there is an insinuation that there has never been a supplement. Now, I beg to differ from that. There has been a supplement up to comparatively a recent date. I cannot call to mind now, but I think it is three years ago that I wrote a letter to the Editor of the Journal, drawing his attention to the expediency of adopting some such resolution, or acting upon some such resolution as that which I have now the honour to submit to you. Whether he was afraid or not I really cannot say. He may be a strong man, or he may be a weak man, for all I know. I have had the pleasure of seeing him but two or three times, and I am not able to form an opinion therefore as to his character. You know more about it than I do. But what do I care—what does anybody here care—about the members, after their Conference, going and having a dance, or a ball, or something of that kind, or indulging in what is more to the taste of an Englishman—a jolly good dinner? Do we want all that incorporated into the Journal? I call it drizzle. Let the Journal be as it was originally intended by Jacob Bell. Let it be a record of pharmacy—of the improvements that are taking place in matters of science. Do not exclude all these things, but keep them separate from the Journal, and I have but little doubt that in 5,000 cases out of 5,400 odd they will meet the position which they are entitled to, which, I suggest, is the waste-paper basket. I have not asked any member of the Society to second this. It may fall through for want of a seconder, and, if so, I should be very sorry. I am not a Radical, nor am I an intense Conservative; but as a rule, I find that chemists are slightly Conservative. But, notwithstanding their Conservatism, I hope there will be some modification in the Journal in the lines I have indicated. Without going into any further details of these twenty-one items of my notice of motion, I could hold them up to austere severe ridicule, and perhaps I might be able to give utterance to a joke or two, but I will spare you that infliction, and therefore content myself in simply moving the motion that stands in my name.

Mr. NAYLOR seconded the resolution. He said there must be a very large number of readers of the Journal who would desire to see some kind of separation of the complex matter which had been referred to by the mover. Many of them had been accustomed to bind their Journals—that is to say, when it was more strictly speaking a scientific Journal than it was to-day. Now they were told that such a large amount of trade matter had appeared in the Journal it had been much more widely read, and, on that account, therefore, one would not be prepared to suggest exactly that this matter, which was so much appreciated, should be excluded; but it would be a great advantage if a re-arrangement were to take place. It seemed to him that a larger portion of the matter of the Journal, which was read so largely, hardly constituted a supplement, because, he supposed, it amounted to something like three-quarters of the Journal, or little more. His suggestion was that the scientific matter might, perhaps, take more the form of a supplement, because it would be so much smaller, and then those who desired to keep that matter would be able to bind their Journals as they had done in the past. He did not know how far the editor of the Journal was satisfied with the articles which appeared under the heading, "Annotations," and he did not know by whom they were written, but it did certainly occur to him on reading them over from time to time that something a little more impartial might be substituted.

The VICE-PRESIDENT: I think we were all very glad to hear what Mr. Wells had to say on this point. I may say at the present time the Council has under consideration the question of a trade supplement, but how far that supplement will go one does not know at the present time. Section 22 of the bye-laws states that the *Pharmaceutical Journal* "shall be edited, printed, and published in such manner as the Council from time to time shall direct." Strictly speaking, I ought to have ruled the motion out of order to begin with. I think it would be well if Mr. Wells

were to withdraw his resolution, because, if passed, the matter must rest with the Council to decide on what lines they carry on the Journal. Therefore, I think it would be better, with the expression of opinion of Mr. Wells and Mr. Naylor, that they should leave the matter where it is, and that the Council should take it into consideration.

Mr. PERCY WELLS: I have a right to reply.

The VICE-PRESIDENT: There is nothing to reply to. You have only the seconder who agrees with you.

Mr. PERCY WELLS: That does not matter. You have quoted a clause in the bye-laws vesting the management of the contents of this Journal in the Council. It is very much to be regretted with that fact looking you in the face that when this notice of motion was laid before the Council, which it must have been, you had not the courtesy to instruct your Secretary to communicate with me and draw my attention to that. You see what you would have saved. You would have saved the infliction of my *austerity*, which has been misnamed a joke upon the members here. You would have saved the whole of their time. You would have saved yourselves the slight castigation which I have had the honour of administering. I submit that, under the circumstances, notwithstanding that you have said it is in order, it is not in order, and I respectfully decline to have it put to the meeting. If you put it I shall distinctly say you are not in order.

The VICE-PRESIDENT: Gentlemen, I take it that Mr. Wells has withdrawn the resolution?

The next business is the

Appointment of the Scrutineers.

The SECRETARY then read a list of names of those gentlemen who had been nominated to act as Scrutineers, and their appointment was unanimously agreed to.

The VICE-PRESIDENT called attention to the following registers, which were placed before the meeting in compliance with the Act of Parliament. The Register of the Members and Students—Associates of the Society, Register of Pharmaceutical Chemists, Register of Assistants, Register of Apprentices and Students under the Act of 1852, and the Register of Chemists and Druggists under the Act of 1868.

Appointment of Auditors.

The VICE-PRESIDENT announced that the following gentlemen had been nominated as Auditors for the ensuing year:—Messrs. Butt, Hodgkinson, Fletcher, Umney, and Francis Yates.

No other gentlemen being nominated, the above gentlemen were declared duly elected as Auditors for the ensuing year.

The meeting was adjourned to three o'clock on Thursday afternoon to receive the report of the Scrutineers (see p. 562).

Special General Meeting.

Mr. BUTT: Mr Vice-President, a notice convening this meeting has been submitted to you, which has been signed by about 120 gentlemen in different parts of the country. The following are the resolutions that I am about to propose:—

"(1) That the Research Laboratory of the Pharmaceutical Society of Great Britain be reconstituted and placed under the control of a Special Committee, consisting of the President, the Vice-President (ex-officio), and two members of the Council, four pharmaceutical chemists—not being members of the Council—and the Professors of Chemistry, Botany, and Pharmacy in the School of the Society.

"(2) That the Research Laboratory be used for the purpose of pharmaceutical investigations and research only, and be placed under the direction of the Professors of Chemistry and of Pharmacy.

"(3) That the Special Committee shall have absolute power in selecting the Research workers, the subjects for investigation and

control, the publication of the results of their investigations. All such workers should preferably be pharmacists, and, if necessary, may be subsidised."

I propose to move the second resolution first. I am sorry it devolves on me to move the resolutions which have just been read. I said, I am sorry; and I am sorry that the occasion should have arisen when it seemed necessary that such resolutions should be brought before you, resolutions which at first sight must seem somewhat extraordinary, because I am sure we must all feel, or, at any rate, we ought all to feel, that the Research Laboratory of the Pharmaceutical Society should already be the home of pharmaceutical research. Such, unfortunately, is not the case, and never has been since its foundation. On the contrary, it has been used almost continuously for pure chemical research, and the purpose for which it was founded has been entirely lost sight of and neglected. Since its foundation, now some eleven years ago, it has cost the Society nearly £3,500 in hard cash. If to that be added interest on the cost of the portion of the building in Galen Place which it occupied, and its due share of rates, taxes, ground rent, gas, water, etc., and also the subsidies received from the Royal Society and the Chemical Society for work done within its walls, it will be found that at least £5,000 has been expended, and I would ask what benefit have the members of the Society derived from that outlay? At the present moment I do not wish to make any further reference to its past history. We will assume that the Committee who had the control of the laboratories did that which they thought best for the interests of the Society in allowing pure chemical research to be undertaken therein. Well, as it is no use to cry over spilt milk, I now say, "Let bygones be bygones," and from this time forth I hope the Council will endeavour to have research carried on in such a manner as will conduce to the interest of pharmacy, and be of benefit to our own members, and leave the Chemical Society and other kindred societies to look elsewhere for papers for their meetings. I will now refer to the recent condition of the Research Laboratory and the work which was carried on in the season 1898-99. By the way, it has been stated that the Laboratory as now conducted is not any expense to the Society. That is only true to the extent that no direct charge appears in the accounts, but as long as any work is being done there must be expenses, if only for house room, wear and tear, gas, water, etc. Again, when the present profession of chemistry was appointed the control and superintendence of the Research Laboratory formed part of his duty and was accordingly considered when his stipend was arranged. Yet, again, there is the Salter Fellowship of £100 a year and certain scholarships, and if their respected holders are not engaged in useful pharmaceutical research, the money which they received is so much money wasted as far as our members are concerned. Now, with reference to the Salter Fellowship, one of the reports of the Research Committee (*vide P.J.*, vol. 53, page 838) states that:—"The Salters' Company have offered a fellowship of £100 a year, tenable for three years, for the promotion of research in connection with *chemical pharmacology*, to be held by a person who, in the judgment of the Director of the Research Committee, is best fitted to carry on *chemical research, especially in its relation to pharmacology*. I see there is no stipulation that the person selected need be a pharmacist. Should we be expected to provide within these walls at much cost facilities for the education of those who are outside our body? especially when there are many young pharmacists who would be only too willing to avail themselves of the advantages which attach to that Fellowship, and would gladly work in pharmacy, especially in its relation to pharmacology. As to the meaning of the words *chemical pharmacology*, I will not now attempt to define them, but I think most of us would consider it had something to do with pharmacy, yet when I refer to the report of the Director of the Research Laboratory for the session 1898-99 (*vide Pharmaceutical Journal*, August 5, 1899, page 143), I find the Salters Fellow has been investigating the "mode of production of some nitro and

amido-oxy-lutidines," "the salts of di-methyl pyrone and the quadrivalence of oxygen." Perhaps someone more learned than myself will explain what these substances have to do with pharmacology. That report is as follows: "In the Research Laboratory good work has been done by Mr. T. Tickle (Salters Fellow) and Mr. E. M. Chapman (Burroughs Scholar). The result of two investigations by Mr. Tickle and myself has been published in the *Journal of the Chemical Society*, whilst Dr. Lapworth and Mr. Chapman have also finished and published in the same journal an investigation on the derivation of camphor. The actual number of publications from the Research Laboratory I give below:—

(1) N. Collie and T. Tickle.—Production of some nitro and amido-oxy-lutidines.

(2) N. Collie and T. Tickle.—The salts of di-methyl pyrone, and the quadrivalence of oxygen.

(3) A. Lapworth and E. M. Chapman.—Homo-camphoronic and camphoronic acids.

(4) A. Lapworth.—Hydroxy di-bromo-camphor sulphonic acid.

(5) A. Lapworth.—Note on nitration substitution in nitro compounds.

(6) A. Lapworth.—Sulphonation of benzo-phenone and of diphenyl methane.

(7) A. Lapworth.—A possible basis of generalisation of intramolecular change in organic compounds.

(8) A. Lapworth.—Action of silver compounds on di-bromo camphor.

Still more recently I find in the *Pharmaceutical Journal* for March 17, 1900, page 297, column 2, under the heading "Chemical Society," that a paper was read at their meeting on Thursday, March 1, on a Di-bromo camphor.

The report is as follows:—

"The authors converted homo-camphoronic acid into a lactone. This hydrolysed, giving a ketonic acid. The ketonic acid combined with hydrocyanic acid, and the resulting compound, after hydrolysis, formed a hydroxy dicarboxylic acid, which was capable of yielding an anhydride; the ketone cannot, therefore, be a δ lactone, but must be a γ lactone. The ketonic acid, moreover, gave a tribromolactone with bromine. The conclusions drawn from these facts and from its derivation from a dibrom-camphor is that the only formula admissible for it is not in agreement with Bredt's formula." All this may be very interesting from a chemical point of view, but I think you will agree with me that not one of these investigations has the slightest bearing on pharmacy. The report also states that some of the papers have been published in the *Journal of the Chemical Society*. Why, I would ask, were they not published in our own official Journal? The only reply which I can imagine would be, either they are unsuited for its pages or else they are much too learned for the comprehension of the ordinary pharmacist. Should such things be? Should the Council allow such work to be done in our Pharmaceutical Research Laboratory?

The week before I read the first of these reports I was reading the report of the proceedings of the British Pharmaceutical Conference at Plymouth, and I noticed that amongst other matters that were discussed there, there was a considerable amount of criticism of the newly-issued Pharmacopœia, and I arrived at the conclusion that if the Research Laboratory had been continuously conducted with spirit from its foundation, on the lines which were laid down at the time it was promoted, much of that criticism could not have taken place, and I then determined, after due deliberation, to make a final effort to get pharmaceutical research substituted for pure chemical research in our Laboratory. With that object I drafted a circular letter, which I sent to each member of the Council in October last. Previous to sending that letter, however, I thought it advisable to ascertain whether my views were likely to obtain any support outside the Council, hence I wrote to a large number of persons in all parts of the country,

including former members of the Council, present and former members of the Boards of Examiners, persons who had taken or were still taking an active part in the work of the Pharmaceutical Conference, and other persons—leaders in pharmacy—who, I thought, took some interest in pharmaceutical research, and enclosed to each of them a copy of the circular letter. I received a reply from each and every person to whom I had written, and with one exception they assured me of their support. As that letter contains the gist of the subject, I will now read it to you:—

I am writing to you as a member of the Council of the Pharmaceutical Society, in the hope of inducing you to assist in carrying out an object in which I have been deeply interested for many years, viz., pharmaceutical research which, I think, in the future ought to be the chief subject for investigation in the Research Laboratory, in contradistinction to pure chemical research, which has been the principal, if not the only, work carried on in the past.

At the meeting of the British Pharmaceutical Conference, held at Plymouth, in July, 1899, Mr. Atkins said (*P.J.*, July 29, 1899, page 128, col. 1), "A great deal of good work had been done by members of the Pharmaceutical Society, and if the Research Laboratory had not done much in this way, he believed it would."

I ask you "When" this good work is to be commenced, and "How" is it to be done?

At the same time and place, Professor Atfield said *P.J.*, July 29, 1899, page 122, col. 2), "There seemed to be an impression that at the back of the Pharmacopœia there were a body of workers who tested all processes, rejected the bad, accepted the good, and added further processes of their own; to do this would take twenty years and cost £20,000.

At a meeting of the Council of the Pharmaceutical Society, held on July 2, 1885 (*P.J.*, vol. 16, pages 6, 7, and 8), it was proposed to establish a Research Laboratory at Bloomsbury-square, and the then President moved as follows:—"That steps be taken for promoting systematic research in pharmacy," and in the course of his subsequent remarks said, "It had often been said that to keep a pharmacopœia abreast of the day it was essential that work should be done continuously," also, "it seemed to him that, quite apart from the political aspect of the question, and the desirability of pharmacists having a voice in the compilation of the pharmacopœia, it was desirable that they should begin with the issue of the new Pharmacopœia (*i.e.*, that of 1885), to do what their resources admitted," and, "If such a project could be carried out *with spirit*, the improvement effected in *pharmaceutical processes* must produce an effect on the medical profession and on the Medical Council which could not fail to be beneficial," and yet later on "In the case of new preparations their value would be discovered, and thus the compilers of the National Pharmacopœia would have an amount of material placed at their command which they could not afford to neglect."

It is needless to point out how little has been done in the above direction during the past 13 years, and in consequence thereof "the compilers of the National Pharmacopœia of 1898" did not "have an amount of material placed at their command"—yet if the work which was foreshadowed above had been earnestly commenced in 1886 and "*carried out with spirit*" instead of the useless research work (*i.e.*, from a pharmaceutical point of view) which has been carried on during the past 12 or 13 years there *ought to have been* "a considerable amount of material" at the disposal of the compilers of the new Pharmacopœia, and both Mr. Atkins and Professor Atfield would have had to modify their statements, and probably there would not have been so much unfavourable criticism of that compilation.

At the Council meeting, held August 2, 1899, it is reported that "Mr. Tickle was admitted to the Research Laboratory, Mr. Chapman was appointed 'Salters Fellow,' and the Burroughs Scholarship remains to be filled."

With this *resumé* of past proceedings, I now most earnestly ask you to use your best efforts in assisting to effect a change in the working of the Research Laboratory, somewhat in the following direction:—

First.—That all workers therein should devote their whole time to pharmaceutical research, with, of course, as much chemical work as is necessary to verify their pharmaceutical work, and that they should commence at once with the 1898 Pharmacopœia, as was intended by the original promoters of the Research Laboratory.

Second.—That the Professor of Chemistry and his assistants, if they have spare time at their disposal, should devote it to pharmaceutical research and not to pure chemical research, as it appears is now the case from the report of the joint investigations and carried out in the Research Laboratory during the past sessional year, for not one of the subjects therein mentioned has the least interest or practical value to the vast majority of the members of the Society, *vide* Report on the Research Laboratory (*P.J.*, August 5, 1899, page 143).

Third.—That all papers relating to work done in the Research Laboratory should be read for the first time at an "Evening Meeting," or at a meeting especially convened for the purpose, and—or—first published in the official organ of the Society, viz., the *Pharmaceutical Journal*.

At the time when the desirability of founding a Research Laboratory was under discussion, I was a member of the Council, and also a member of the

committee appointed to consider the subject, thus I am fully conversant with all that transpired at the time, and in order to show that the intention of the promoters of the Research Laboratory was to carry on pharmaceutical and not pure chemical research, I enclose a copy of a memorandum which was submitted to that committee in either October or November, 1885, and subsequently approved by them and recommended to the Council for adoption.

A reference to the *Pharmaceutical Journal* for July 4, 1885, December 5, 1885, and to other numbers, wherein are published the various discussions which took place on this subject by the Council, must tend to confirm the opinion that the Research Laboratory was established for carrying on pharmaceutical research, pure and simple.

Finally, the Council at its meeting in January, 1888, passed the following resolution:—"That the sum of £300 a year be granted for the next three years to a committee to be appointed annually by the Council, &c., &c.—to make such arrangements with the Professor of Chemistry as will enable advanced students and others to undertake *Pharmaceutical Research, &c.*"

In conclusion, I again ask you "When" is pharmaceutical research to be commenced, "How" is it to be carried on so that the results may prove of some benefit to the members of the Society, and will you use your best efforts to at once attain this most desirable object?

An early reply will oblige.

I then waited four months, and as at the expiration of that time I had not received any official reply, I wrote to the President asking him whether the subject of my letter—viz., "Pharmaceutical Research *vice* Pure Chemical Research"—had yet been officially considered, and, if so, with what result, and, if not, whether the Council proposed taking any notice of it and when. The President replied as follows:—"Dear Mr. Butt,—I duly received yours of the 13th, with enclosed circular letter, of which I had previously received a copy. As I informed you a week ago, the delicate correspondence with the General Medical Council regarding pharmacopœial revision, which includes true pharmaceutical research, is still going on, and when concluded I think the Council of the Pharmaceutical Society will most probably try to affiliate your scheme with that of pharmacopœial revision. The subject of your scheme has been mentioned on several occasions, but as it included the latter wider subject, it has not been definitely taken up. I cannot answer you further at the present time." A reply which is somewhat vague, and one which contained little more than might have been said at any time during the last thirty years. Still more recently, judging from the report of the proceedings of the Council in April last, there has been some furbishing up of the Research Laboratory, for it is stated that "It appeared that, besides the ordinary routine work, the committee had sat as a Research Committee and received reports from Professors Collie and Greenish respecting the progress of certain pharmaceutical work, which, at the request of the General Medical Council, had been undertaken in the Society's laboratories." From this it seems as though the "delicate correspondence" which the President referred to had terminated and the Research Laboratory has not only become the hand-maiden of the Medical Council, but is being subsidised by it. Well, gentlemen, I do not think that is the position in which this Society ought to be placed. We ought to be able to act with perfect freedom—free of that body and every other body, and the Council or its Research Committee should select the subjects for investigation and to see that the workers are occupied in carrying them out with spirit. Those investigations ought to have such relations to the revision of the Pharmacopœia, the improvement of pharmaceutical processes and with pharmacy in general, as past experience has shown to be so urgently needed. Perhaps it would be as well if the Vice-President would explain to this meeting the substance of the arrangement which has been entered into with the Medical Council, the nature of the work which they propose we should undertake for them, and whether the arrangement is only a temporary one, or is intended to be permanent, also whether all the workers in the Research Laboratory are to be engaged in doing that work, and, finally, if the arrangement is to be a permanent one, whether the Pharmaceutical Society is to be represented on the Pharmacopœia Committee of the Medical Council on equal terms with their own members. I do not think there is any reason

for secrecy, neither should there be any mystery in the matter. If the reply to the last question is in the affirmative we shall all be glad to find that at length there is a prospect of the work being carried on on the lines originally proposed.

In concluding my remarks, I would say I think I have succeeded in pointing out that the Research Laboratory was founded for the purpose of pharmaceutical research, and if investigations of that nature had been carried out with spirit during the past ten or eleven years, the pharmacist, the medical profession, and the compilers of the Pharmacopœia ought all to have been much benefited by the results of that work. On the other hand, I think I have also shown that the research work which has been actually carried out has been pure chemical research, undoubtedly of a very high class, but as far I can see the members of the Chemical Society have almost alone derived all the benefit arising from our work; hence I think I have proved the urgent necessity for a change on the lines indicated in the resolutions you have before you, and I feel sure you will all give them your hearty support.

Mr. HILLS: May we know absolutely and definitely what is the resolution that we are to vote upon, because there are three here, and I understand Mr. Butt is only moving one?

Mr. BUTT: I move the second resolution, "That the Research Laboratory be used for the purpose of pharmaceutical investigation and research only, and be placed under the direction of the Professors of Chemistry and of Pharmacy."

Mr. BARNETT: I shall be glad to second it. I should like to say that I hope in the Research Laboratory the researches will be connected in a manner that will standardise the things or give an official standard, so that the new Pharmacopœia, which will be published at some future time, shall be an official standard for all drugs as far as possible. If that be embodied in Mr. Butt's resolution, I think it would be a good thing. The Pharmacopœia ought to be the standard, and I think it might gradually be made the standard which will be in future accepted by the general body.

Mr. CARTEIGHE: I was very glad to have the opportunity of seconding the resolution calling this special meeting at the request of Mr. Butt for two reasons; that there seems to be in his mind, and in the mind of some of the members, some misapprehension as to what has been going on since the Council took up the matter. He has referred a good deal to the past, and, if time permitted, I could also; but, for practical purposes, I do not wish to deal with the past. I do not wish to deal with those satirical remarks he makes about the past. I only wish to say that those of us who remain on the Council, and not, as Mr. Butt has done, left it, have done their best to do what they could under the circumstances in which they were placed, and I will first say that when the President of that time, who happened to be your most obedient humble servant, Michael Carteighe, brought forward this matter of research, he spoke of it as being a thing right in itself, and that its moral influence upon the outside public would be considerable. He said that it would affect our position with regard to the new teaching University of London, which was then in the air, and he said if he did systematic work in research—I do not care what you call it, for pharmacy embraces all that—that the Medical Council will, as a matter of course, almost a matter of duty, ask you to do work for the benefit of the Pharmacopœia. Those two statements are at the present moment absolutely confirmed. This school and these professors have been recognised as part of the teaching body of the University of London. There is to be a Board of Pharmacy. Pharmacy is recognised, if not in Parliament, as a distinct profession. That is worth something, I hope. Then the other thing is that we were asked after the publication of the Pharmacopœia in 1888 to nominate two members of our body to be associated with certain other members of the Medical Council in a body which they call a conference. I want you, gentlemen, to try and follow me with regard to the word "committee" and the word "conference," which are a little bit awkward for us, because we have another conference. But they call it a conference, the

object of which was, as explained to us in official letters, to take advice from the medical, from the physiological, from the pharmaceutical side, in regard to what scientific work should be undertaken forthwith, with the view hereafter of forming a Pharmacopœia Committee to digest it and to put it in form; that is to say, they did what some of us, my friend, Mr. Umney, and myself, for instance, advocated many years ago, long before Mr. Butt took any interest in the question at all, and we find that they say we want a committee of a conference; we want a small body of men to associate themselves together and to decide what set of subjects in each branch of the Pharmacopœia require systematic investigation, and to consider how and when such investigation should take place. The gentlemen appointed by us on that conference were Dr. Inglis Clark and Mr. Charles Ekin, both of them members of the Pharmacopœia Committee of the Society who assisted the Medical Council in producing the last volume, and both of them, not members of the Council, but men of good broad common sense and wide knowledge. Acting upon suggestions made by our representatives on this conference, the Medical Council has officially asked us to do certain things already. This, I think, was some months ago, but that does not matter for the present purpose. Some of the work that they have asked us to do has been going on for some months. They have asked us, in the first place, to ascertain to what extent the standardising of potent drugs can be carried on with accuracy and success. Dr. Collie at this very moment is at work on the premises with that object. I do not know whether that is pharmacy or whether it is not, but that is what he is doing. In order to do it he has to take something that is definite, and he happens to be beginning with coca. He has to begin with the active principle. If he can standardise it with accuracy, he has to see whether it applies to medicine. The other thing they have asked us to do is the determination of boiling points. I do not know whether that is pharmacy or not, but we are going to undertake it. Boiling points are probably physical constants. We have not heard from Mr. Butt anything about physics. I suppose that would be much further off, but it is the work which furnishes important aids to ascertaining the purity of certain substances. They have asked us to determine the percentage of ash in certain drugs, and lastly, so far, they have asked us to determine the solubility of the chemical salts of the Pharmacopœia. I do not know whether that is pharmacy or not, but the professor of pharmaceuticals has undertaken it. Now, there is more there than we can do for some time. They have asked us to do this on these grounds—that the work we have done is to be trusted, that the work that we shall do will be trusted, and they are satisfied that the Council of this Society is sincere in its desire to go in for scientific work and control it, and that it is competent so to do. In fact, they have come to the conclusion that it is not necessary to go behind our backs to our professors, but they come in front to the President and ask us direct. At this present moment we are practically as the Research Committee of the Council directing this work. What more does Mr. Butt want in that direction? He said something in his observations about being independent. We cannot be independent in regard to pharmaceutical work. We cannot be independent of medicine. The whole of the Pharmacopœia is not purely pharmacy, or purely chemistry—the medical element comes in; but what I have contended for is that everything which is not physiology and therapeutics in that volume can be undertaken in this house if we have sufficient workers to carry it out. The question is, can we do it? Can we afford it? At the present moment there is, strictly speaking, no research laboratory as distinct from any other laboratory. There was a time when the laboratories belonged, almost as a matter of trade, to each professor, and we had to get young professors and put them in another part of the house to do work which was called research work. The fact is now, that in the research laboratory of the Upper House every professor has a research department, and he does that as part of his work, as he ought to do, without

any remuneration. It was not made as a matter of change at the time Professor Atfield and Professor Dunstan resigned. The research laboratory where chemical work is now done, under Dr. Collie, is on the same floor as the teaching laboratory, and the pharmaceutical work, under the direction of Professor Greenish, goes on either in this House, or in the other. At the present moment one of the laboratories which Professor Dunstan used for research work is used for the work under Professor Greenish, and the other for teaching our students practical operations in pharmacy in connection with that of our School. Our research work is now merged in the schools. It is part of the schools, and it is right that the control of the whole of it should be vested in the Council, and no one else. This resolution means, if it means anything, that we should give up this direction and place it under the direction of the Professors of Chemistry and Pharmacy. After I have lived as a member of this body for forty years, after we have had to fight with our own officers, are we to give over to our own officers the powers which the Council alone ought to keep? The thing is absurd; it is ridiculous, and can only have been suggested from want of knowledge. I admit that a good deal that I have said to you has not been put in the form of a report, but before I refer to that I will say this first—not only have we been asked to do this work, but it was possible to get one or two men with scholarships and sometimes a third without a scholarship to work at chemical work where extra knowledge was gained without remuneration, it was impossible to get a man to go on working at such things as solubilities and that sort of thing without remuneration. At the time the Research Laboratory was first suggested, many of us thought that on something like £50 a year, or a scholarship of less value, we might find a number of men willing to work. Experience has found that that is not so. I do not say that I am sorry for it, because the value of our men when they have taken their Major qualification is so increased that I am not surprised that they go elsewhere and get £150, rather than take £50 from us. We have, as a Council, to deal with the position as it is placed before us. What we have said to the Medical Council is, broadly, this, that we can get a certain amount of work done on standardising and possibly boiling points without much cost. We may have to supply some persons to assist, and the cost of material is not very great, but in regard to certain things it may be necessary to pay a very respectable stipend to a worker. The Medical Council has practically left us a free hand in that respect, and that what costs us money with regard to the scientific work which they have asked us to do, they will not allow us to be out of pocket by. The professors will do the direction, and the final control comes from the Research Committee of the Council itself, which sits month by month. It will be said, why did you not tell us all this before? I will tell you why. I have had nothing to do with it, because I am not the President. I am acting now for the President, who is in South Africa. There are amongst our own body a number of very good fellows, very capable men, and we have had officers in this house who, in the judgment of some of us, have not been loyal to the Society. I mean to say, and I must speak plainly, that they thought of their personal position, their personal reputation, aye, and, I am afraid, their pocket, before they thought of the incorporated body that created them and had made them eminent. We do not know at this moment whether we have not even officers about us now who may, if they are not looked after, develop in that direction. Have we not had an illustration of it in the fact that I do not know how many were required to make the last Pharmacopœia. We had to do something, somebody had to do something else, and the experts had to look over it all, and have we not heard of experts and officers actually taken from members of our own staff? What can we do if we have men like this about us? Why, we must keep our own counsel, and conduct our own house and our own negotiations. Mr. Butt said in one of his observations that we should do work off our own bat. I admit that. If we undertake this work,

which we have undertaken and which we must do, I assure you that as one of that committee it will take all the men that we can get, whether we pay them or not, for at least a couple of years. This work must be done in such a way that it shall be unimpeachable, that it shall be the standard for all time, and that it shall stand to the credit of this Society that it was done in this house. I hope that we shall not raise the question whether it is physics, or pharmacy, or what. It is work belonging to that wonderful volume which Redwood used to tell us was more a book of physics than anything else; in fact, when you take the physics out of it there is no pharmacy left. As to pharmacy, do not we know that that which was once called pharmacy is fast looming away from us, and may we not have to face the fact that standardised things may sooner or later displace a large part of those very things that we have been in the habit of considering ought to be made by the pharmaceutical chemist under his own personal supervision. We have the most cordial relations with the Medical Council in this matter. Dr. Leech, who is on intimate and friendly terms with me, did some work with Professor Dunstan in the Research Laboratory many years ago, and read a paper in this room on the action of ethyl-nitrate. I do not know whether that was pharmacy, but it was read here, and he has been impressed with the character of the work done. In the course of Mr. Butt's remarks he has referred to publication. Mr. Wells referred to the Journal, but do not we know perfectly well that while some of us are anxious to push along the Society's machine, politically, socially, and scientifically, that a large number of men will not interest themselves in abstract chemical or physical questions, botanical or otherwise, but the great majority of them want more or less popular material. We are happy to do what we can by putting into the Journal matter which is very easily readable and very easily understandable by the side of some which is not so easy. The question of publication and where it is read is a matter, after all, of very little consequence. To accuse the worker of being your paid slave for doing intellectual work which is to be for the benefit of all humanity is to take a very low estimate of research work. We want the men to feel that they get honour, and if they get honour for their work anywhere, why should you interfere with them? I go further, and say with regard to the scientific matters connected with us as I have repeated with regard to politics, that what we want is the publication of what we do to other people besides ourselves. We want the doctor and the educated public to know, we want the chemists all over the kingdom to know, that we do good work and are to be trusted; that we are not a mere trades union, that we are people with higher aspirations, even though we keep small pharmacies—all this is part of the whole machinery of the Society. Of course, if Mr. Butt, or any other active man in his position, takes up a point of this sort and runs it down and asks for signatures to any particular thing, there is not much difficulty in getting them. I am very glad he has taken the trouble. I have had a good many letters which seem to imply that because he was an auditor and a former member of the Council, he was acting under the direction of the Council in this matter. Of course he did not represent that himself. I say when we have something like £1,000 a year so that we may be able to employ about ten competent pharmaceutical chemists at £100 a year each to do the work, then Mr. Butt's aspirations can be carried out, but not before. Even then there will be difficulties; even at £100 a year, such is the demand for well-trained men that it is exceedingly difficult to keep one at the work after they have passed their examination. I beg to move:—"That the work of the Research Laboratory be vested, as heretofore, in the Research Committee of the Council."

Mr. MACKENZIE said he had much pleasure in seconding the proposition. He thought all present would agree with him that a large amount of information had been given to the meeting which was not known before. He was much obliged to Mr. Carteighe

for his clear and distinct address, which was most applicable to the present condition of affairs, and he trusted that the proposition would be received by the meeting unanimously. He did not wish in any way to detract from the good that might result from the matter having been brought forward by Mr. Butt. He quite agreed as to the necessity for research in the present day, and had done his best to assist when the matter was before Parliament.

Mr. UMNEY: Those who know Mr. Butt are well aware that he has this subject much at heart, and that he has moved for a most honest purpose, and having moved that, he will be prepared to subsidise any Research Laboratory that is formed. There is very little difference between what Mr. Butt and Mr. Carteighe said; indeed, there is not one man in this room who is not desirous of seeing a Research Laboratory in this institution—no matter under whose control it is, because that is a mere matter of detail—we are all of one mind that there should be a Research Laboratory, and that the British Pharmacopœia of the future should be properly conducted. I have been on two of the committees that have edited a British Pharmacopœia—indeed, I have thirty-eight years' experience of the work of the matter, and I know that in our last committee we were sadly put about that we had not the opportunity again and again when matters cropped up which were necessary to be investigated of referring them to a Laboratory to be settled; monograms had to be slung together, and we had to accept statements in those monograms that had been copied. You all know what copying from books means—that you copy error after error. On the occasion when Mr. E. White read a paper in this room on sal volatile we all thought we knew something about it, but it appeared there was an error in the Pharmacopœia. Now that has been going on for a very long time. We know there are other errors; for instance, in acetic acid we have two tests—one of titration and one of congealation, and the two do not agree. In the Antipodes the analyst will not test by the titration, and if the article happens to be one-tenth of a degree under 99 per cent., a heavy import duty is imposed. I could give you many other illustrations of the same kind if it were necessary. We learnt for the first time when we had the report put into our hands that the Society were working with the British Medical Council with the object which Mr. Butt has very keenly at heart, and which we all have, but I don't understand this passage: "It has now to be reported that the General Medical Council has asked the further co-operation of the Society in determining certain chemical and pharmaceutical problems requiring elucidation." That is rather putting the cart before the horse; the Medical Council are going to determine the points which require elucidation, and not this Society.

Mr. CARTEIGHE: It is the mixed conference.

Mr. UMNEY: What Mr. Butt wants to prove is that there should be a Research Laboratory in this building, and that its main work should be to keep the Pharmacopœia up to date. I will go further, and say that each six months there should be a report of the work done, and that the report should be published, so that others might check it. I am sure Mr. Butt's object will have been served by bringing this matter before the meeting. He does not care who has the control of the matter so long as it is controlled properly.

Dr. SYMES: I go with Mr. Butt to this extent, that I consider he has done a good thing in bringing the matter before the annual meeting. I have spoken to many pharmacists throughout the country, but I have never met one who was satisfied that the Research Committee was doing the work expected of them when it was appointed. When the new building was put up and the money provided by us pharmacists we had a good right to expect that for our money we should get a *quid pro quo*, but for many years that *quid pro quo* never came. There has been very general dissatisfaction to those who hoped for a great deal from the Research Laboratory. Mr. Butt's remarks have been made, I believe, in all

honesty of purpose. You will remember that he did not deal with the history of the thing; he rather said we will take the past as gone, and will look to the future. Mr. Carteighe has been able to tell us to-day that the future has a brighter prospect, and I hope it will result in a greater interest being taken by pharmacists in the work. I have no doubt that Mr. Butt will feel he has accomplished his object in bringing the matter forward, and that he will withdraw his motion, for I am sure all he wants is to get some good work which will be useful to pharmacists as the result of bringing the matter forward to-day.

MR. WALTER HILLS: I hope that the resolution will be withdrawn. I do not think it necessary to occupy your time, as all I could urge has been already said by Mr. Carteighe. It is rather difficult for us on the Council to realise the extent of knowledge or ignorance on the part of our friends outside on matters which are familiar to us. I am surprised to think that so much ignorance on this point has been displayed by some of my own colleagues. Mr. Butt, in moving the resolution, said he would not refer to by-gones, but I cannot help reminding him that everything he said was about by-gones, and everything Mr. Carteighe said has been about the present and the future. Whatever have been the by-gones, and no doubt none of us think by-gones perfection, we all have to learn by experience, and perhaps it is more profitable that we should occupy ourselves with the present position. The present position, as shown by Mr. Carteighe to-day, is one of great satisfaction to ourselves. We heard from the Secretary of the London University Commissioner last night that we shall now be a part and parcel of the London Teaching University. Is not that something to be proud of? Is not one of the reasons we are taking that position because we have a Research Laboratory, notwithstanding the character of the work, whether it is pharmaceutical or not? I do not know what pharmaceutical means; you may have pharmaceutical botany, pharmaceutical chemistry, and so on, but pharmacy is an art. As allusion has been made to myself in connection with the Pharmacopœia, I may say I had the honour and the responsibility—and it was one of the greatest responsibilities I had during the time I was President of the Society—to be Chairman of the Pharmacopœia Committee of the Pharmaceutical Society of Great Britain, and they gave me a sorry time of it. I do not profess to be a great pharmacist, but to sit in the chair and hear the giants discuss the various points, one swearing it was this thing and another that it was something else, required great moderation on my part to conduct the business at all. I came to the conclusion, after taking the chair at so many meetings and finding it so difficult to arrive at a conclusion, and knowing we were not brought into close personal contact with members of the Pharmacopœia Committee of the Medical Council, that we could only do it by means of one or more communications passing between us and them, and not being able to give the exact reasons always for our conclusion, I came to the conclusion that we wanted to get into close contact. The Legislature has thrown on the Medical Council the responsibility of producing the Pharmacopœia, and until the Legislature sees fit to alter it, that body will continue to have that responsibility, and I came to the conclusion that it would be advisable to get into close and personal contact; and before we finished our labours it was found necessary, as we could not come to a conclusion, to have a conference under the same roof. Of course, your President had to be there. We had a most interesting meeting, and soon knocked off the little points of difference. At the end of the conference I said to my medical friends: "What a pity it is we cannot meet more often and begin to work on the new Pharmacopœia as soon as this one is published." The result of it has been that we have been asked to do work for the new Pharmacopœia; we have been asked in the most pleasant way, and, speaking for Dr. Leach, I know he has the greatest regard for this Society, and that he will be glad to have the systematic work done here, because he and those working with him want systematic

work. He does not want to have work which is not, as it were, guaranteed by such a Society as this. Do not try and look too much at the roots, and do not pull up our tender plant to see how it is growing; give us a little patience for at least twelve months, when I think we shall be able to show you that on these premises we have done work of which we may be satisfied. Do not try and examine too much into the details. There is one condition which is imperative, and that is that the Council of the Society must have the absolute and sole control of all the work that is done here. It must be done through us at any time. I will not be one to agree to there being a reversion to any outside members to take part in the management of this establishment. I do not know whether you are going to give me your confidence in the future, but so long as you give me, or my successors, your confidence, I hope you will give it to them during the twelve months they represent you.

MR. BUTT: Gentlemen, when I sent this circular letter to the members of the Council last October, no information of the kind submitted to-day was available. The letter concludes with this statement: "In conclusion, I again ask you, when is pharmaceutical research to be commenced? How is it to be carried on so that the results may prove of some benefit to the members of the Society?" and to that I had no reply until Mr. Carteighe made his speech. Mr. Carteighe and I to a great extent are in accord on this point. In this memorandum, which was published in 1885, Mr. Carteighe has told us that the Research Committee and the Conference, in conjunction with the Medical Council, have practically agreed to work on the subjects mentioned here. There is not one word which Mr. Carteighe has said that I disagree with; neither did Mr. Carteighe say that there was anything I said which he could disagree with. He may have raised a question whether so and so was pharmacy or pharmaceutical research, and, of course, pharmaceutical research is a very wide and broad question. When after vainly attempting to get a reply to this, I determined to convene a special meeting to consider the question of the Research Laboratory, it was absolutely necessary that something definite should be done, and for that purpose the resolution was drawn necessarily very broad. If we had not received the explanation which we have to-day had from Mr. Carteighe, I should have put the matter to the vote, but I think everyone will agree that the explanation which has been given is perfectly satisfactory and a full answer to everything I require. Under these circumstances, I have much pleasure in withdrawing the resolution; in fact, much more pleasure than I had in proposing it.

THE VICE-PRESIDENT: Gentlemen, I think our thanks are due to Mr. Butt for withdrawing the resolution after hearing the statements made by Mr. Carteighe and others, but still I think the manner in which Mr. Butt has brought it forward has done an immense amount of good, because it has educated many here to-day. Mr. Butt said he knew very little about it until the present time, and that had he known as much as he does now he would not have brought it forward, but I think in bringing it forward he has done an immense amount of good. There is just one point I may mention. Our Charter says, whereas divers persons have associated together "for the purpose of advancing chemistry and pharmacy." I have nothing more to say.

MR. HYSLOP proposed a vote of thanks to the outgoing members of the Council for the services rendered to the Society, and to the Vice-President for presiding over the meeting.

MR. ANDREWS seconded the resolution, which was put and carried.

THE VICE-PRESIDENT briefly acknowledged the vote, and the proceedings then terminated.

SAPODERMIN SOAP.—This is an American specialty which contains soluble mercury albuminate. It possesses powerful bactericidal properties, and is said to be neither irritant nor poisonous. Sapodermin soap is an efficient substitute for sublimate soap in the treatment of parasitic diseases of the skin.—*Pharm. Zeit.*, 45, 116

PHARMACEUTICAL SOCIETY.

ADJOURNED GENERAL MEETING.

MR. G. T. W. NEWSHOLME, VICE-PRESIDENT, IN THE CHAIR

The adjourned meeting for receiving the report of the Scrutineers was held on Thursday, May 17.

The Chairman of the Scrutineers, Mr. E. N. BUTT, read the following report:—

Scrutineers' Report.

We, the undersigned Scrutineers, appointed at the Fifty-ninth Annual General Meeting of the Pharmaceutical Society of Great Britain, do hereby certify that we have examined the voting papers committed to us, and report the following:—

Voting papers reported by Secretary to have been issued	5541		
Voting papers received	3707		
Voting papers issued, but not received	1834		
Voting papers received	3707		
Voting papers disallowed:—			
Informal	31		
Received by post, too late	24		
	55		
	Voting papers registered	3652	
HILLS	2761	WARREN	1482
SYMES	2035	GROSE	1312
WOOTTON	1870	BATESON	1291
STORRAR	1820	CURRIE	708
COOPER	1722	CAMPKIN	686
CROSS	1680	GOSTLING	425
TAYLOR	1618	PICKERING	367
GIBBONS	1617	MORRISON	328
GIFFORD	1587		

EDWARD N. BUTT, Chairman.

A. J. PHILLIPS.	W. PICKARD.	R. THOMAS.
C. TERRY HOLLOWAY.	A. J. WING.	W. ARKINSTALL.
W. PRIOR ROBINSON.	A. E. TANNER.	F. A. UPSHER SMITH.
J. W. BOWEN.	W. B. NELSON.	H. C. BIRCH.
C. E. GARMAN.	R. H. JONES.	S. J. WESTON.
R. FISHER YOUNG.	H. WIGGINS.	E. W. HILL.
T. MORLEY TAYLOR.	C. HAPPOLD.	G. SQUIRE.
W. F. GULLIVER.	P. DAVIDSON.	J. T. DE PEARE.
W. MURTON HOLMES.	T. H. POWELL.	C. J. L. RUSSELL.

The New Council

The VICE-PRESIDENT, as Chairman of the meeting, then declared that the following gentlemen would constitute the Council for the ensuing year:—

ALLEN, CHARLES BOWEN, 20, High Road, Kilburn, N.W.
ATKINS, SAMUEL RALPH, Market Place, Salisbury.
CARTEIGHE, MICHAEL, 180, New Bond Street, W.
COOPER, ALBERT, 80, Gloucester Road, South Kensington.
CORDER, OCTAVIUS, 31, London Street, Norwich.
CROSS, WILLIAM GOWEN, Mardol, Shrewsbury.
GLYN-JONES, WILLIAM SAMUEL, 159, East India Dock Road, E.
HARRINGTON, JOHN FREDERIC, 45, Kensington High Street, W.
HARRISON, JOHN, 23, Bridge Street, Sunderland.
HILLS, WALTER, 225, Oxford Street, W.
JOHNSTON, JOHN, 45, Union Street, Aberdeen.
MARTINDALE, WILLIAM, 10, New Cavendish Street, W.
NEWSHOLME, G. T. WILKINSON, 27, High Street, Sheffield.
PARK, CHARLES JAMES, 23, Mutley Plain, Plymouth.
SAVORY, ARTHUR LEDSAM, 143, New Bond Street, W.
SOUTHALL, ALFRED, 17, Bull Street, Birmingham.
STORRAR, DAVID, 228, High Street, Kirkcaldy, N.B.
SYMES, CHARLES, 14, Hardman Street, Liverpool.
TAYLOR, JOHN, 210, St. George's Road, Bolton.
WOOTTON, ALFRED CHARLES, Barrymore, North Finchley, N.W.
YOUNG, JOHN RYMER, 42, Sankey Street, Warrington.

After the report of the Scrutineers had been received, the VICE-PRESIDENT moved, and Mr. ANDREWS seconded, a vote of thanks to the Scrutineers for their labours. This was unanimously accorded. A vote of thanks was also accorded to Mr. Butt, who, in reply, stated that the scrutiny had been one of the heaviest jobs the Scrutineers had experienced for the last ten years, owing to the large number of candidates.

ROYAL INSTITUTION.

On Thursday, May 10, Professor DEWAR gave the third lecture of his course on

A Century of Chemistry,

in which he completed his account of Davy's scientific work (see *ante*, p. 499). Davy investigated the allotropic forms assumed by carbon, and, having been consulted by the Government with regard to the corrosion that occurs in the copper-sheathing of ships; he found a remedy by placing in contact with the copper a small area of another metal that would be more easily attacked. The device was successful in stopping the corrosion of the copper, but the bottoms of the ships became foul more quickly than before, owing to the fact that the clean copper surface afforded a favourable situation for marine growths of various kinds. Referring next to Brande, who was connected with the Royal Institution for forty years, the lecturer said he was a man of great culture, and with a high reputation as a lecturer. His chief work was in the borderland between chemistry and physiology, but he was not an investigator of the first rank. It was otherwise, however, in the case of Faraday. In organic chemistry his chief work opened up new ground, for he first prepared compounds of chlorine with carbon, and also combined iodine with a hydrocarbon. He was able to extend the electro-chemical inquiries of Davy by the use of the galvanometer, and his table of electro-chemical equivalents was a development of the determinations he carried out on the amount of various metals, in proportion to the current passing, electrolytically separated from solutions of their salts. He also investigated the limits of evaporation, his work in that direction being parallel to Davy's attempts to get high vacua in order to discover the behaviour of electricity in space as nearly void of matter as possible. Davy perceived that the Torricellian vacuum would be improved by cooling, and experiments performed by the lecturer demonstrated that when a tube full of gas was progressively cooled by liquid air, the electric discharge through it underwent the same successive modifications as would be seen if it were being exhausted by an air-pump. Faraday also did important work in connection with the liquefaction of gases, which began when he obtained liquid chlorine. He appreciated the possibility of utilising liquefied gases for the attainment of very low temperatures, and was the first to employ ethylene, now in common use, for the purpose.

BLACKPOOL AND FYLDE CHEMISTS' ASSOCIATION.

A meeting of members of this Association was held at the Palatine Hotel on Wednesday, May 9, to adopt candidates for the Council Election and perform other business. Mr. Councillor JOHN LAURIE presided. After adopting the minutes of the last meeting,

The SECRETARY reported that very gratifying support had been extended to the Association, every chemist in Blackpool having joined, and a large proportion in South Shore, St. Anne's, Fleetwood, and other places in the district, and the Committee entrusted with the work of calling upon chemists in the district had been met with the utmost cordiality, and a general desire expressed to see the Association placed on a sound basis. The financial position was also very satisfactory.

The report being adopted,

The CHAIRMAN opened the discussion by pointing out that members of the Association had been practically unanimous in favour of restricting titles implying registration to persons who had passed the Pharmaceutical Society's examinations. Should the proposed Companies Act become law at any future time, the present anomalous and absurd position would become legalised, and there would be two methods by which persons could practise pharmacy—one by means of the examinations, the other by forming limited liability companies. Although by adopting the latter course persons could use the title of chemist, yet this had never been recognised in any

Act of Parliament, and it would be better to have a clause to regulate pharmacy omitted altogether than one capable of working so much mischief. It was for the meeting to decide which candidates for the Council would be most likely to vigorously attempt to carry out the wishes of the members of the Association.

Mr. RICHARDSON strongly supported the Chairman, and Mr. ASHTON was of opinion that no harm could possibly be done by asking enough, whether they got it or not. A general discussion followed, and the meeting unanimously resolved to support the following candidates:—Messrs. Taylor, Gifford, Cooper, Hills, Campkin, Currie, and Storrar. The Secretary was instructed to inform all members of the decision of the meeting, and recommended them to vote accordingly:

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.

A well attended meeting of the above Association was held in the Lecture Theatre, at 17, Bloomsbury Square, on Friday, May 4, Mr. E. W. POLLARD in the chair. The minutes of the last meeting were read and confirmed.

Miss E. RAYNER proposed that the Committee consider the advisability of holding regular debates during next session. This was seconded by Mr. ALLEN. Mr. HESLOP recommended that the matter be discussed next session. This amendment was put to the meeting and carried.

The CHAIRMAN then called upon Miss Rayner to read a paper upon

PLANT HAIRS.

Miss RAYNER classified the different hairs found upon plants, from a physiological point of view, and mentioned several examples of each. Many striking instances of the utility of such structures were noted. Occurring upon seeds, they often materially aided their dissemination. Hairs were also alluded to as a means of identifying certain drugs upon which they occur in characteristic shapes and arrangements. Miss Rayner concluded by thanking Mr. Wallis for the loan of diagrams—by which the paper was well illustrated.

The CHAIRMAN then requested members to put questions. Miss BLUNDELL, Messrs. UPSHER-SMITH, WALLIS, HARRIS, WOOLCOCK, LAWSON, and BATTERSHILL responded. All the speakers expressed their appreciation of an interesting and well-delivered paper. The CHAIRMAN announced that Mr. H. Deane would read a paper at the next meeting, May 18 inst., on "Explosives." The meeting then terminated.

ENGLISH NEWS.

DEATH OF DR. EDMUND ATKINSON.—On Friday, May 4, there passed away, at Camberley, a well-known chemist and physicist, Dr. E. Atkinson, who was for many years professor of experimental science at the Royal Military College, Sandhurst, and at the Staff College. He was born at Lancaster in 1831, and became a student of Owens College, Manchester, in its early days, subsequently assisting the late Sir Edward Frankland in organising the laboratory of that institution. He afterwards studied at the Universities of Marburg, Göttingen, and Heidelberg, and at the Ecole de Médecine in Paris. On returning to England, before taking up the professorship at the Royal Military College, he acted as private assistant to Sir Benjamin Brodie at Oxford, then as science master at Cheltenham College. On several occasions he was elected on the Council of the Chemical Society; he was also for many years the treasurer of the Physical Society, of which he was a founder. He became widely known to scientists by his translations into English of numerous foreign works, including Ganot's 'Elements of Physics,' von Helmholtz's 'Popular Scientific Lectures,' and Mascart's 'Treatise on Electricity and Magnetism.' Since retiring from the professorship he has devoted much time to local affairs at Camberley as a magistrate and in other capacities.

MANCHESTER CHEMISTS AND THE COMPANIES BILL.—On Wednesday, the 16th inst., a deputation of chemists—Messrs. Harding, Kirkby, Ramsden, Robinson, and T. Wild (Mr. Jacklin was prevented at the last moment from taking part in the deputation)—representing the various wards in the South Manchester Parliamentary Division, waited upon Mr. Leif-Jones and the Hon. W. R. W. Peel, the Liberal and Conservative candidates for that division. The deputation laid before the candidates the reasons why chemists desire to have the pharmacy-company clause expunged from the Companies Act Amendment Bill. Mr. Leif-Jones discussed the matter at great length, and expressed himself satisfied that the chemists have a genuine grievance because of unqualified men calling themselves chemists when registered as a limited company. He promised to give the matter his most serious consideration, and asked that the deputation would furnish him with the fullest information bearing upon the whole question of company pharmacy. This they readily consented to do. The Hon. W. R. W. Peel promised that he would oppose the obnoxious clause on the ground that the members of a company should only be able to obtain the title of "chemist" in the same way as an individual, namely, by examination. The deputation was most courteously received by both candidates.

THE SALE OF CAMPHORATED OIL.—At Lambeth Police Court, on Thursday, May 10, George Shambrook, shopkeeper, Heaton Road, Peckham, was summoned by the Camberwell Vestry for selling camphorated oil which was not of the nature, substance, and quality of the article demanded by the purchaser.—Evidence was given to the effect that Inspector Groom caused three penny bottles of camphorated oil to be purchased at the defendant's shop. The contents of the three bottles were mixed together by the inspector, and then divided into three parts, as required by the Act. One portion was submitted to the public analyst, who certified that the sample was deficient in camphor to the extent of 78 per cent., and that it contained 95.3 per cent. of cotton seed oil, there being no olive oil present.—For the defence, Mr. Sydney submitted that the inspector acted contrary to the requirements of section 14 of the Act in mixing the contents of the three bottles together, his contention being that each bottle should have been dealt with separately.—Inspector Groom pointed out that the bottles only contained half an ounce each, and said the analyst told him that it would be impossible to analyse a third of that quantity.—Mr. Francis (magistrate) remarked that at present there was no evidence before him that it would be impossible to analyse the bottles singly, and adjourned the case for the attendance of the analyst.—At the same court, Frederick George Quance, shopkeeper, Wingfield Street, Peckham, was also summoned by the Camberwell Vestry for selling camphorated oil which was not in accordance with the requirements of the B.P., 1898.—It was stated for the prosecution that the wife of the inspector went into the defendant's shop and asked for three penny bottles of camphorated oil, and was supplied with an article labelled "Campholeum—formerly known to the public as camphorated oil." As in the previous case, the inspector mixed the contents of the three bottles together, and submitted a sample of the whole to the Public Analyst, who reported that it was 77 per cent. deficient in camphor and contained 95.2 per cent. of mineral oil which should have been absent.—For the defence, the wife of the defendant stated that she told the purchaser she was being supplied with "campholeum."—Mrs. Groom denied that statement, although she admitted that a card to which bottles of the oil were attached, and which bore the word "Campholeum," was prominently displayed.—Mr. Armstrong took a similar objection to that raised by Mr. Sidney in the previous case as to the division of the article. He contended that each bottle should have been dealt with separately, and said it was not for them to consider the question of whether one bottle was sufficient for the purpose of analysis. He also contended, on the authority of "Sandys and Small," that the sale was not to the prejudice of the purchaser, who had notice of the nature of the

article supplied, and that there could not be a conviction.—Mr. Francis said that to his mind the label conveyed to people buying the impression that "Campholeum" was the same thing as camphorated oil. The case would be adjourned for a week.

THE SACCHARIN CORPORATION (LIMITED) v. QUINCEY.—In the High Court of Justice, Chancery Division, before Mr. Justice Cozens-Hardy, on Tuesday, May 15, his Lordship gave judgment in the action, tried on the 2nd and 3rd inst., in which the plaintiffs are owners of twelve patents, and they allege in their statement of claim that the defendant has infringed and threatens to infringe those several patents, and they seek an injunction and damages. The fact, as stated, was that the defendant in December, 1897, and January, 1898, purchased 33lbs. of saccharin from the Chemical and Drugs Company (Limited), who were then carrying on business at Manchester. That was the only infringement relied upon. The validity of the patents was admitted, the sole issue before his Lordship being that of infringement. He found that the plaintiffs certainly had a right infringed by the defendant; therefore, he directed an inquiry, without mentioning any particular patent, as to whether any and what damages have been sustained by the plaintiffs by reason of the use by the defendant of 33lbs. of saccharin purchased by the defendant in December, 1897, and January, 1898, or any other saccharin purchased by the defendant before June 1, 1899. He reserved the costs of the inquiry, and expected the plaintiffs, before proceeding with the inquiry, to make a definite demand of a particular sum. With reference to the costs of the action, the plaintiffs had partly failed and partly succeeded. He did not regard with sympathy or favour actions of that nature brought against a purchaser. He gave no costs to the plaintiffs up to and including judgment, and the subsequent costs would be reserved.—There were three other similar actions for trial, which counsel agreed could not to be distinguished; similar orders were therefore taken in each action.

POLICE PROSECUTION UNDER SECTION 17.—At Dorchester Police-court on Monday, May 14, Mr. A. H. Evans, chemist and druggist, High East Street, Dorchester, was fined 5s. and costs for selling strychnine to a gamekeeper without recording the sale, as required by the Pharmacy Act, 1868. The case was watched by Mr. Symes on behalf of the South Dorset Hunt.

IRISH NEWS.

EXCISE PROSECUTION.—In the Southern Division Police Court, Dublin, last week, before Mr. Swift, a case was heard in which Messrs. Cantwell and Fitzgerald, wine merchants, of Middle Abbey Street, Dublin, were prosecuted by the Inland Revenue authorities for having in their possession on March 5 last peppermint cordial capable of being used as a beverage, in the preparation of which methylated spirit had been used, contrary to the 130th section of the Spirit Act of 1880.—When the case was called Mr. Collins said his clients did not intend to contest the case, and it might save time and trouble if his worship allowed them to submit to the jurisdiction of the court. The whole thing was a pure error.—On behalf of the Revenue authorities, however, Mr. MacDermot said the case was regarded as a serious one, and, as they would press for the full penalty, it was necessary that the circumstances should be stated. If a manufacturer of peppermint cordial used methylated spirit he would be able to sell the article at a less cost than if he used spirit on which he had paid duty. Almost the only cordial in which methylated spirit of wine was used was peppermint cordial, as it was difficult to detect the addition. On March 5 two Revenue officers and one chemist went to the defendants' premises and took samples of methylated spirit and of peppermint cordial, and it was shown that the foundation and basis of the peppermint cordial in question was not duty-paid spirit, but methylated spirit.—Mr. Collins said his clients could do no more than submit to the juris-

diction of the court. They had committed an error which was no advantage whatever to their business. The whole quantity in dispute was only about two gallons. They did not know they were violating the law in using this spirit to dissolve the oil of peppermint, and it was of no advantage to them to use it at all. He was sure the Revenue Department was not vindictive, and his clients would undertake never to use it again.—After a little further discussion, Mr. Swift said he was disposed to impose the minimum fine of £25, and let them fight it out with Somerset House if the latter wished to press any further litigation.—Mr. MacDermot, while accepting the decision, said the Revenue Department held the opinion that the penalty of £25 would not represent the injury done to the Department, to the public, and to other traders who used duty-paid spirits.—The defendants were accordingly fined £25.

FOREIGN NEWS.

THE DEATH OF PROFESSOR EDOUARD GRIMAUX, the well-known French chemist and pharmacist, occurred at Paris on May 3, at the age of sixty-five years. M. Grimaux, who succeeded Cahours as professor in the Ecole Polytechnique (Military College) at Paris, and also held a chair at the Agronomic Institute, was born at Rochefort on July 3, 1835, and studied pharmacy under his father, who was professor at the School of Medicine at Rochefort. He afterwards served seven years in the French Navy as a pharmacist. On leaving the service he commenced in business at Sainte Hermine, Vendée, where he commenced his researches on ethyl gallate. In 1861 he took his pharmacist's diploma, and in 1865 became doctor of medicine. In 1866 he was appointed assistant professor at the Paris Faculty of Medicine, and in 1874 assistant professor of chemistry at the Ecole Polytechnique, succeeding to the professorship in 1881. He made many valuable contributions to organic chemistry, and was the author of several chemical treatises. He also published in 1884 an admirable biography of Lavoisier. He was an officer of the Legion of Honour and a member of the Academy of Sciences. During the Dreyfus case M. Grimaux came prominently before the notice of the public on account of his declaration, at the trial of Zola, of his belief in the innocence of Dreyfus. For this expression of opinion he received his dismissal as professor at the Ecole Polytechnique, notwithstanding services rendered to the Army during the Franco-German war, on account of want of respect for the Army.

PHARMACEUTICAL BOARDS IN PRUSSIA.—In several of the smaller German States there are general official organisations of the pharmaceutical craft, and the "Gremien," or "Landesvereine," are consulted by the respective Governments on every important question to be considered by the authorities. In Prussia pharmacists do not yet enjoy such a privilege, though there is a "technical committee for pharmaceutical affairs," consisting of four Berlin pharmacists, presided over by a medical councillor, and a "pharmaceutical board" (Apothekerrath), composed of three medical councillors and eight pharmacists, with the ministry of medical affairs. The members of these two bodies are appointed by the Government, while the craft desires to have them elected by itself. For many years the German Apotheker-Verein has made efforts in the interest of Prussian confrères, but has not yet been successful. It seems probable, however, that it will attain its aim. The "Apothekerrath" has been convoked to discuss the question whether it is advisable or not to establish pharmaceutical boards. The reporters of the body on that matter—Mr. Froelich, of Berlin, a pharmaceutical assessor of the Ministry and the late President of the Verein, with Dr. Hartmann, a medical councillor of Magdeburg and a pharmacist—have answered in the affirmative. Surely the rest of the body will also do the same, and the Government will then take the initiative. The organisation will probably consist of an "Apothekerkammer" (pharmaceutical board) in each province, and a "Landeskammer" (State board) for the whole of the Kingdom, the latter being composed of delegates of the provincial boards.

THE CHEMICAL INSTITUTION OF THE BERLIN UNIVERSITY has been transferred to the new building in the Hessische Strasse, where the Pharmaceutical Institution will also be located for a certain time, until it removes into its new home at Dahlem, near Berlin. In the premises of the former Chemical Institution will be procured quarters for the Institution of Oceanography.

VACHER'S BRAIN.—It would appear that Vacher, the French "Jack the Ripper," who was executed some time ago at "La Roquette," had seriously mistaken his vocation if we might judge by the report rendered at a recent meeting of the Académie de Médecine by Dr. Laborde, who gave his result of a minute examination of the criminal's brain. The prime factor of the doctor's report was that Vacher's brain, though diseased, was that of a born orator, the seat of speech being developed to a remarkable degree. In a certain measure the conformation of the brain was the same as that of Gambetta. He thought, says the *Matin*, that under other conditions Vacher might have made a great orator and a great citizen.

AN AMUSING "DRUGGING" CASE came on for hearing at the Paris Courts the other day. A youth named Vagellet was rather sweet on the servant of a Madame Thomas, a rich Paris widow, and gained access to the house by feigning an undying affection for the widow. After a brief acquaintance the latter soon discovered that her maid was the real recipient of his affections, and her jealousy being aroused, she decided upon revenge. To this end she invited him to dinner, and persuaded him to partake liberally of a certain dish which apparently suited his palate. The dish, however, was drugged, and as soon as Vagellet was insensible, the widow stitched him up in a blanket and then proceeded to thrash him with a thick stick, leaving him on the floor helpless and bleeding until next morning, when his sweetheart, the maid, discovered him. The widow was arrested, but allowed out on bail. The maid, however, has disappeared.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Elaterium.

ELATERIN, $C_{20}H_{23}O_5$, is the active principle of elaterium, of which it may constitute as much as 33.6 per cent., although the commercial drug usually yields much less. It may be obtained by exhausting elaterium with chloroform, precipitating the solution with ether, then washing the crystalline deposit with ether, and re-crystallising from chloroform. Elaterin is the most powerful hydragogue cathartic known, and is administered in doses of 1/40 to 1/10 grain; it enters into the composition of Pulvis Elaterini Compositus.

CHARACTERS.—Elaterin occurs in minute, colourless, hexagonal scales or prismatic crystals, which are odourless but have a slightly acrid bitter taste. They are neutral to litmus and almost entirely soluble in water, though sparingly soluble in ether or 90 per cent. alcohol, and readily soluble in boiling alcohol, carbon bisulphide, amylic alcohol, or chloroform. When heated with access of air elaterin melts (209° C.), and then burns without leaving any residue. It is dissolved by solutions of alkalis and re-precipitated on supersaturating with an acid.

TESTS.—Elaterin added to melted phenol yields a solution which becomes crimson on adding sulphuric acid, though the colour rapidly changes to scarlet. It is not coloured by chlorinated alkalis, and its alcoholic solutions should not yield a precipitate with solution of tannic acid, test solution of mercuric chloride, or solution of platinic chloride, thus indicating absence of alkaloids.

NOTES.—Elaterin represents all the activities of elaterium, but it is neither an alkaloid nor a glucoside, nor does it possess the pro-

perties of an acid; though, if solid potassium hydroxide be added to a boiling alcoholic solution, the neutral elaterin is converted into an acid body which is devoid of cathartic power.

Elaterium.

ELATERIUM is the sediment from the juice of the fruit of the squirting cucumber, *Ecballium elaterium*, A. Richard. (N.O. Cucurbitaceæ), a prostrate trailing plant which is common in Southern Europe, particularly in countries bordering on the Mediterranean, and is cultivated to a limited extent in England. The fruit of the plant is about 37.5 to 50 Mm. long, and resembles a small hairy gherkin; when ripe the fruit separates suddenly from its stalk, and the seeds and juice are forcibly ejected from the aperture left where it has parted from the peduncle. The fruit is collected, therefore, before it is quite ripe. It is then sliced and pressed, the slightly turbid juice, which becomes more turbid on standing, being allowed to deposit. The sediment after being collected, drained, and dried, constitutes the commercial elaterium, which may be prepared in England or imported from Malta. Elaterium is a powerful hydragogue cathartic, and its dose is from 1/10 to 1/2 grain.

CHARACTERS.—Elaterium occurs in light, friable, flat or slightly curved, opaque pieces, about 2.5 Mm. thick. It is pale green, greyish-green, or yellowish-grey in colour, has a finely granular fracture, a faint tea-like odour, and a bitter acrid taste, due to the presence of elaterin, of which it should contain from 20 to 25 per cent. or more.

TESTS.—Elaterium should not effervesce with dilute acids or give a blue colour when iodine is added to a cooled decoction of the drug, indicating freedom from calcium or other carbonate or starch. It should yield half its weight to boiling 90 per cent. alcohol, and not less than 20 to 25 per cent. (elaterin) to chloroform.

NOTES.—The distinctive characters of elaterium are its colour and general appearance. As prepared in England it is bright green in colour, owing to the presence of chlorophyll, but with age it becomes greyish-green and, finally, yellowish-grey, besides exhibiting minute crystals of elaterin on the surface. The Maltese drug contains less elaterin, and is yellowish-grey when imported. In addition to elaterin, the active principle of the drug, elaterium is stated to contain other bitter principles—prophetin, a crystalline bitter glucoside which is soluble in ether and gives a brown-red with sulphuric acid; ecballin, or elateric acid, a yellow amorphous substance; hydro-elaterin, said to be soluble in water, and elaterid E, described as insoluble in ether or water. But it is now generally accepted that elaterin represents the whole activity of the drug.

Ergota.

ERGOT is the sclerotium of *Claviceps purpurea*, Tulasne, being the resting stage in the development of that fungus. It grows in the inflorescence of *Secale cereale*, Linn. (N. O. Graminaceæ), and other grasses, though only that which develops in the ovary of the rye plant must be used for medicinal purposes. The spores of the fungus are conveyed by the wind during the spring or early summer and germinate in the ears of rye, producing colourless hyphæ which almost entirely envelop some of the very young ovaries. The hyphæ penetrate the outer part of the pericarp, a soft white felted mass gradually replacing the destroyed ovary and constituting the mycelium stage (sphaecelia) in the life-history of the fungus. The sphaecelia identifies itself with the outer parenchyma of the ovary, and in some measure replaces it, taking the form of the ovary and almost obliterating its cavity. Meanwhile, the hyphæ have produced a saccharine secretion known as "honeydew," which contains an abundance of conidia—asexual reproductive cells. After the felted mass has attained its full development, the sclerotium is gradually produced at its base, where the hyphæ form a dense, compact mass which, as it grows, projects from the ear of rye, bearing on its apex the remains of the sphaecelia, together

with the abortive ovary, etc.; in this second stage of its development the ergot must be carefully separated from the unaffected grain and dried. The drug possesses emmenagogue, ecbotic and hæmostatic properties, is administered in doses of 20 to 60 grains, and is used in the preparation of *Extractum Ergotæ*, *Extractum Ergotæ Liquidum*, *Infusum Ergotæ* and *Tinctura Ergotæ Ammoniata*; also, indirectly, of *Injectio Ergotæ Hypodermica*.



ERGOT.—Ear of Rye attacked by the Ergot fungus.



ERGOT.—Sclerotium of Ergot showing between the Paleæ of Rye.

noid matters present in the drug. If it is musty, the ergot has become deteriorated by keeping; deterioration may be caused by damp, by oxidation of the fixed oil present, or by the attacks of mites of the genus *Trombidium*.



ERGOT.—A, Spanish; B, Russian; C, Canary Islands. All natural size.

NOTES.—The distinctive characters of ergot are its shape, colour and odour. The most important constituent of the drug appears to be the crystalline alkaloid ergotinine, of which it contains from 0.1 to 0.26 per cent. A second alkaloid, named cornutine, is probably a decomposition product. Other active constituents of ergot are sclerotic or ergotinic and sphacelinic acids. Ergot also contains about 33 per cent. of fixed oil, together with proteids, choline, lecithine, and other bodies. The chief commercial varieties of the drug are the Spanish, Russian and German, but Austrian, Swiss, Norwegian, and Swedish ergots also come into the market occasionally. A variety exported from the Canary Islands is here illustrated. The Spanish is generally largest and of the finest appearance, but it contains much starch and yields less ergotinine than the Russian. Ergot affords an interesting case of homologous alternation of generations, two kinds of gametophyte being met with. The first form—known as the sphacelia—is the felt-like mass of mycelium which fills the ovary of the rye, wheat, or other graminaceous plant, and gives rise to numbers of conidia. The mycelium becomes very dense and hard later in the year, and protrudes from the ear of rye, etc., as a black, elongated mass—the sclerotium or ergot of commerce—bearing on its apex the remains of the sphacelia, abortive ovary, etc. After resting during the winter the sclerotium, or second form of gametophyte, germinates and puts out a number of stromata—short protrusions composed of a number of hyphæ, and each bearing a rounded head, on which there are a number of slight depressions. Each depression constitutes the mouth or opening of a deep nearly closed cup called a perithecium, in the closed cells or asci of which the spores arise. In each ascus are developed eight slender, thread-like ascospores which, when they germinate on the flowers of the rye or other host-plant, again produce the sphacelia form of ergot.

Obituary.

BARRACLOUGH.—On May 11, William Barraclough, Chemist and Druggist, late of Ecclesfield (Yorks). Aged 64.

ROBERTS.—On May 2, William Roberts, Chemist and Druggist, Beaumaris (Anglesey). Mr. Roberts, who had long been connected with the Pharmaceutical Society as an associate, and latterly as a member, was for many years assistant to Mr. John Slater, chemist and druggist, Castle Street, Beaumaris, succeeding to the business on his own account on Mr. Slater's retirement a few years ago, but, unfortunately, a few months later he was attacked by the malady which caused his death, after a long and painful illness. He was greatly respected in the district, and was a borough councillor, a pier guarantor, and for many years acted as the honorary secretary of the Horticultural and Allotment Gardens Committee, also to the Ladies Bathing-place Syndicate.

TITLEY.—On May 8, Thomas Titley, Chemist and Druggist, Charlotte Street, London, W. Aged 58. Mr. Titley had been a member of the Pharmaceutical Society since 1873.

CHARACTERS.—Ergot occurs in very dark violet-black grains, which are about 1 to 4 Cm. long, subcylindrical or somewhat triangular in shape, as is clearly shown in a transverse section, tapering towards the ends, and generally curved. At one end of the grain may sometimes be found the whitish remains of the sphacelia, etc. The grains are longitudinally furrowed, especially on the concave side, and often bear numerous small irregular transverse fissures. They break easily, with a very short fracture, are whitish or pinkish-white inside, and do not exhibit any definite structure when examined with a lens. The peculiar odour and oily taste of ergot are alike disagreeable. The odour is probably due to the liberation of a volatile alkaloid, in consequence of a slow decomposition of a compound of that body. The drug should not be exposed to damp, or it will deteriorate, especially if in the powdered state.

TESTS.—Ergot gives off its peculiar odour in a more marked degree if the powdered drug be triturated with potassium hydroxide solution. That is probably due to the formation of methylamine, trimethylamine, or some similar decomposition product of albumi-

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

THUJONE AND THUJOL.

Experiments with oils of *Artemisia absinthium* have borne out the hypothesis previously advanced by Eugene Charabot, that the changes undergone by the terpinic constituents of essential oils take place in two distinct phases, corresponding to the chief stages in the development of the plant (*P. J.*, ante, 249, 277). The first is that of the formation of the terpinic alcohols and of their transformation, by the elimination of water, into compound esters or into esters and terpenes. These changes take place in the organs furnished with chlorophyll, and synchronise with the development of the green parts of the plant. The second stage coincides with the period of maximum respiratory energy, when the flowering is in process. The amount of oxygen absorbed is then considerable, and thereby the primary alcohols are transformed into aldehydes, and the secondary alcohols into corresponding ketones. This theory is borne out by the results, obtained with two specimens of wormwood oil. The first was distilled on June 8, 1899, when the plants had only begun to develop. The second was distilled on July 12, when the growth of the plants had attained its maximum. The following were the figures obtained:—

	June Distilled Oil.	July Distilled Oil.
Yield (on fresh plant).....	0.1429 per cent.	0.2450 per cent.
Sp.g. at 24° C.	0.9307	0.9253
Combined thujol	7.6	10.3
Free	9.0	9.2
Total	16.6	19.5
Esters calculated as acetate....	9.7	13.1
Thujone	43.1	35.0

—*Comptes rend.*, 130, 923.

CULTIVATION OF GINGER.

Gaston Landes points out that the cultivation of ginger in Jamaica, where it has proved remunerative to the 25,000 cultivators who prepare it for shipment, has led to its cultivation in St. Lucia, Dominica, and Barbadoes. He describes the cultivation of *Zingiber zerumbet*, Rosc., in Martinique. The best quality consists of plump pieces, of a uniform light colour, free from moisture. Lower grades are black, or otherwise coloured, wrinkled, damp, and less aromatic. If the ginger be gathered before it reaches maturity, it will wrinkle during drying, and be less aromatic and pungent than if it had been gathered at maturity. The drying process must be perfectly carried out, otherwise the rhizome will become mouldy. It is packed in barrels for shipment.—*Revue des Cultures Coloniales*, 5, 329.

FORMALDEHYDE IN PLANTS.

According to Sig. G. Pollacci, the presence of formic aldehyde can be determined by the ordinary tests, in the first portion of the distillate, when leaves which have been long exposed to light are macerated and distilled with water.—*Boll. Chim. Farm.*, 38, 601.

FORMATION OF OIL IN THE OLIVE.

According to Sig. G. Spampani, olive oil is actually formed in the cells of the epicarp, and especially in those of the mesocarp, of the fruit of the olive, where it is ultimately found. The presence of a small quantity of an oily substance in active protoplasm is a universal phenomenon, and the oil of the olive presents only a strongly marked illustration of this law. The oil is not a result of the degeneration of the protoplasm, but is formed when that substance is in its most active condition.—*Bull. Soc. Bot. Ital.*, 1899, 139.

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PINENOL.

A new terpenic alcohol $C_{10}H_{16}O$ has been obtained by P. Genvresse by the action of nitrous fumes, or of nitrogen peroxide, on pinene, cooled by means of a freezing mixture of ice and salt. On distilling in steam, the unattacked pinene is first volatilised, then pinenol, with a trace of a nitrogen derivative. This last is decomposed by distillation under ordinary pressure, and then the pinenol is distilled off under reduced pressure. It is a pale yellow fluid with a characteristic, agreeable odour. It boils at 225° C. at 740 Mm. pressure, and at 143° C. at 38 Mm. Its sp.g. at 0° C. is 0.9952 and its refraction index, 1.497. It is insoluble in water, but dissolves in all proportions in alcohol; it is laevogyre, the rotation being $-14^{\circ}.66$. With phosphoric anhydride it parts with a molecule of H_2O , forming cymene, $C_{10}H_{14}$. When acetylated, it forms the ester $C_{10}H_{15}O \cdot CH_3$, which has a lavender odour, and boils at 150° C. under 44 Mm. pressure. When treated with chromic anhydride and sulphuric acid, it forms the ketone, pinenone, $C_{10}H_{14}O$, having a pleasant odour, and an optical rotation of $-21^{\circ}.12$, and a sp.g. of 0.9953 at 0° C. With hydroxylamine hydrochloride it forms pinenonoxime $C_{10}H_{14} : NOH$ in ortho-rhombic crystals, melting at 89° C. With bromine this body gives a dibromo-compound $C_{10}H_{14}Br_2NOH$, melting at 152° C., and with benzoyl chloride it yields the derivative $C_{10}H_{14}NO \cdot CO \cdot C_6H_5$, crystallising in fine crystals which melt at 105° C.—*Comp. rend.*, 130, 918.

EFFECT OF ACIDS ON FUNGI.

According to J. F. Clark, fungi are in general much more resistant to most deleterious agents than are the higher plants. In the case of mineral acids, a concentration of from 200 to 400 times the strength fatal to the higher plants is required to prevent the germination of mould-spores under otherwise favourable conditions. Different kinds of fungi exhibit very great differences in their power of resistance to different agents. Even spores taken from the same culture may differ from one another in this respect. Hydrocyanic acid is a violent poison to moulds, while strychnine is nearly innocuous.—*Bot. Gazette*, 1899, 289, 378.

A NEW GAS.

Sulphur perfluoride is a new gas, recently prepared by H. Moissan and P. Lebeau. It is colourless, odourless, without taste, and is neither combustible nor a supporter of combustion. It solidifies towards $-55^{\circ} C.$ to a white crystalline mass, which melts and boils at a little above its congealing point. It is almost insoluble in water, and dissolves sparingly in absolute alcohol. Although rich in fluorine, it is curious that this new gas is so inert as to resemble nitrogen in many of its properties. Concentrated solution of caustic potash is without action on it, it is not attacked by potash and lead chromate in fusion, nor by cupric oxide at a dull red heat. It is unaltered by heat at the temperature of the softening of glass, and the glass is unaffected by the gas, nor does any combination take place when it is heated with hydrogen, unless an induction spark be passed through the mixture; then a diminution of volume takes place, and a dull yellow solid body is formed. The residual gas is found to be pure hydrogen, while the solid substance is decomposed by water furnishing a milky, strongly acid liquid consisting of hydrofluosilicic acid, sulphur, and silica. Oxygen is also without action on the new gas, except at the temperature of a powerful induction spark. SF_6 is obtained by burning sulphur in an atmosphere of pure fluorine in a special apparatus, liquefying the gases thus formed at a temperature of $-80^{\circ} C.$ by means of solid CO_2 suspended in acetone, and fractionating the gases liberated from the liquid thus produced, as the temperature rises on removing the freezing mixture. The gases thus obtained are placed over concentrated potash solution, and the residue, dried over melted KHO , is almost pure SF_6 , which is finally purified by recongealation and refractionation.—*Comp. rend.*, 130, 865.

LATIN RENDERING OF FRACTIONAL PARTS OF A GRAIN.

BY JOSEPH INCE.

I have reason to believe that in the reading of prescriptions, students are in doubt as to the method of translating fractional numbers into correct technical Latin. The explanation offered may, it is hoped, put the matter in a clearer light. The following remarks, based upon the fractional parts of a grain, will apply to fractional parts of weights in general.

Grani (gen.) of a grain, is put first in the sentence. The fractional parts, being quantities, are put in the accusative case when governed by Recipe. $\frac{1}{2}$, in English 'half,' or 'the half,' is expressed in Latin by ;—

(a) dimidius, a, um, adj., agreeing in the nominative with pars, (a part) or in the accusative singular with partem, after an active transitive verb.

Grani pars dimidia, *half a grain.*

Sumat æger partem dimidiam, pro dosi.

Let the patient take half for a dose.

℞ grani partem dimidiam.

Take half a grain.

(b) Dimidium, n. subs.

℞ Grani dimidium, *take half a grain.*

(c) Semigranum, n. subs. [One word.]

℞ Hydrargyri subchloridi, semigranum.

Take half a grain of calomel.

(d) $\frac{1}{2}$ combined with an integer, in English, x and a half, is translated in Latin by cum semisse.

℞ Tincturæ Aloes, drachmam cum semisse, ꝓiss, $1\frac{1}{2}$.

$\frac{1}{4}$, in English, a fourth part, or a quarter, is expressed in Latin by ;—

(a) Pars quarta; or partem quartam, accus. sing., and partes quartas, accus. plur. when governed by an active transitive verb as Recipe, Sumat, Mitte, or Habeat.

Morphinæ Acetatis grani pars quarta sit pro dosi.

A quarter of a grain of Morphine Acetate for a dose. gr. $\frac{1}{4}$.

℞ Extracti Strophanthi, grani partem quartam. gr. $\frac{1}{4}$.

Take a quarter of a grain of Extract of Strophanthus.

More than one quarter will have the accusative in the plural. (partes.)

(b) Quadrans, antis. m. subs. a quarter.

Quadrantem, antes, accus. sing. or plur. after Recipe or other active transitive verb.

Extracti Belladonnæ Alcoholici. grani quadrans. gr. $\frac{1}{4}$.

℞ Extracti Cannabis Indicæ grani quadrantem. gr. $\frac{1}{4}$.

Unus, one, is not expressed as a numerator;

Pars (a part) supplies its place.

Thus $\frac{1}{6}$ (one sixth) is rendered, pars sexta;

$\frac{1}{9}$ (one ninth) pars nona; $\frac{1}{10}$ (one tenth) pars decima.

Examples will explain the technical method of rendering, better than abstract rules which occasionally are more perplexing than instructive.

Take $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$, $\frac{5}{6}$, $\frac{6}{7}$, $\frac{7}{8}$, $\frac{8}{9}$, $\frac{9}{10}$ of a grain.

The denominators of these fractions represent as ordinals third, fourth, fifth, sixth, seventh, eighth, ninth, and tenth parts of a grain. They are to be put when latinised in the accusative case, because governed by Recipe. Of these parts there are respectively two, three, four, five, six, seven, eight and nine in number; hence these sets of figures (cardinals) are called the numerators, giving the numbers of the divisional parts. They also, when latinised, are put in the accusative case, because also governed by Recipe. Two are declinable, two (duo) and three (tres); the rest are indeclinable; better stated in the rule, cardinal numbers from quatuor are indeclinable.

℞ Grani partes tertias, duas. $\frac{2}{3}$.

Take two-thirds of a grain.

Literally—take of a grain third parts.

How many? Two.

The order of the words is stereotyped owing to the Latin construction of the sentence.

The remaining fractions on the list will read;—

℞ Grani partes quartas tres. } $\frac{3}{4}$
or grani tres quadrantes. }

Grani partes quintas quatuor. $\frac{4}{5}$.

Grani partes sextas quinque. $\frac{5}{6}$.

Grani partes septimas sex. $\frac{6}{7}$.

Grani partes octavas septem. $\frac{7}{8}$.

Grani partes nonas octo. $\frac{8}{9}$.

Grani partes decimas novem. $\frac{9}{10}$.

Observe.—Numerals from 13, tredecim, down to 17, septendecim, when ordinals, that is indicating thirteenths, fourteenths, fifteenths, sixteenths, and seventeenths, are translated:—

13th	tertius	} decimus.
14th	quartus	
15th	quintus	
16th	sextus	
17th	septimus	

℞ Grani partes septimas decimas tredecim.

Take $\frac{13}{17}$ of a grain. [Imaginary fraction.]—

Also note—

Cardinals.	Ordinals.
18 duodeviginti	18th duodevicesimus
19 undeviginti	19th undevicesimus
20 viginti	20th vicesimus
21 unus et viginti	21 primus et vicesimus <i>one and twentieth</i>
22 duo et viginti	22 alter et vicesimus <i>two and twentieth</i>

'One' or 'first,' after 20, 30, 40, etc., is translated primus.

'Two' or 'second,' after 20, 30, 40, etc., is translated, alter.

In further illustration of the subject, the technical Latin of the fractional doses contained in the British Pharmacopœia, 1898, other than those already mentioned, is appended.

Minima decem Tincturæ Chloroformi et Morphinæ Compositæ, grani partem undecimam Morphinæ Hydrochloridi continent.

Ten minims of Compound Tincture of Chloroform and Morphine contain $\frac{1}{11}$ grain of Morphine Hydrochloride. gr. $\frac{1}{11}$.

℞ Ferri Arsenatis, grani partem sextam decimam. gr. $\frac{1}{16}$.

℞ Apomorphinæ Hydrochloridi, grani partem vicesimam ad grani partem decimam (hypodermic). gr. $\frac{1}{20}$ to $\frac{1}{10}$.

℞ Antimonii Tartarati, grani partem

quartam et vicesimam } ad grani partem octavam (diavicesimam quartam } phoretic). gr. $\frac{1}{24}$ to $\frac{1}{8}$.

℞ Picrotoxini, grani partem quintam et vicesimam. gr. $\frac{1}{25}$.

Lamellæ Cocainæ singulæ fere grani partem trigesimam pendentes.

Discs of Cocaine, each weighing about gr. $\frac{1}{30}$.

℞ Hydrargyri Perchloridi, grani partem

alteram et trigesimam } gr. $\frac{1}{32}$.
trigesimam alteram }

Trochiscus Morphinæ, grani partem sextam trigesimam Morphinæ Hydrochloridi continens. gr. $\frac{1}{36}$.

℞ Sodii Arsenatis, grani partem quadragesimam. gr. $\frac{1}{40}$.

Lamellæ Atropinæ singulæ pendentes fere grani partem quinquagesimam, et grani partem quintam millesimam Atropinæ Sulphatis continent.

Discs of Atropine, each weighing about $\frac{1}{50}$ grain; and containing $\frac{1}{5000}$ grain of Atropine Sulphate. gr. $\frac{1}{50}$. gr. $\frac{1}{5000}$.

℞ Acidi Arseniosi, grani partem sexagesimam ad grani partem quintam decimam. gr. $\frac{1}{60}$ to $\frac{1}{15}$.

℞ Homatropinæ Hydrobromidi, grani partem octogesimam. gr. $\frac{1}{80}$.

℞ Atropinæ, grani partem ducentesimam ad grani partem centesimam. gr. $\frac{1}{200}$ to $\frac{1}{100}$.

Lamellæ Physostigminæ, singulæ grani partem millesimam Physostigminæ Sulphatis continentēs.

Discs of Physostigmine containing each $\frac{1}{1000}$ grain of Physostigmine Sulphate. gr. $\frac{1}{1000}$.

THE DISPENSING OF PROPRIETARY ARTICLES.*

BY FRANK A. ROGERS.

The conditions of present-day life in matters medical and pharmaceutical are as much influenced by the stress of competition as any of the other professions or businesses, and the pharmacist, being a sort of hybrid, has to see to it that both sides of his calling are equally advanced. He must keep his professional side in touch with the thoughts of the leaders in medical therapeutics and at the same time must take care that his purely business side is keenly alert to enable him to reap the benefits of his other exertions. Specialism is one of the most advanced signs of the times, and it seems to me that a pharmacist abreast of his times has to be a sort of specialist in specialties. A dispensing chemist's *raison d'être* is primarily to carry out the wishes and intentions of others—a position which to some may appear a derogatory one, but one which, if conscientiously fulfilled, can carry with it nothing but the esteem of all.

I ask you to keep clearly in mind that the subject I have chosen for discussion is not the prescribing of proprietary articles, but the dispensing of such, and that the retail transactions of handing over the counter articles for which no responsibility is assumed do not come under our consideration now. One of the greatest difficulties with which we as dispensing chemists have to grapple, so as to render the transactions profitable and not unprofitable ones, is the dispensing of proprietary articles and so-called patent or secret remedies. There are certain things about dispensing which, to me at least, are regarded somewhat as axioms.

(1) Never to question the right of a physician to order for his patient whatever he may think fit.

(2) To give the patient, in the best manner one's skill can devise, exactly what has been ordered—neither more nor less, poisonous doses, incompatibles, etc., excepted.

(3) To consider the question of cost and charge after it is dispensed, and in no way whatever to let it interfere with the purity of its contents and the care with which it is compounded.

There are three points of view from which this subject can be considered—(1) the doctor's, (2) the patient's, (3) the chemist's.

With the former aspect I do not propose to deal to-night; it has, I believe, been dealt with elsewhere, and at any rate would afford an evening's discussion in itself, but I would like to say that I believe it to be perfectly justifiable to order a proprietary article and to expect it to be ordered, when it is *prima facie* a new article, or shows some distinct advance and improvement on existing preparations, but I cannot defend instances where proprietary names are attached to articles which almost any chemist can make equally well for himself. Taking a concrete instance—

℞ Tab. Antipyrin, gr. 5.

All chemists keep such, and the time has gone by when such were so compressed that they have entered the body on the one side and appeared on the other unchanged and all unharmed.

Without questioning the right of the doctor to prescribe whatever he may think best, I believe it to be a bounden duty on his (the chemist's) part to provide (if he is able) formulas for elegant preparations for the medical man's use in the place of some secret remedies, many of which are only introduced, in the first instance, through medical channels—with Latin names and directions, preparatory to being launched (with the recommendations thus

received) as full-blown proprietary articles upon an all-too-confiding public.

The second aspect appears to me simple. The patient has paid his fees (more or less, as he thought best), obtained his instructions, partly in the form of a prescription, and this he desires to have made up in such a manner as to obtain the best results. That the same prescription can be dispensed in more than one manner is becoming only too well understood by the average patient, and it behoves the dispensing chemist to remember that while a patient's faith and trust in him may go a long way, it can only be permanently retained by a scrupulous attention to the means by which the best results can be achieved both in kind and knowledge. The combination of the finest drugs with imperfect knowledge being almost as fatal in the long run as second-rate drugs covered with a veneer of scientific attention. One often hears the cry nowadays, with a complaining wail, that the general public is getting too knowing. Pursue the subject further, and you will often find it simply means that it is too knowing to accept anything but the best. Let the patient be as "knowing" as he may, he will then appreciate the better between good and indifferent work.

But it is with the third aspect of the case that I propose to deal in the few minutes at my disposal this evening—viz., that of the dispensing chemist, and to consider very briefly the question of his relation as distributor to the wholesaler or more general provider of these articles.

If being acknowledged that this class of proprietary preparation has come to stay, either on account of elegance or convenience in prescribing, or for any of the various reasons assigned, we should take steps to defend our position as dispensers so that the patients' chances of doctoring themselves and their friends are reduced to a minimum. All traces of the article being a proprietary one should be removed, one's own bottles or packages and dispensing labels being used which afford no clue to its origin, and, even if this entail an additional expense, I believe it will be found to more than repay the outlay. I do not think it policy to affect any ignorance of the contents of such prescriptions when questioned by the patient, but, at the same time, I cannot defend the practice of repeating such prescription for other than the person for whom it was originally prescribed.

Then as to charge. Many of the patents and proprietaries, as we are only too painfully aware, bear a total profit at full prices of only a few pence. Under no circumstances would I dispense such at less than the *full* retail price, and only in exceptional cases at that. I think an additional shilling should be charged, but this should include any extras in the shape of bottles, etc.; and if, as sometimes happens, the process of dispensing removes the necessity of affixing the Government stamp, the cost should be taken on the stamped article, and the additional 3d. or 6d., as the case may be, going into the pocket of the chemist. I am prepared to defend this on ethical grounds, if necessary.

Roughly speaking, the price for, say, a half to two or three dozen tablets, etc., should be charged at corresponding pill prices, but I would take the hundred or gross quantities at something like the scale just mentioned. I may say here, for the sake of any manufacturer who cares to take the hint, that there is a great want of a simple and inexpensive means of preparing extemporaneously or of filling small quantities of *flexible* capsules as required. The hard oval ones are a great convenience, but the ordinary flexible one is wanted.

But our crowning difficulty lies in the stocking of these proprietaries, and in the fact that almost without exception the proprietors only supply their preparations in certain sized packages, sometimes as much as a dozen times larger than the quantity ordered in a prescription; and in many cases, unless the chemist is doing a large turnover in such things, the transaction may become a profitless one. It seems to me to be the imperative duty of all wholesale chemists, makers of and agents for proprietary articles to mak

* Read before the Western Chemists' Association (of London), on Wednesday, May 23, 1900 (see p. 585).

some arrangements whereby their preparations can be obtained in any quantities, however small. Unless this is done they cannot expect sympathy and co-operation whilst the present deplorable condition of the "odds and ends shelves" is such a constant eyesore, such a source of irritation, and such a distinct discount upon our dispensing profits as it is at the present time.

Cases in which dispensing chemists, who are daily meeting with the above difficulties, themselves resort to the same practices with their own preparations, and in some cases allow a beggarly 10 per cent. all told, are hard to explain, and make it extremely difficult to arrive at any practical *modus operandi*.

I do not agree that it is in any way defensible for, say, a hundred tablets, etc., to be given to a prescription order for, say, thirty-six or fifty, and I cannot on ethical grounds defend a charge being made for the whole bottle when only a part has been actually supplied.

I am strongly of opinion that the best means of overcoming the present difficulty would be the establishment of some central dépôt, where all the preparations of the various makers could be had in just whatever small quantities were ordered, and not the establishment of numerous dépôts for individual makers. Such a wholesale dépôt would, I believe, be of incalculable benefit to every dispensing chemist, not only in the metropolis, but all over the country. It need not clash with the interests of wholesale houses themselves, as the question of wholesale quantities would not apply.

The class of proprietaries which most deserves our support are those which are evidently produced with a previous thought for the position of the dispensing chemist, in as far as they can be written in full Latin, and be dispensed in the same way as if no proprietary right were indicated.

I would suggest that if a preparation is brought out *bonâ-fide* for the use of the medical profession, it should be done so that it may be easily rendered into Latin (pure or not, as taste may dictate); and, in the second place, that it should not carry behind it a probable adaptation for retail purposes. The thing is simple enough; we are not using a new dot and dash of a Morse or other system which may in process of time become associated with the name of some individual, but with one of the oldest languages of world's history, which has become, and I hope may do so still further, the cosmopolitan language for prescription rendering.

The medical man's endeavour, then, being to cure his patient, the patient to be cured, and the chemist to see that his art conduces to the much-desired end, we may with advantage, at our leisure, ask ourselves whether, in the rush to get through the day's work and to render it as profitable as possible, the "art of dispensing" is not somewhat sacrificed to the result of warehouse machinery; and at the same time, while many declaim vehemently against compressed or capsuled drugs *et hoc genera*, dispassionately consider how far, under existing circumstances, it would be possible for us, with anything like a reasonable staff, to actually compound each and every prescription received.

I must apologise for the incomplete and disjointed nature of these remarks. I have had no time to carefully dovetail the parts together into proper form. They are simply thoughts, more or less connected, which have occurred to me at various times when some phase of the question has arisen. No attempt is made to present them to you as a solution of various difficulties, but they are simply emphasised to afford points for discussion, in the hope that from your collective decision of these and others which have occurred to yourselves, as a body of practical men, some plans may be adopted which will enable us to feel that our individual procedures are to a great extent in uniformity. I have not hesitated, in some instances, to express my own opinion for the sake of eliciting yours.

METHYL-PROPYL-CARBINOL-URETHANE is a new hypnotic which has been discovered by Dreser. It is said to be much more powerful than urethane, and to be twice as active as chloral hydrate. It is given in doses of 0.5 to 1 Gm. in water, or as a 50 per cent. solution in alcohol (90 per cent.).—*Merck's Report*, 1900, 106.

ON COMMERCIAL PEPSIN.*

BY SIR CHARLES A. CAMERON, C.B., M.D.,
Professor of Chemistry, R.C.S.I., etc.

The enzymes termed pepsin and trypsin are expensive substances used as aids to digestion. Pepsin is obtained from the mucous membrane of the pig, sheep, or calf. Trypsin, or enzyme, which, like pepsin, is a proteolytic ferment, is procured from the pig's pancreas. Pepsin is an official preparation of the British Pharmacopœia, the dose being from 5 to 10 grains. It is, however, much more frequently employed as glycerin of pepsin (*Glycerinum pepsini*), a solution of pepsin in water, hydrochloric acid, and glycerin. Of this solution 1 drachm contains 5 grains, or 1 cubic centimetre, 0.0914 gramme.

Trypsin is not used in a separate state, but it is the principal constituent of the official liquor pancreatis. This is a solution of the non-fatty part of the pancreas in alcohol of 20 per cent. strength.

Great care should be taken in the preparation of pepsin, and the stomachs which yield it should be fresh and healthy. If it is heated much above 50° C. its digestive properties are impaired, and at 100° C. completely destroyed. The same observations apply to trypsin.

According to the Pharmacopœia, pepsin should dissolve 2,500 times its weight of hard boiled white of egg. The process, as laid down in the Pharmacopœia, is as follows:—12.5 grammes of white of egg, 125 cubic centimetres of acidulated water, containing about 0.2 per cent. of hydrochloric acid, and 0.005 gramme of pepsin are digested together at 105° F. (40.5 C.) for six hours, and shaken freely, the coagulated white of egg dissolves, leaving only a few small flakes in an almost clear solution. There are some details to be attended to which I need not particularise.

As regards the pancreatic solution, it is tested as follows:—If 2 cubic centimetres of the solution, together with 0.2 gramme of sodium bicarbonate and 20 cubic centimetres of water, be added to 80 cubic centimetres of milk, and the mixture be kept at 113° F. (45° C.) for one hour, coagulation should no longer occur on the addition of nitric acid.

By a recent order of the Local Government Board for Ireland the Guardians of the Poor-law Unions are required to have specimens of the drugs supplied to their infirmaries and dispensaries periodically examined. Since June 27, 1899, twenty-one specimens of glycerin of pepsin have been sent to me for examination. On that date a specimen received from Shillelagh Union was found to possess no digestive properties whatever—it was absolutely inert. In July a sample received from Galway Union was a fairly good one. A second sample from Shillelagh Union was little superior to the first; it came to hand on July 29. A sample from Gorey Union, examined in August, had one-half the digestive power which it should possess. In the same month a sample from Athy Union proved to be practically worthless. A specimen received in August from Sligo Union was found to be unfit for use. A specimen from Galway Union was tested in September. Five times the quantity of the glycerin of pepsin specified in the Pharmacopœia did not quite digest the prescribed quantity of egg albumin. In September a specimen from Armagh Union was found to be worthless. In September three specimens were received from Swinford Union. One had lost by far the greater portion of its digestive power, and the others were practically useless. A sample from Downpatrick Union, received in September, was practically useless. In September a specimen was examined for Tullamore Union; it possessed one-tenth only of the digestive power. A sample examined for Cavan Union in September retained most of its digestive power. A sample from Cookstown, tested in October, had one-tenth only of the proper strength. A sample received in the same month from Limerick Union had lost nearly all its fermentative power. In November a specimen from Carrick-on-Suir Union was found to possess the full power of dissolving albumin which the Pharmacopœia ascribes to pepsin. In December a specimen from Shillelagh Union proved to

* Read before the Royal Academy of Medicine, Dublin.

be practically correct. One specimen of liquor pancreatis was sent; it came from Cookstown Union, and was practically useless.

In February, 1900, a specimen of pepsin examined for Mullingar Union had no appreciable effect on albumin when used in the proportion mentioned in the Pharmacopœia. Employed in ten times the prescribed quantity, about three-fourths of the albumin was dissolved.

In March specimens of pepsin examined for Naas and Donegal Unions were found to be as slightly operative as the Mullingar sample.

A specimen of pepsin from Swinford Union, examined in March, was found to possess only one-fourth the power of digesting albumin which it should possess.

Pepsin examined in March for Magherafelt Union was fairly good, as it dissolved 75 per cent. of the prescribed quantity of albumin.

In March a specimen from Dunfanaghy Union, when used in ten times the prescribed quantity, digested three-fourths the proper amount of albumin.

A specimen of glycerin of pepsin examined in March for Athlone Union was found to be only slightly deficient in digestive power. Such also was the case with a specimen from Claremorris Union.

Three specimens of pancreatic liquor were examined in March; one from Donegal Union was good, the others from Dingle and Carrickmacross Unions were only slightly deficient in the power of coagulating milk.

It will be seen that out of twenty-one specimens of glycerin of pepsin tested only four were perfectly correct, nine were wholly useless, and eight had lost from 25 to more than 90 per cent. of their digestive power. There did not seem to be any difference between the samples due to temperature, as both good and bad samples came in hot and cold weather.

Of five specimens of pepsin itself, three had less than one-tenth the proper albumin dissolving power; two were deficient to the extent of 25 per cent. Of the four specimens of liquor pancreatis one was correct, two were slightly defective, and one was useless.

As I was not informed as to the dates on which the samples were received in the infirmaries and dispensaries, it is impossible to declare whether the want of digestive power was due to instability of the article or to original defect. In future the date on which the drugs are received will, I understand, be communicated to the analyst.

It is to be regretted that the Pharmacopœia does not give a good process for preparing pepsin, for I have no doubt imperfectness in the preparation of this article is the cause of so many bad specimens being met with.

PHYSICS FOR PHARMACISTS.

PRÉCIS DE PHYSIQUE PHARMACEUTIQUE. Par le Dr. C. SIGALAS. Pp. 656. Price, 7f. 50c. Lyon: A. Storck and Cie, 1900.

This is a work intended primarily for French pharmaceutical students. It is one of a series of scientific works, of which several have already appeared, and more are announced as being in the press. The completed series will apparently cover the whole course of study for French students, and each book is written by a professor attached to one of the schools of pharmacy, or the faculty of medicine and pharmacy at a French university. Judging from the range of the series and the scope of the work under consideration, it is fairly evident that the French pharmacien is expected to be a much more highly-trained man of science than his English *confrère*. Subjects such as bacteriology and mineralogy, which find no place in our course of study, are included in this *Bibliothèque de l'Étudiant en Pharmacie*, and tend to show that French pharmacists have already realised that the practice of their profession demands more than a knowledge of pharmacy pure and simple. The evolution of medicine and surgery is continually adding fresh subjects to the medical curriculum, and many things—such as the

microscopical and chemical examination of pathological products, the management of electrical apparatus for treatment and radiography—may profitably be undertaken by the pharmacist who possesses the requisite knowledge and manipulative skill. This condition of affairs is already largely realised on the Continent; in this country, however, it is somewhat exceptional. This is due, not so much to our lower standard of examination, but chiefly to the absence of an enforced curriculum. This alone will ensure practical training, as distinct from the possession of a certain standard of knowledge which can be tested at an examination of limited duration. The medical profession in this country is not slow to recognise the value, as a scientific coadjutor, of the pharmacist who has voluntarily submitted himself to such a curriculum as is provided at our own School of Pharmacy; but until the curriculum is universally imposed, pharmacists, as a body, will not receive this recognition which is at present only extended to individuals by virtue of their own voluntary efforts.

Dr. Sigalas' book covers the usual ground with the exception of acoustics, the treatment of which is not undertaken owing to its secondary importance in connection with pharmacy. The range of the other subjects is more extended than our own Major Syllabus, and elementary mathematical treatment is adopted throughout. The book provides very interesting reading, and we can recommend its perusal to students sufficiently familiar with French. It is divided into four parts. Part I. treats of the general properties of bodies, Part II. of heat, Part III. of light, and Part IV. of electricity and magnetism. The essential difference between Dr. Sigalas' book and the ordinary treatise on elementary physics lies chiefly in the application of principles to explain technical operations and the full explanations of the construction and working of apparatus employed in scientific observations having a direct bearing upon medicine and pharmacy. The practical employment of instruments is hardly ever described fully enough in elementary treatises, but Dr. Sigalas' book furnishes a welcome exception in this respect. Principles are explained wherever possible by means of appliances already familiar to the pharmaceutical student, and in this way he learns not only the principle involved, but also the reasons for the employment of the appliance under discussion. The technical applications of principles are of primary importance to the pharmacist, and examples occur throughout all parts of the book. Among these may be mentioned the following, having special interest for pharmacists:—

In Part I., treating of general principles, the articles on the balance, division of solids, filtration, and formation of emulsions.

In Part II. the articles on thermometers, melting and boiling points, distillation, determination of specific gravity, construction of laboratory ovens.

In Part III., the spectroscope, microscope, polariscope, apparatus to correct defects of vision, and photography.

In Part IV., the application of electricity for medical purposes, radiography, electrolytic analysis, and the technical application of electricity in the Arts.

The enumeration of these is sufficient to show that the 'Précis de Physique Pharmaceutique' is a marked variation of the ordinary text-book, and one which should be acceptable to students of pharmacy, not perhaps so much in relation to the preparation for examination as to the acquirement of a large amount of useful information of every-day use in the practice of their profession.

A SIMPLE BEETLE TRAP.—Desiré Maes, in *La Nature*, gives the following simple method of making a beetle trap:—Into a china wash-hand basin, half filled with water, pour a glass of beer; cover the basin with a newspaper, in the centre of which a small round hole is cut. Place it so that the edges of the paper lie on the floor and the hole is over the centre of the basin. At night the beetles, attracted by the smell of the beer, climb the paper and fall through the hole into the liquid. In this way hundreds may be caught in a night.—*L'Union Pharm.*, 160.

PHARMACOGNOSY—SCIENTIFIC AND APPLIED.*

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3. Chemical Constituents of the Drug.

The next point that I propose to discuss is the investigation of the drug with a view of isolating its chemical constituents. The last edition of Husemann's 'Pflanzenstoffe,' published in 1882, contains a list of over 1,200 substances that have been isolated from plants; but this list by no means represents the number at present known. Some of these are crystalline and well defined; others are amorphous and ill-defined; but all are important. Some have been found by experiment to produce well-marked, physiological effects; they are accordingly termed active principles. Others possess less prominent physiological properties. Their investigation has rendered invaluable aid to science and to mankind. Consider the effect of the discovery of morphine, of its alkaloidal nature, of the investigation of alkaloids, of the synthesis of natural ones, and the production of entirely new ones; the discovery of the glucosidal nature of amygdalin, and so on. From the scientific point of view, there is no question but that the investigation of the constituents of drugs has been productive of results most important in their nature and far-reaching in their influence. Chemistry and Physiology are the two sciences chiefly involved in this investigation, and, although the pharmacognosist must relegate this work in great part to the chemist and the physiologist, yet it behoves him to make himself acquainted with the results of their labours and to incorporate them in his account of his drugs.

The isolation and examination of the constituents of drugs lose none of their importance when considered from a practical standpoint. I need not allude to the direct benefit conferred upon mankind by the discovery of quinine and morphine. Such knowledge as I have indicated is absolutely necessary before the pharmacognosist can determine how drugs shall be dried and preserved; it indicates the rational means for the manufacture of galenical preparations. The identification of the substance to which the activity is due is a problem for the physiologist; but it is no less necessary for the pharmacognosist to possess that knowledge, no matter who obtains it for him. By devising suitable means for the determination of the proportion of active constituent present, we can obtain an insight into the relative value of different parcels of the drug, of different parts of the plant yielding it, and at different periods of growth. In fact, it opens up an immense field for scientific work, yielding eminently practical results.

Occasionally the difference in the active constituents of two drugs forms the only means by which those drugs can be distinguished. I know of no means by which true coto bark can be distinguished from paracoto bark, other than the examination of the constituents. Appearance, odour, taste, structure, etc., fail to afford sufficient evidence.

4. Botanical Source.

Let us deal now with the determination of the botanical source of the drug. This point is of importance as contributing to a complete knowledge of the drug, and also as affording an indestructible criterion to which we can always refer when the question of identity is raised.

Very great difficulties stand in the way of the discovery of the botanical source. If with every drug flowers, fruits, and leaves were sent, the identification by systematic analysis, with the aid of our national herbaria, would often be possible, even easy. But, unfortunately, this is seldom the case. Usually the drug consists of one organ only, and frequently of the root, the rhizome, or the bark of large stems, that, for practical reasons, are excluded from the botanical specimens collected and brought home by explorers and preserved in herbaria. It becomes necessary to ascertain, first,

the country, and then the district in which the drug has been collected, and to endeavour to procure leaves and flowers of the plant yielding it. Even then the identification is attended with some uncertainty, and often requires years for its accomplishment.

Fortunately, however, it is by no means necessary that a drug should be excluded from use until its botanical source is known. If this were the case we should have to expunge from our materia medica rhubarb, sumbul, myrrh, asafetida, galbanum, and many others. Jaborandi leaves were known, used, and investigated long before the botanical source was discovered. Till quite recently we were not sure that stavesacre seeds were obtained from *Delphinium Staphisagria*, and only a few weeks ago Schumann reported that the large cola seeds that we prefer as the best were not obtained from *C. acuminata*, but from a hitherto undescribed species, which he names *Cola vera*. Probably no course of lectures on pharmacognosy has ever been delivered in which erroneous statements respecting the botanical origin of drugs have not been made. Such errors do not, however, interfere with the use of the drugs, because the identity of the latter is established by our knowledge of the drugs themselves, and not of their botanical sources simply. This knowledge of the drug is acquired by accurate and sufficiently minute examination. It is scarcely conceivable that two distinct drugs should exist that cannot be distinguished either by their physical characters, chemical constituents, or physiological action, and if, indeed, two such drugs exist, there is no adequate reason for insisting on their separation.

The botanical source furnishes a criterion of identity available at all times to all people. A standard sample of the drug preserved in a museum would also furnish a criterion of identity that is, in some respects, preferable to the botanical source, inasmuch as possible error in the determination of the latter is avoided. Such standards would, however, be liable to change and to accidental destruction.

5. Geographical Source.

Let us turn our attention next to the geographical source of the drug, and the route by which it reaches this country. These may be conveniently considered together, as the determination of the former is often impossible without a knowledge of the latter.

This knowledge is often difficult to acquire, and demands an acquaintance with physical geography, with the conditions that facilitate the transport of merchandise, such as navigable waterways, level countries, and advanced civilisation, as well as with those that hinder transport, such as high mountain chains, difficult country, etc. The port of export is not necessarily near the place of production, for local native craft often convey drugs from the smaller towns to the larger ports, where the ocean-going vessels call. These smaller towns may, in their turn, receive the drugs from villages far distant in the interior, and the villagers may have to traverse considerable distances in search of them. The opening of new trading centres, as well as various political influences, may divert well-established routes. All these considerations render the discovery of the true geographical source a matter of considerable difficulty.

From a practical point of view, this need give us little concern. While an acquaintance with the geographical source and commercial route adds to our knowledge of the drug, points to possible sources of adulteration, and sometimes indicates the true origin of the drug, yet it gives no sufficient guarantee of identity. It is true that the official jaborandi is exported from Pernambuco, but it by no means follows that nothing but the genuine is exported, and therefore the wholesale dealer has no guarantee that what he buys is genuine jaborandi, even though it came from that port. Geiger has pointed out that any one variety of this very drug is by no means restricted to one port. And if the geographical source were to be taken as a guarantee of genuineness what a temptation would be offered to convey spurious drugs to that port and ship them as genuine. The retailer, buying at second-hand, is even worse off than the wholesaler, but both of them must seek a criterion of identity in comparison with a genuine specimen.

* Read before the Chemists' Assistants' Association (London), April 26, 1900, and concluded from page 527

The identity will be the more assured the more accurate and minute the examination of each has been.

I have dealt with this and the preceding section somewhat at length, because I wished to point out how in each case we are referred at last to the foundation of our knowledge—viz., the accurate and sufficiently minute examination of the drug itself. The scientific pharmacognosist makes this minute examination, whilst the practical pharmacognosist selects such points as suit his purpose, and applies them to distinguish one drug from another.

6. Production and Preparation.

I should like now to refer to the production of drugs and to the manipulations they undergo before reaching the market.

With the exception of seeds and dry fruits, and of those few plants that are grown in this country, and used in the fresh state, it is probable that all drugs have undergone more or less important changes. Even the simple drying of a leaf induces alteration in its constituents; the change in odour, taste, and colour frequently afford proof of this. In many cases we believe these changes to be slight, but in some they are certainly considerable, and of great importance. *Orris* rhizomes, when freshly dug, are almost odourless; if quickly dried, they remain so, but if slowly dried and kept, they gradually acquire a strong and distinctive perfume. *Valerian* root when kept slowly develops its characteristic odour. *Gentian* root, colourless and nearly odourless when fresh, and will remain so if sliced and rapidly dried; the dark colour and particular odour are produced by slow drying, and it is recorded on good authority that the roots are sometimes heaped and submitted to a "fermentation" with that object in view. It is well known that *cascara sagrada* and *alder buckthorn* bark when stored undergo certain changes by which their therapeutic value is enhanced. *Tea*, *cocoa*, *tobacco*, and *vanilla* are all submitted to operations destined to effect certain changes. What can be more interesting than an inquiry into the nature of these changes? What can, from a practical point of view, be more important than to know how they can be regulated? Who can say but that the aroma of *orris* rhizome or *vanilla* might be doubled by suitable treatment? and what a fortune awaits the man who shall so treat European tobacco leaves as to successfully produce *Havana* cigars. Attempts have not been wanting to gain an insight into such processes, and the sciences of Chemistry and Bacteriology have certainly thrown much light upon them.

Amongst the plant-products, too, there is much still to be learnt. We are not yet sufficiently well-informed of the nature of the changes that result in the production of *benzoin*, nor of the alteration which that drug undergoes, during the drying and hardening that takes place after its secretion. *Moeller* has shown that the ducts in which *storax* is produced are formed by the plant after certain injuries have been inflicted upon it, but not otherwise; the healthy tree produces no *storax* at all. Probably the same is the case with *balsam of Peru*, *balsam of Tolu*, and other drugs. Certainly, the largely-increased secretion of *turpentine* that takes place after the hacking of the trees is due to a similar cause, and, no doubt, there are other instances of which we have no knowledge.

7. Commercial Varieties.

The consideration of these may well next engage our attention, for certainly no account of a drug can be complete that does not deal with its commercial varieties.

We find generally classed together under this heading (1) drugs derived from distinct but allied species; (2) drugs derived from one and the same species. The members of the first class, although styled commercial varieties, are in reality distinct drugs, such, for instance, as the roots of *Aconitum Napellus* (English or German aconite), *A. Fischeri* (Japanese aconite), and *A. ferox* (Indian aconite). All the remarks made under the various previous headings apply equally to these drugs, the fact of their being known as "commercial varieties of aconite" serving to increase, if possible, the minuteness and accuracy of our description.

To the second class belong the varieties of such drugs as *cloves*, *anise*, *fennel*, etc.; these are derived from the same species which, however, from climatic or other conditions, often show certain variations. Intermediate between the first and second class are such drugs as *aloes*, *benzoin*, *indiarubber*, etc., the botanical origin of which is often obscure or unknown. In each variety there also occur various grades.

The comparison of the different varieties of drugs, whether they be obtained from the same species or from different species, yields results of great scientific interest respecting the distribution of the various constituents, and the differences in appearance or structure that may be found in nearly allied drugs. It is interesting to know that *Brazilian* and *Carthagenan* *ipecacuanha* contain the same two chief alkaloids, viz., *emetine* and *cephaeline*, and it is very interesting to learn that the proportion of *emetine* to *cephaeline* is larger in *Brazilian* than it is in *Carthagenan*. The physiologist has shown how this variation affects the therapeutic action of the drugs, and explained the reason why *Carthagenan* *ipecacuanha* has undesirably strong emetic properties. This knowledge has apparently led to the exclusion of *Carthagenan* *ipecacuanha* from the *Pharmacopœia*, and the result of this is that wholesale druggists are liable to expose themselves to charges of fraud, for the substitution of *Carthagenan* for *Brazilian* *ipecacuanha* is by no means uncommon.

For the commercial druggist who will view the matter mainly from the practical point of view, the subject resolves itself into two questions:—

- (1) How can the commercial varieties be distinguished from one another?
- (2) What is their relative quality?

The first of these questions can be answered simply and solely by the accurate examination of the drug, including, if necessary, that of its constituents as previously indicated. The second question is not so easily answered. We should anticipate that the relative quality would be determined by the relative proportion of active constituent present, and this, no doubt, is often true. *Ambony* and *Penang* *cloves* are preferred to *Zanzibar* because they contain more volatile oil; *Alicante* *anise*, for a similar reason, is preferred to *Russian*, and so on. But *cassia* bark is considered inferior to *cinnamon*, although it contains more oil, because the oil has a less delicate aroma. Custom and conservatism have also much to answer for in establishing certain ideas of superiority which are by no means supported by scientific evidence. The leafy tops of the second year's *henbane* plant are preferred to the leaves of the first year; yet they contain no more alkaloid. First year's *foxglove* leaves yield as much *digitoxin* as second year's. *Alexandrian* *senna* is often preferred to *Indian*, but who shall say whether it is really better or worse? The authorities that compile the *British Pharmacopœia* have a very difficult task before them when they are asked to decide which of the several commercial varieties of a drug shall be admitted and which not. They must know first what are the constituents of the drug; secondly, upon which its activity depends; thirdly, which variety contains most; fourthly, whether the supply of this variety is equal to the demand. Two varieties of *rhatany* root are used, because the supply of each is liable to be intermittent. *Brazilian* *ipecacuanha* is preferred to *Carthagenan* because scientific enquiry has shown that the latter has a pre-eminently emetic action, whilst the former has a pre-eminently expectorant action, and is to be preferred. *Java* *coca* leaves are less esteemed than *Bolivian*, not because they contain less alkaloid, but because they contain an undesirably large proportion of alkaloids other than *cocaine*.

Here, too, the question of grade has to be considered. *Shensi* *rhubarb* realises a much higher price than *Canton*; but I know of no experiments that would lead me to believe a high grade of *Canton* to be inferior to a low grade of *Shensi*.

So that, although commerce offers to us a certain number of varieties of most drugs, yet it is left to the examination of these varieties to say by what means one can be distinguished from the

other and, with the exception of certain technical examples, to scientific investigation, to say which variety shall be preferable for the particular purpose for which it is used.

8. Cultivation of the Drug.

The difficulty of procuring some drugs, the danger of extermination, the desire for a larger output at a cheaper rate—these and other considerations induce us to attempt the cultivation of the mother plant. Unfortunately, this has not always been made upon rational lines.

In the first place, it is desirable to know which species of a genus yields the best drug. We have already discussed the means by which that can be determined, but, unfortunately, botanists do not always take the trouble to have this done. Next, the conditions under which that species flourishes in its wild state must be ascertained. Soil, position, drainage, shade, temperature, rainfall; all these conditions must be studied before it is reasonable to hope for success. They are unfortunately difficult to ascertain, but once determined, it should not be a hard task to find in one of our colonies a locality in which they are reproduced.

Once established in cultivation, it becomes a question of scientific interest to determine the influence of varying methods of cultivation, manure, etc., on the constituents. Professor Tschirch has more than once insisted on the possibility, nay, probability, of our being able to increase the active constituent by suitable cultivation. It is by this means that some of the most valuable fruits and most beautiful flowers have been produced. We know that cinchona trees under cultivation have yielded far more alkaloid than was ever found in the bark harvested from wild trees. Hooper has shown that under suitable manuring ipecacuanha plants will double their yield of root, and there can be little doubt that the same may be done with other plants if the necessary conditions can be ascertained. Favourable results would be of immense practical value.

9. History.

This, too, we may regard as necessary to complete our knowledge of a drug. Although perhaps of less importance, either from a scientific or practical point of view, the results are most interesting. There are probably few drugs of vegetable origin that have been discovered and introduced into use in recent times. The vegetable kingdom has been so thoroughly ransacked with the object of discovering medicinal plants that little remains to be done in that direction, and our efforts are now chiefly confined to ascertaining what plants other nations have found to be useful, testing their value, and introducing them to our colleagues. Every drug has a history, and a history extending often over thousands of years; this is especially the case with the spices, such as cinnamon, pepper, cloves, etc. Philology here renders valuable assistance, for the drugs have often to be traced by their names.

Chemistry, botany, zoology, physiology, geography, agriculture, philology, climatology, all contribute their quota to an exact and complete knowledge of drugs, and we should be wrong in ignoring any other science or discipline that could contribute towards that end. "Science," says the Century Dictionary, "is knowledge gained by systematic observation, experiment, and reasoning; knowledge regarding any special group of objects, co-ordinated, arranged, and systematised." It is this work that scientific pharmacognosy undertakes for drugs. It observes, experiments, and reasons; it collects, arranges, and systematises all the details that contribute to a complete knowledge of drugs, and it does so without reference to the question of practical utility. It is as free from any mercenary consideration as the science of chemistry, or that of botany.

There is, however, an applied pharmacognosy, as there is an applied chemistry. Applied pharmacognosy provides those whose business it is to deal in drugs with a means of identifying them, of ascertaining their quality, and of guarding against deception. It ensures the supply to the public of drugs of the nature and quality that they are entitled to have; it can even improve them,

extend our trade in them, and found commercial enterprises of vast magnitude.

It is the duty of the pharmacist to remember that of all persons none alone is qualified from the outset to deal with the problems of Scientific and Applied Pharmacognosy. His scientific training in chemistry, botany, and pharmacognosy, and the technical training that is coupled with the daily handling of drugs, fits him as no other is fitted to undertake such work. Neither the chemist nor the botanist is a competent expert in pharmacognosy. The field is the pharmacist's; chemistry, botany, geography, and all the sciences and disciplines serve as means to enable him to cultivate it. I find myself in complete sympathy with Professor Tschirch and other Continental authorities in advocating that pharmacognosy should occupy a much more important position in the education of the pharmacist than is at present the case.

"The pastor's function," said Ruskin, "is to teach, the physician's to heal, and the merchant's . . . to provide. That is to say, he has to understand to their very root the qualities of the things he deals in and the means of obtaining or producing it; and he has to apply all his sagacity and energy to the producing or obtaining it in a perfect state, and distributing it at the cheapest possible price where it is most needed." The pharmacist deals with chemicals and drugs; it is his duty to supply these or preparations of them, alone or combined, to the public. To enable him to discharge his duty as a merchant, pharmacognosy is as essential as chemistry; it should, therefore, occupy a correspondingly important position. But, although the business of the pharmacist consists largely of commercial transactions in drugs and chemicals, he should never for a moment lose sight of the fact that there is a scientific as well as applied pharmacognosy. There is a scientific pharmacognosy which searches out every detail without a thought of pecuniary recompense; there is also an applied pharmacognosy that points to possible advantages and averts possible fraud. A thorough training in scientific pharmacognosy is as essential as a thorough training in scientific chemistry. The man that has not enjoyed such a training is incapable of intelligently applying the results of scientific pharmacognosy, just as the man who has not been trained in chemistry is incapable of intelligently applying the results of scientific chemistry.

REVISION OF THE U.S. PHARMACOPŒIA.*

The following are the general principles to be followed in revising the U.S. Pharmacopœia, submitted by the Committee of Revision and Publication of 1890, in accordance with the instructions of the Convention of 1890, and adopted by the Convention of 1900:—

1. SCOPE OF THE PHARMACOPŒIA.

The Committee of Revision is authorised to admit into the Pharmacopœia any product of nature of known origin, also any synthesised product of definite composition which is in common use by the medical profession, the identity, purity, or strength of which can be determined. No compound or mixture shall be introduced if the composition or mode of manufacture thereof be kept secret, or if it be controlled by unlimited proprietary or patent rights.

2. DOSES.

After each pharmacopœial article (drug, chemical, or preparation) which is used or likely to be used internally or hypodermically, the Committee is instructed to state the average approximate (but neither a minimum nor a maximum) dose for adults, and, where deemed advisable, also for children. It is to be distinctly understood that neither this Convention nor the Committee of Revision created by it intends to have these doses regarded as obligatory on the physician, or as forbidding him to exceed them whenever in his judgment this seems advisable. The Committee is directed to make a distinct declaration to this effect in some prominent place in the new Pharmacopœia.

3. NOMENCLATURE.

It is recommended that changes in the titles of articles at present official be made only for the purpose of insuring greater accuracy,

*From the *Pharmaceutical Era*.

or safety in dispensing. In the case of newly admitted articles, it is recommended that such titles be chosen as are in harmony with general usage and convenient for prescribing; but in the case of chemicals of a definite composition a scientific name should be given at least as a synonym.

4. ASSAY PROCESSES.

The Committee is instructed to append assay processes to as many of the potent drugs and preparations made therefrom as may be found possible, provided that the processes of assay are reasonably simple (both as to methods and apparatus required) and lead to fairly uniform results in different hands. As regards the products of such assays, tests of identity and purity should be added wherever feasible. Physiological tests for determining strength should not be introduced by the Committee.

5. PURITY AND STRENGTH OF PHARMACOPŒIAL ARTICLES.

The Committee is instructed to revise as carefully as possible the limits of purity and strength of the pharmacopœial chemicals and preparations for which limiting tests are given. While no concession should be made towards a diminution of medicinal value, allowance should be made for unavoidable, innocuous impurities or variations due to the particular source or mode of preparation, or to the keeping qualities of the several articles. In the case of natural products the limits of admissible impurities should be placed high enough to exclude any that would not be accepted by other countries.

Regarding the strength of diluted acids, tinctures, and galenical preparations in general, it is recommended that the Committee keep in view the desirability of at least a gradual approach upon mutual concessions towards uniformity with similar preparations of other Pharmacopœias, particularly in the case of potent remedies which are in general use among civilised nations.

6. GENERAL FORMULÆ.

It is recommended that general formulæ be introduced, as far as the particular nature of the several drugs will permit, for fluid extracts, tinctures, and such other preparations as are made by identical processes, and that the general formula to be followed in each case can be merely indicated by reference.

7. WEIGHTS AND MEASURES.

The Committee is instructed to retain the metric system of weights and measures adopted in the Seventh Decennial Revision.

8. PROVISION FOR A SUPPLEMENT.

The Committee of Revision is hereby authorised to prepare a supplement to the Pharmacopœia whenever that body believes such action advisable. (This amendment as here stated is not a verbatim copy of the official record.)

9. PRECEDENTS.

In all matters not specially provided for in these "General Principles," the rules established for previous revision, if there are any, should be followed.

PRACTICAL NOTES AND FORMULÆ.

Corn Ointment.

(1) Salicylic acid, 36; lanolin, 6; cocaine hydrochloride, 0.05; alcohol (90 per cent.), *q.s.*; creosote, 4.8; white wax, 2.4; vaseline, 2.4. (2) Salicylic acid, 1; lactic acid, 1; wax ointment, 8.—*Oesterr. Zeits. für Pharm.*, 54, 100.

Scurf Pomade.

Benzoated lard, 120; precipitated sulphur, 4; wool fat, 20; alcohol (90 per cent.), 20; salicylic acid, 1; geranium oil, 1; rose water, 60. Any other perfume may be substituted for the geranium oil.—*Oesterr. Zeits. für Pharm.* 54, 100.

Antiseptic Water.

Menthol, 2 grains; thymol, 8 grains; wintergreen oil, 5 drops; eucalyptus oil, 6 drops; alcohol (90 per cent.), 2 to 4 ozs.; fluid ex-

ract of baptisia, 20 mm.; boric acid, $\frac{1}{2}$ oz.; water to produce 20 fluid ozs.—*Deuts. Amer. Apoth. Zeit.*, 20, 158.

Pepsin Syrup.

Pepsin, 6 Gm., are dissolved at ordinary temperatures in water, 20 Gm., and filtered after two hours' standing. The filtrate is mixed with cherry juice, 80 Gm., and hydrochloric acid, 4 drops, is added.—*Oesterr. Zeits. für Pharm.*, 54, 100.

Menthol Formulæ.

Menthol-Chloral:—Menthol, 30; chloral hydrate, 30. To be melted together. *Menthol Cholera Drops*:—Menthol, 6; tincture of ginger, 8; tincture of opium, 10; spirit of ether, 76. Take 10 to 15 drops each half hour. *Menthol Ice*:—Spermaceti, 10, is melted with liquid paraffin, 10, and menthol, 10, is added. To be applied to the nostrils for cold in the head. *Menthol Vinegar*:—Menthol, 8; vinegar, 97; to be added to gargles. *Mentholin*:—Menthol, 10, is dissolved in alcohol (95 per cent.), 77, and solution of ammonia, 12, is added. *Menthol Oil*:—Menthol, 16, is dissolved on the water-bath in olive oil, 14. *Menthol Ointment*:—Lanolin, 85, paraffin, 5, are melted together, and menthol, 10, added. To be applied to the forehead for headache. *Menthol Snuff*:—Menthol, 15; boric acid, 30; ammonium chloride, 55. *Menthol Wine*:—Menthol, 2, is dissolved in cognac, 6; to this is added glycerin, 6; Tokay wine, 86. *Menthol Toothache Drops*:—Menthol, 8; chloroform, 8; alcohol (95 per cent.), 84. To be applied on wool to the decayed tooth.—*Pharm. Post*, 33, 65.

Pharmacy of Epicarin.

Kaposi gives the following formulæ for compounding epicarin:—(1) *Emollient Ointment for Scabies*:—Epicarin, 10; simple ointment, 100. (2) *Ointment for Prurigo and Eczema*:—Epicarin, 10; cod liver oil, 5; vaselin, 95. (3) *Solution for Drops*:—Epicarin, 1; brandy, 10; spirit of lavender, 2.5; glycerin, 1. (4) *Anti-irritant Solution*:—Epicarin 10; ether, 40; alcohol (90 per cent.), 40; glycerin, 5. (5) *Lubricant Ointment*:—Epicarin, 2; French chalk, 1; vaseline, 18. (6) *Epicarin Paste*:—Epicarin, French chalk, starch, of each, 1; vaselin, 3. (7) *Solution for Painting*:—Epicarin, 2; glycerin, 1; alcohol (90 per cent.), 19; spirit of soap, 2. (8) *Ointment for Squamous Eczema*:—Epicarin, 15 Gm.; flowers of sulphur, 5 Gm.; zinc ointment, 100 Gm.; neroli oil, 1 drop. (9) *Ointment for Herpes tonsurans*:—Epicarin, 3; soft soap, 40; zinc oxide, 2. (10) Epicarin, 1; liquid petroleum, 10; to this other ingredients, such as liquid storax, oleum rusci, may be added as prescribed.—*Pharm. Post*, 33, 111.

Hair Lotion.

Castor oil, 7.5; eau de Cologne, 18; alcohol (90 per cent.), 18; tincture of capsicum, 0.4; tincture of cantharides, 0.4; tincture of galls, 8.—*Pharm. Post*, 32, 721.

Hair Restorer.

Precipitated sulphur, 60; lead acetate, 60; glycerin, 360; rose water, 300; distilled water, 1440; lavender oil, 45; bismuth nitrate, 3.75.—*Oesterr. Zeits. für Pharm.* 54, 100.

Hair Wash.

(1) Tincture of cantharides, 3; bay oil, bergamot oil, of each a sufficiency; alcohol (68 per cent.), 9; rose water to produce 24. (2) Orange flower water, 44; glycerin, 3; tincture of cantharides, 15; solution of ammonia, 15.—*Pharm. Post*, 32, 721.

Platinum Toning.

Valenta employs the following formula for a platinum bath:—Water, 100; potassium platino-chloride solution (1:100), 5 to 10; meta-phenylenediamidine solution (1:100), 5 to 10. The washed copies are immersed in this bath, and quickly take an intense platinum tone; they are then fixed in 10 per cent. fixing bath.—*Amat. Photog.*, 14, 15.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Council Election.

I must confess to a feeling of disappointment that the proportion of votes recorded at the Council election last week was not much larger than on previous occasions, as it is far from satisfactory to reflect that only two-thirds of the members of the Pharmaceutical Society have been induced to show that they take a practical interest in affairs at the present juncture. Apparently, the members may be divided into three classes which are almost equal numerically—first, those who are content with the manner in which their affairs have been conducted during the past year; secondly, those who have desired a change in their representatives; and, lastly, those who do not care the proverbial tinker's curse what happens until they are personally inconvenienced. The individuals constituting the third class had the destinies of the Society, and probably of British pharmacy, in their hands on the present occasion; they have chosen to remain neutral and allowed the rest to fight the matter out. Though the issue was not clearly stated in so many words, the struggle has turned on the attitude to be adopted towards Clause 2 of the Companies Bill, and it is useless to disguise the fact that the balance seems to have turned in favour of the opponents of the "no-surrender" policy.

The Successful Candidates.

Of the seven successful candidates not one is committed to that policy, except in so far as concerns the protection of titles. And on that point I believe there is absolute unanimity, both on the Council and amongst pharmacists generally. But Mr. Walter Hills has, of late, made it clear that he has no faith in the virtue of uncompromising hostility to the Government proposals, and he is returned at the head of the poll, with a much larger "plurality," as our American cousins would term it, than graced Mr. Carteighe's return last year. Again, second on the list comes the name of one who is deeply interested in the fortunes of a limited company, whilst the third place is taken by one about whose opinions on the subject there is not the least shadow of a doubt. In spite, therefore, of the editorial opinion expressed in last week's *P.J.*—to the effect that the result of the election does not alter the position of the Council as to the company pharmacy problem—I am driven to the conclusion that the majority of those who have voted at this year's election see no way out of existing difficulties, except by yielding to the force of circumstances and accepting some form of compromise, which shall reserve the use of pharmaceutical titles to duly qualified individuals.

Other Effects of the Change.

Otherwise, the result of the election indicates nothing beyond the fact that—given a good organisation—seats not strongly held are easily captured when the electorate is in the mood for variety. Three former members of the Council have been replaced by three fresh hands, and for once a change of such magnitude has resulted in the assignment of an additional seat to the metropolitan district. That is to say, London members now fill nine out of the twenty-one seats, instead of eight, a minor result of the contest, which is nevertheless one of some importance in view of the serious demands made upon the time of London members. Another effect of the change is that Mr. Glyn-Jones will now be in a position to realise how much or how little can be done by three individuals altogether reversed in the details of the Society's administrative work, even when coached by himself. He may be congratulated upon the success of his well-devised attempt to influence the result of the election, and upon the opportunity that now presents itself to show what a small combination of new parliamentary hands can do, but probably he is also to be pitied if he is depending upon the means now at his command to enable him to bring about, forthwith, all he may be supposed to desire in the way of reform. Though such pity would probably be quite misplaced, for he is essentially a man who has learned to labour and—to wait.

The P. A. T. A. Disclaimer.

I notice that, in the *Anti-Cutting Record* which has just come to hand, great pains are taken to dispute the suggestion that the Proprietary Articles Trade Association has taken action with regard to the election of members to the Council of the Pharmaceutical Society. But I fail to see that "it must . . . be sufficiently patent to any unprejudiced mind that the P. A. T. A., as such, has taken no action whatever in regard to this election." There is, doubtless, much virtue in that "as such," but it does not get over the real difficulty, which is that the P. A. T. A. stands accused of using its organisation, or allowing that organisation to be used, in an attempt to influence the affairs of the Pharmaceutical Society. No one, I take it, supposes for a moment that there has been a general meeting of the P. A. T. A. to consider ways of interfering in the election, or that an official "whip" has been sent out to members of the P. A. T. A. who also happen to be voters, or that the Executive of the P. A. T. A. has sent round canvassers with brass bands, banners, and all the other usual adjuncts of the electioneering expert. But I think there can be no question that the organisation of the P. A. T. A. has been pressed into the service of Mr. Glyn-Jones and his friends. Sufficient proof of that is furnished by the fact that the official organ of the body has been the medium exclusively employed for distributing an election circular to the voters—and to many non-voters—whilst I have no doubt that much has been done of late by the P. A. T. A. staff, in the P. A. T. A. offices, which might not unfairly be construed as employment of the Stonecutter Street organisation in support of the candidature of the Glyn-Jones nominees.

The Long and Short of it.

The fact of the matter is that no one occupying such a prominent position as Mr. Glyn-Jones can entirely dissociate what he does in his private capacity from his public actions. We are told that "Mr. Glyn-Jones, in his private capacity as a member of the Council (*sic*), addressed a circular letter from his business address at Poplar, and knowing that a copy of the *Anti-Cutting Record* reached every chemist actually in business in the United Kingdom, made use of this medium to reach those whom he desired to influence." The matter might have been put plainer by simply stating that Mr. Glyn-Jones did, in his private capacity, what no member of Council had ever been known to do before; that he also made use of his position and knowledge as Secretary of the P. A. T. A. to influence the votes of members of the Pharmaceutical Society. To that extent, I fear, he has unquestionably involved the P. A. T. A. in the Society's affairs, whatever he or Mr. Tebbutt may assert to the contrary. Of course, the P. A. T. A., "as such," had no interest in the election, but every communication from Mr. Glyn-Jones to a voter who was also a subscriber to the P. A. T. A. would naturally be received as if inspired by that body, coming as it did from the individual known to be its creator and paid secretary. Under the circumstances, such an assumption would not be so entirely wrong as Mr. Glyn-Jones would prefer that it should appear, for I doubt if he can say that he made no use, during the recent electioneering campaign, of means at his command as Secretary of the P. A. T. A.

Curiosities of the Election.

Apparently, some fifteen or sixteen hundred voters represent the strength of the anti-cutters in the Pharmaceutical Society—sufficient, as events proved last week, to secure the return of three new members of Council and almost that of a fourth. Curiously enough, whilst the first name on the list this time secured nearly two hundred more votes than Mr. Carteighe, when he headed the poll last year, something like a hundred and fifty votes less were recorded for the seventh successful candidate than for the individual who occupied the same position twelve months ago. Then, Mr. Bottle was rejected with more than seventeen hundred votes to his credit; now, Mr. Taylor is returned with a hundred less. Last year the only new candidate elected received more than six hundred votes

less than the candidate at the head of the poll, and was sixth on the list; this year Mr. Wootton is nearly nine hundred behind Mr. Hills, yet he takes the third place. The conclusion I draw is that whilst the Glyn-Jones quartette received a solid vote of sixteen hundred, the seven old members of Council were supported generally by some three hundred less, and the small revolution we have witnessed has therefore been effected by about three hundred voters. A transference of that number of votes would have returned the old seven, with Mr. Wootton eighth on the list.

LETTERS TO THE EDITOR.

The Council Election, 1900.

I would esteem it a favour to be allowed to express, through the medium of your columns, my thanks to all those who supported my candidature at the recent Pharmaceutical Election. If in the capacity of member of Council I can be of service to any of your readers, I hope and anticipate they will give me the opportunity.

80, Gloucester Road, South Kensington, ALBERT COOPER.
May 21, 1900.

I beg to thank those members of the Pharmaceutical Society very much who so kindly voted for me at the last Council Election.

8, Temple Street, Swansea, May 21, 1900. N. M. GROSE.

May I express my hearty thanks, through the Journal, to the 1,618 members who voted for me at the recent poll, and also to all those, to me unknown, friends who in various parts of the country have added to their votes their influence and interest. I will try so to serve the interests of all pharmacists as to give no cause for regret at my success.

Bolton, May 22, 1900.

JOHN TAYLOR.

It becomes my pleasant duty to thank the 1,587 members who recorded their opinion that personal qualification and personal responsibility must be the basis of any pharmacy law which can develop naturally. May I say that our (*sic*) reason for entering the contest was solely to test this issue. We have had the Council at a deadlock for the last six months, and this, in the interests of progress, we (*sic*) thought should be removed by the electorate; but as to which half of the Council was right and which wrong, as an issue, we have found it impossible to get before the electorate. On the one hand we have had the traditional policy for the return of former Councillors, because of their eminent respectability, on the other a policy of unmeaning change, which was supported by a strong organisation. This "caucus" we refused to join, because in our view it was desirable I should join the Council with a mandate or not at all. In face of these, as events prove, insurmountable difficulties, we have come within thirty of being able to say—there you have a specific instruction! I therefore urge that the 1,587 positive opinions deserve—as they will doubtless receive—the serious consideration of the new Council. That so many votes should be recorded, under such circumstances, for one who, whilst unknown and without influence refused the strongest support, is a fact of which I am very proud.

Blackburn, May 22, 1900.

R. LORD GIFFORD.

The result of the election should be a series of object lessons. All previous Councils have been elected by members of the trade who have the welfare and advancement of pharmacy sufficiently at heart to make some sacrifice for their principles. The late Council was composed of men who, individually and collectively, gave their time, their brains, and their experience for the benefit of the class

to which they, and we, belong. Their experience taught them that undue haste at a critical moment is not usually progression but retrogression. A weak Act, a House of Lords reverse, a powerful opposition, and, worst of all, discords in our own ranks showed them that *Festina lente* is the proper motto of the Council. And because that Council would not rush madly into a doubtful fray we were asked to stiffen it with a batch of incendiaries. Two-thirds of those who have a vital interest in the work of the Council are invertebrate. A large percentage of those who possess the franchise were too indifferent to exercise it, or too busy accumulating wealth. Legally, the Council of the Pharmaceutical Society is restricted in its powers; but we have stiffened it now; the worst it can do is to neglect its proper sphere of action and contribute its quota towards the gaiety of nations.

Batley, May 22, 1900.

R. BROADHEAD.

The P.A.T.A. and the Council Election.

The Journal for last week has been sent to me here, but the letters of Mr. Glyn-Jones and Mr. Tebbutt are written in a strain that leads me to refuse to continue the correspondence further. Such adjectives as foolish, unmanly, uncourageous, dishonourable, contemptible, ignorant, insulting, untrue and libellous I should not attempt to compete with or refute.

Colwyn Bay, May 22, 1900.

ALFRED H. WADDINGTON.

The Federation and the Conference.

Permit me, on behalf of the Executive Committee of the Federation of Local Pharmaceutical Associations, to commend to the notice of the local associations the special effort now being made to increase the membership of the British Pharmaceutical Conference. The work that is done by that body entitles it to the support of every pharmacist, and it is believed that the local associations, through their Councils or officers, can do much towards making its objects more widely known. In addition to the claims of the Conference upon all who are interested in the progress of pharmacy, its annual meetings afford the only real and attractive opportunity for chemists from all parts of the country to meet in social intercourse and to exchange expressions of opinion with prominent men in the pharmaceutical world, to have those opinions first-hand, and to make their own known. Will the local associations, or responsible members thereof, do what they can in their districts to strengthen the Conference?

Stonehouse, Plymouth, May 22, 1890.

JAMES COCKS,

Hon. Secretary, Federation of Local Pharmaceutical Associations.

The Materia Medica of the Pharmacopœia.

In common with the majority of your readers, I am much interested in "The Students' Columns." The plan appears to be encyclopædial, and is a decided gain in the literature of pharmacy. It is encouraging when members of our ancient craft devote attention to science and are taking notes of the daily surroundings that keep us in touch with nature and the beauties and wonders of creation. Whilst one is taking a geological survey in order to determine the habitats of various plants, another is engaged in studying the arrangement of species and nomenclature. May I suggest that such suggestion might be rendered of permanent value if converged to a focus?—the "local habitation" being the Pharmaceutical Society, resulting in a standard work of priceless value—not only in the present generation, but for all future times, after the plan of the 'Encyclopædia Britannica,' and published at regular intervals. Of material there is a superabundance, and with such names as Attfeld, Holmes, and Martindale, and with a host of amateurs dotted over the entire kingdom, the labour of editorship would be

much diminished, the domain of pharmacy vastly enlarged, and the Pharmaceutical Society of Great Britain sustained in the exalted place of honour to which it is entitled.

Richmond, May 20, 1900.

R. GOODWIN MUMBRAW.

Glaucium Luteum.

I would like to add what little I know about *Glaucium luteum* to what has already appeared in the Journal. Mr. Ashton mentioned some few weeks ago that the plant is to be found in this neighbourhood. I have noticed that the spot on which it grows most abundantly is about two and a half miles from here, and close to the works of the Brighton and Hove Gas Company, at Portslade. There, apparently on shingle, a bed of cinders, about an acre in extent, has been spread. There is no soil except for the small amount of débris that has been blown over the bed. Salt water is on both sides of the bed, to the north an arm of the Shoreham Canal, and to the south the sea. Here, then, the ground is distinctly porous, and saline matter and moisture would be furnished whenever the wind was blowing from the sea. That these conditions are suitable to the plant is evidenced by the luxuriance with which it grows in this particular spot. In the late summer it forms quite a pretty sight with its large green leaves, bright yellow flowers and long swaying capsules.

Brighton, May 19, 1900.

W. W. HOLE.

This plant used to grow near Plymouth in two marine localities. On the Whitsand Bay at Tregantle it flourished on the beach under the hill where the fort now is, with the *Eryngium maritimum* growing in the sand. I have gathered it there, say, from 1848 at intervals of years. It also grew a few large plants on hardened sand some ten to twenty feet above shore on a low cliff in a bay just beyond Bovisand to the east, but out of reach except to climbers. I have picked fruits there over two feet long (*Ceratum*). I can remember the plant there in 1840; when a lad I lodged at a cottage near by. It remained there a great many years. When last that way, about 1888, I was surprised to find that *Lathyrus latifolius*, which has been naturalised on the cliffs by an old flagstone quarry, near Bovisand, but within Plymouth Sound, was growing plentifully along the hedges running down the valley to the Bay, where the *Glaucium* grew. In July, 1867, I found *Glaucium luteum* on Slapton sands, together with *Borago officinalis*, *Cynoglossum officinale*, and *Solanum nigrum*, and at other places round the coast, but I never met with it except on the shore. The river here being very low I noticed for the first time last week the rhizomes of *Nymphaea lutea* as large as one's wrist, of nearly uniform size for a yard in length till branching; it had plenty of roots $\frac{1}{4}$ to $\frac{1}{2}$ inch across, and lay on the mud some three feet below the usual level of the river. Other plants were three feet lower, and immersed to that depth. The branches of rhizome anastomosed. The first racemes I picked this year of *Veronica chamaedrys* had about three flowers, with only three divisions in the corolla; there were a dozen such, but all on one plant.

Evesham, May 22, 1900.

F. P. BALKWILL.

Cod Liver Oil Wine.

Might I suggest that possibly the preparation needed by "S. W." is Stearn's "Wine of Cod Liver Oil." My customer always asks for it as cod liver oil wine.

Gosport, May 21, 1900.

E. S. BALCHIN.

The Roentgen Rays in Dentistry.

In my paper published last week (see p. 531), the word "hundred" should be inserted in the fourth line, which should read "several hundred cases requiring X-rays, etc." As a matter of fact since we had the apparatus here I have radiographed some 600 patients at least.

Liverpool, May 22, 1900.

ROSPER H. MARSDEN.

ANSWERS TO QUERIES.

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

ETHER SOAP (D. J. W.—42/23).—In the Journal for September 23, 1899, page 296.

VASELINE (A. E. B.—42/16).—When vaseline is ordered in a prescription, yellow vaseline should be supplied.

REMOVAL OF FIXTURES (E. H. B.—42/12).—Yes, if they are removed prior to the determination of the tenancy.

NAVAL HOSPITAL DISPENSER (C. E. F.—42/14).—Apply to the Director-General of the Medical Department of the Navy, Northumberland Avenue, London, W.C.

"PHENYLE" (W. E.—42/11).—We have no information regarding this ingredient of "bee syrup." Write to the editor of the *British Bee Journal*, 23, Paternoster Row, London, E.C.

FIELD BOTANY (A. P. M.—42/19).—The best introductory book for the purpose is Shirley Hibberd's 'Field Flowers' (Groombridge, 4s.), which might later be supplemented by John's 'Flowers of the Field' (S.P.C.K., 6s.).

STICKY FLY PAPERS (E. B.—42/13).—Birdlime, 10; castor oil, 8; treacle, 4; yellow resin, 18. Melt the resin, finely powdered, in the castor oil; then incorporate the birdlime and the treacle. Spread while hot with a broad spatula on unsized paper.

DISPENSERS IN THE NAVY (H. M. H.—42/22).—There is no such post in the Navy, but a limited number of registered chemists are employed as dispensers in naval hospitals. See reply to "C. E. F." this week; for further particulars see the *P. J.* for April 14 last, page 403.

STARCH GLOSS (G. H. L.—42/20).—The wax tablets are used by scraping off about a teaspoonful to each tablespoonful of dry starch, mixing the two well together, then pouring on boiling water in the usual manner. A polish can also be imparted to linen by passing a warm iron over it and immediately rubbing the surface with paraffin, white wax, or other suitable polishing agent.

POLARISATION OF LIGHT (J. H. C.—42/21).—There is something wrong in your question as stated. Ordinary light is visible through the polariscope—which, by the way, is not usually constructed with tourmaline plates—when the prisms are in the required position. But the monochromatic sodium flame becomes visible under conditions which do not allow the passage of ordinary white light, the explanation being that the rotatory action of optically active substances is not the same for all colours.

Information Wanted.

. The Editor will be obliged to any readers who can supply the information asked for by correspondents.

ACME BRAND CAMPHOR ICE.—Address of proprietors?—(A.B.—41/6.)

SULPHOCALCINE.—Particulars regarding liquid named "sulphocalcine," said to be used as a vaginal injection?—(F. W. H.—40/8.)

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LONDON: SATURDAY, MAY 26, 1900.

HISTORY MADE TO MEASURE.

IF long-continued reiteration of romantic representations may eventually induce the repeater of them to believe they are true, some explanation, and perhaps some kind of excuse, might be found for the views put forward in an article entitled "Genesis of the Pharmacy Act." It is even conceivable that under the influence of such a condition a statement as to the aim of the Pharmaceutical Society having been strenuously opposed from outside, might well appear "intolerable" in certain quarters, without the defective toleration being remarkable or much worth notice in these pages. But when the statement referred to is described as a "deception," and as being based on a "perversion of the facts," the limits of charitable construction are overstepped and recourse must be had to the direct evidence of the accuracy of that statement, which can be readily found recorded in the publications of the last forty years; though it is now either quite unknown or forgotten by many. The emphatic denial that in 1864 the "educational efforts" of the Pharmaceutical Society were strenuously opposed by "outside" chemists and druggists is scarcely sufficient, even as an assertion, for anything more than evading the point at issue. What that is may best be stated by recalling the terse and at the same time comprehensive description given by WILLIAM ALLEN of the aim of the Pharmaceutical Society, viz., to make the chemist and druggist "respectable," meaning that he should be taught his business and certified capable of conducting it. The business referred to was that of keeping open shop for compounding and dispensing medicines prescribed by duly qualified medical practitioners. Upon that basis the entire body of chemists and druggists was to be united and incorporated as the Pharmaceutical Society. The original object of the Society was therefore neither pretentious nor illiberal, and in 1864 it was, authoritatively, admitted to be a very desirable object for satisfying a public want. Opposition to the Society's efforts to supply

that want was commenced at an earlier period, through another organisation, originated in 1860—as already stated at page 511—at the same place as the journal which now regards mention of its past work "intolerable." The intimate relationship of that journal and the "United Society" is established on authority which cannot well be disputed and, that being the case, the question whether, like some forms of animated nature, they had a common origin by fission, is immaterial in regard to the fact that they were the source of opposition to the aim of the Pharmaceutical Society.

The object of the "United Society" by which it is now alleged that "a larger measure of protection might have been secured with as full educational provision as the Pharmaceutical Society obtained" was, however, of a very different and essentially antagonistic nature. That is sufficiently apparent from the published descriptions of its intention to maintain "free trade for chemists and druggists," and to "protect the right of a chemist and druggist to prescribe." The chief contentions of its promoters were that physic was no less to be dealt with according to free trade principles than other commodities, and that vendors of physic should be quite unfettered by legislative regulation: those contentions were quite incompatible with the more modest project of making the chemist and druggist "respectable" in the eyes of the public and of the medical profession. At the very outset the ridiculous pretence that "as a trading community" the united chemists represented fifty thousand persons, "not the least educated, not the least intelligent of those engaged in trade in this great country," was in itself an attempt to show that, in comparison, the Pharmaceutical Society, numbering only two thousand members, was an unimportant body. That representation was persistently pressed upon the notice of the public, members of Parliament, etc., with the same object. But before 1865, the period of comparison adroitly selected in the article now referred to, the free trade shibboleth had been considerably discredited by the discovery that legal qualification had a practical value for its possessors, and by the exemption of pharmaceutical chemists from jury service on that account. It was not until the advantage of being distinguishable, as a proper recipient of that privilege, became evident, that the position of the United Society and its representative of necessity underwent some alteration. It was then discovered that, instead of a monopoly being the result of applying a "test of pharmaceutical examination," legal qualification was necessary for the proprietor of a chemist's business, since "the principal's constant personal supervision" was absolutely necessary for the security of the community at large. After some show of indignant protest against the iniquity of "exclusive legislation," the free trade doctrine was abandoned; there was a clamour for an "Act of Incorporation," resulting eventually in an appeal to the Pharmaceutical Society for assistance that could no longer be depised. That was not made, however, until the action of the Select Committee of the House of Commons had been prejudicially influenced by the evidence afforded of division in the ranks of chemists and druggists, and of opposition to the aim of the Pharmaceutical Society,

The resemblance of the Bill No. 2 to the Bill No. 1 does not therefore prove that the two societies were "at

one"; because the Bill No. 2 was to a great extent necessarily imitative, even in 1865. Moreover the main feature of the Pharmaceutical Society's object was subsequently omitted from its Bill in the process of watering down to suit the desires of chemists and druggists "as a trading community." Pharmacy was thus wiped out of the Bill; the Poison Schedule took its place, and the minor qualification was adopted in response to the plea that to insist on the qualification of pharmaceutical chemist would violate "the first principle of commercial freedom." Those stages of dilution mark the genesis of the Pharmacy Act, 1868, and the simultaneous evolution of the wretched Poisons Act, which has brought general disappointment. So likewise the elimination of part of the original preamble, relating to compounding and dispensing, was the effect of the opposition which had been directed against the original proposal of the Pharmaceutical Society's Bill by that section of the drug trade which the United Society had professed to represent. It may, indeed, be said, with some semblance of accuracy, that before 1865 the programme of the United Society was in a certain sense "wider" than that of the Pharmaceutical Society; but it was not a programme that would ever have led to the attainment of the object the Pharmaceutical Society has always had in view. The watering down of the Society's object from the professional to the trade position gave chemists and druggists a heritage which—considering the results it has produced—may well be regarded as a curse bequeathed to them by the defunct United Society, as well as a present demonstration of the mischief that was done to the rank and file of chemists and druggists by that Society and its progenitor. Chemists and druggists are now told "that it was Parliament, and not any section of the drug trade," that lopped off everything except protection of titles and the sale of poisons; but the literal accuracy of that statement cannot conceal the fact that the action of Parliament was brought about by the opposition which had been made to the aim of the Pharmaceutical Society to establish a true qualification for the practice of pharmacy for the entire body. To suppose, as Mr. BROADHEAD remarked last week, that "the ridiculous transparency of such inflated misrepresentations" cannot be recognised by chemists and druggists, even though they are not members of the Society, is to give them little credit for mental capacity.

PHARMACEUTICAL SCHOLARSHIPS.

PARTICULARS are published in this week's Journal of the conditions under which three scholarships are offered for competition to subscribing student-associates of the Pharmaceutical Society. There are two Jacob Bell Memorial Scholarships, each of the annual value of thirty pounds, in addition to which the successful candidates will receive free laboratory instruction, and be admitted free to the lectures in the Society's School of Pharmacy during the Session 1900-1901, besides receiving a gift of books to the value of fifty shillings. The Manchester Pharmaceutical Association Scholarship is of the annual value of twenty-six pounds. Further particulars regarding the scholarships can be obtained on application to Mr. RICHARD BREMRIDGE, 17, Bloomsbury Square, London, W.C.

ANNOTATIONS.

WHETHER PHARMACISTS WOULD HAVE BEEN BETTER OFF if—forty years ago—the Pharmaceutical Society had been allowed to have its own way in legislation to regulate the qualifications of chemists and druggists, is scarcely worth argument, because it is a question which belongs to the unprofitable categories of might have been and may be. Moreover, opinion, or belief in regard to it, would largely depend on the point of view from which pharmacy was considered. Munyon and Mother Seigel would probably come to a conclusion different from that formed by persons connected with any of the historic houses which helped to establish the Pharmaceutical Society. But, leaving pharmacy out of consideration, it may safely be said that if the legal qualification for carrying on the business of a chemist and druggist had been adapted more to the professional side of that business, the present position of the rank and file of chemists and druggists would have been very much better than it is, and less open to interference by companies or other unqualified persons.

THE GENERAL MEDICAL COUNCIL met on Tuesday, May 22, when it was announced that, owing to severe illness, Dr. Leech would not be able to attend and present in person the report of the Pharmacopœia Committee. The chair was taken by the president, Sir William Turner, whose address contained little beyond matters of purely medical interest. It was stated that a short Bill had been prepared with the object of obtaining additional powers for penal and disciplinary purposes, and that the members of Parliament for the Universities of London, Oxford, Cambridge, Dublin, and for the Scottish Universities, had acceded to a request to support the measure. Reference was again made to the question of the infringement of the copyright of the British Pharmacopœia by certain publications. It appears that the Chairman of the Pharmacopœia Committee and two other members were asked to prepare a statement on the subject and to report to the president; the statement, which has since been received, recommended that the opinion of counsel should be taken on several questions of importance and that recommendation has been acted upon by the Executive Committee.

THE "MEDICAL PRESS" rejoices that Mr. A. C. Wootton, late editor of the *Chemist and Druggist*, has been elected a member of Council of the Pharmaceutical Society, as—"with something like thirty years' experience of the trade and its yearnings"—it is thought that he cannot fail to be a useful acquisition to that body as "a vigorous dissentient." The new councillor is credited with "the not unmerited reputation" of being able to explain distinctly what he approves and what he objects to, but that commendation is carefully qualified by expression of a hope that he will not allow the sentiments of hostility to the medical profession "which characterised most of his utterances when he directed the *Chemist and Druggist*" to vitiate the atmosphere of his new surroundings. Not, it is asserted, that those sentiments would ever be likely to be productive of positive harm, but because the constantly reiterated expression of such feelings tends to cloud the friendly relations which ought naturally to exist between medical practitioners and those engaged in the "ancillary calling" of pharmacy. It is interesting also to note that Mr. Wootton is regarded by his friend on the *Medical Press* staff as "a vigorous dissentient," and that, in his new position, he is expected to "find ample scope for activity in this sphere."

AN INLAND REVENUE CASE, particulars of which appear in the *Anti-Cutting Record* for May, does not convey a very favourable impression of the manner in which the Inland Revenue authorities conduct some of their business. It is stated that a chemist received a letter from Somerset House, informing him that he was liable to a penalty for having sold a certain preparation unstamped,

though liable to duty. As it happened, the preparation referred to was a new one of which only nine bottles had been put up and five sold; the chemist had put them up himself, and was confident that he had attached medicine stamps to all of them. On writing to Somerset House to that effect, he received a curt reply, in which he was told that the information upon which the letter demanding a penalty had been written appeared to be incorrect, and regret was expressed that he had been troubled in the matter. The chemist wrote again, asking for an explanation, and was informed that the officer who purchased the medicine had been misled by the fact that the stamp on the bottle was entirely concealed by a paper cap. Apparently, then, neither the officer nor his superiors to whom he reported had taken the trouble to examine the bottle properly before demanding the penalty alleged to have been incurred, and the thought suggests itself that other chemists may, not improbably, have been illegally fined as the result of similar carelessness on the part of the authorities.

THE SOCIETY OF CHEMICAL INDUSTRY is to hold its annual meeting in London this year, the week before the British Pharmaceutical Conference. Unlike those of the latter body, the proceedings will be mainly of a social and festive nature, the only serious business being transacted before luncheon on the opening day—Wednesday, July 18. The president's address will then be delivered and the Society's medal presented at the Royal Institution, where the Davy-Faraday Laboratories will be open for inspection. Luncheon at the "Criterion" will precede visits to the Government Laboratories, to printing offices, art glass works, the Guildhall School of Music, and the headquarters of the Metropolitan Fire Brigade. The day's proceedings will conclude with the annual dinner, to be held at the Hotel Cecil. On the second day parties of the members are to visit the Shoreditch Municipal Dust-Destructor and Electric Light Station, the Linde Refrigeration Works, the Mint, St. Saviour's Church, Southwark, the Jenner Institute of Preventive Medicine, the Tate Art Gallery, and numerous other places of interest. The third day will be devoted to an excursion to Oxford, where the Colleges, Museums, Libraries, etc., will be visited. The Paris Excursion is an extra, a special train leaving London early on Saturday, July 21, and the programme being so arranged that those who take advantage of this opportunity of visiting the French capital may spend seven or fourteen days there at a moderate cost. As the International Congress of Applied Chemistry will be in session in Paris during the week commencing Monday, July 23, the English chemists who visit Paris by the excursion will be able to take part in the proceedings.

SO-CALLED CHEMISTS' TRAVELLERS have been troubling a medical correspondent of the *British Medical Journal* until, at last, he has written to complain of their methods and to ask some one to suggest a method of stopping the constant touting for orders by wholesale druggists and other firms. Every day, he says, circulars are received through the post, or samples which have been forwarded for approval and purchase by medical men, this method being adopted largely by American houses, whilst certain British firms are to a certain extent following the example set. Only the other day this M.D. received a letter from an American graduate, who represented a wholesale drug store, recommending some tonic, and he is greatly troubled by commercial travellers and representatives of various firms, who are constantly gaining admission to his waiting-room during consulting hours and at other inconvenient times. He has a notice in his hall to the effect that he cannot interview commercial travellers who call on business, and that has had some effect in stopping them, but he thinks the only effectual remedy will be for medical men as a body to return or destroy all letters, circulars, or samples received from such sources, and to refuse to see any representatives from wholesale druggists or instrument makers. In conclusion, he says: "A firm with a German name is continually forwarding medical tablets in pill-boxes glued on to the envelope. These I do not open, as I consider that these chemists simply require professional men to find a sale for their

drugs and to serve their own ends. Medical tablets I never recommend or prescribe. Only recently a patient of mine, when in the country, had some maker's ergot tablets written down in a prescription, to be taken every four hours. The consequence was that they were purchased at various shops and at various times and taken *ad libitum!* I discovered this after about fifteen or sixteen had been taken in about twenty-four hours." With reference to this complaint, all we can say is that medical men have brought the trouble on themselves by encouraging the makers of medical novelties to an undue extent. If the remedy suggested by "M.D." were generally applied it would undoubtedly prove efficacious. Meanwhile, it rests entirely with medical men to apply a remedy, and none will thank them more than duly registered chemists who strive continually to conduct their business in a legitimate manner.

THE DAUGHTERS OF LUCINA are, apparently, not perfect on the Continent, observes the editor of the *Practitioner*, for a Commission which has been considering the question of a reform of medical laws in Belgium has ventured to hint at possible improvement in the manner in which midwives perform their necessary duties. But a small storm has been raised by the suggestion that, in the practice of their avocation, midwives should wear sleeves of gutta-percha or of clean linen, the lady editor of one obstetrical journal protesting against such "extraordinary regulations." It is urged that midwives are just a little vain of their appearance, as their arms are not ugly, and that it is not disagreeable to them to roll up their sleeves and show their arms "plump, fresh, and rosy." A French commentator on this effusion somewhat characteristically suggests that, if the Belgian Government insists on making the midwives hide the beauties of their upper extremities, they might wear a ballet girl's skirt of antiseptic gauze with tights of sterilised tartan, thus finding consolation for the loss of opportunity of showing their arms in a consolatory display of the nether limbs.

THE DISPENSING OF PROPRIETARY ARTICLES has been discussed by the Western Chemists' Association (see p. 585), the discussion being opened by a thoughtful paper read by Mr. F. A. Rogers and printed in full at page 569 of this week's Journal. Mr. Rogers is of opinion that a pharmacist abreast of the times must be, as it were, a specialist in specialties, and that a dispensing chemist should feel that he exists to carry out the wishes and intentions of others—a position which is far from derogatory, being, in fact, that of all true craftsmen. The three axioms stated by the author may safely be regarded as such by everyone who is called upon to dispense medicines; in fact, they should constitute the basis upon which every pharmacist ought to build up his dispensing practice. As regards the three points of view defined by Mr. Rogers, it is sufficient to say here that he approaches all of them in a distinctly healthy, if critical, frame of mind. The physician has an undoubted right to prescribe what he thinks best and the patient may reasonably expect to have his medicines dispensed in the most satisfactory manner, but the dispenser is nevertheless justified—whilst faithfully carrying out his instructions—in having a proper regard for his own interests. The difficulties of the situation are fairly put in Mr. Rogers' paper and, though he does not pretend to offer solutions for all the problems that present themselves in connection with the dispensing of proprietary articles, what he says should be sufficiently suggestive to enable pharmacists to consider the matter fairly and arrive at some point of common agreement in regard thereto.

REVISION OF THE UNITED STATES PHARMACOPEIA takes place in a much more systematic and satisfactory manner than we are accustomed to on this side of the Atlantic, and the publication of a detailed explanation of the general principles to be followed in preparing the U.S.P. of 1900 (see p. 574) may be usefully supplemented by referring briefly to the manner in which the work of revision is carried out. A Convention is held every ten years, delegates attending on each occasion to represent all properly-constituted medical and pharmaceutical associations and colleges throughout the United States. Committees are appointed for

various purposes, officers are appointed, and the manner in which the work of revision is to be performed is agreed upon; all needful preliminary arrangements having thus been made, the Convention closes for the year, leaving the committees of revision and publication to proceed with the actual work. Not that the work of preparation for revision only begins at this stage; that work is always steadily progressing, from the date when a new pharmacopœia makes its appearance to the time when revision proper commences and the contents of the new volumes are being prepared for the press. It is important to note that pharmacists preponderate in the committees and are mainly responsible for producing what is, beyond question, one of the most practical pharmacopœias extant. The Eighth Decennial Convention began at Washington, D.C., on May 2 and adjourned on May 4, Dr. Horatio C. Wood, of Philadelphia, having been elected president. The body will reassemble to report progress next year, but the new pharmacopœia will not be published before 1905.

KELLY'S 'DIRECTORY OF CHEMISTS AND DRUGGISTS' for 1900 includes the names of more than 49,000 persons, being an increase, as compared with the previous edition, of about 9,000. It is pointed out, in the preface to the work, that less than 16,000 of those persons are registered chemists and druggists. In addition, the 'Directory' contains the names of manufacturing chemists, dentists, veterinary surgeons, wholesale druggists, druggists, mineral water manufacturers, photographers, photographic material dealers, surgical instrument makers, and other kindred trades and professions. In this edition also the names for the Isle of Man and Channel Islands are included for the first time. It is worthy of note that the names of all pharmaceutical chemists in the general lists are distinguished by an asterisk; it would be as well if a similar arrangement could be adopted with regard to the names of those persons who are duly registered chemists and druggists, so that they may be distinguished from unqualified proprietors of shops where drugs are sold.

ELECTRIC TRACTION ON THE UNDERGROUND RAILWAY has come at last, as intending visitors to London will be glad to learn, though only to a limited extent as yet. Electric trains, of course, are not new in the London district, but this is the first application of the principle to the old "Underground," and it is a matter of general interest that during the past week an electric train has been running regularly to and fro several times daily between Earl's Court and High Street, Kensington, over the portion of line which has been fitted jointly by the Metropolitan and Metropolitan District Railways for an experimental trial of electric traction. It was brought into use on Monday last for ordinary passenger service between the two stations, though the somewhat prohibitive fare of one shilling was charged for a return ticket, to cover the double journey over a single mile of railway. As described in the *Times*, the train consists of six long coaches, each carried on two four-wheeled bogie trucks, and is capable of holding some three hundred passengers. It is fitted with the Westinghouse continuous brake, the air-pump being worked by an electric motor. The lighting, which also is electrical, is particularly good. The carriages are slightly wider than usual, and their fittings and upholstery are distinctly superior to the accommodation at present to be found on the underground railways, comfortably stuffed cushions being provided everywhere except in the third-class smoking compartments, where shaped wooden seats are substituted. The two end coaches, portions of which are reserved for the drivers and guards, carry the driving-motors; of those there are eight in all, one on each axle of the motor-coaches, but normally only the four on the leading coach are in use at any one time. As to speed, this train is faster than one drawn by the usual steam locomotive over the same route, owing to the rapidity with which speed is gained, but it is not very easy to say exactly what pace it is capable of on the level, since there are practically no level portions on the trial line; on a stiff up-hill gradient, however, the train is stated to have attained a speed of twenty-eight miles an hour.

POLITICAL GOSSIP.

THE ADVOCATES of noisy insistence and bull-at-a-gate tactics in parliamentary warfare may, with advantage, be reminded of the instructive fact that the Companies Bill is, at the commencement of a more than usually prolonged Whitsun recess, still in the position it occupied early in March—that is to say, awaiting hopelessly a second reading. Whether consideration of that circumstance will stimulate the development, in future, of more reasonable relations between the bulk of registered persons and the Council of the Society would be hard to prognosticate; but it is just as well to point a moral now and then for the benefit of those pharmacists who may—either by natural inclination or through the operation of journalistic insinuations—be disposed to regard the Executive body as effete and incompetent. The most rabid censor of the *festina lente* doctrine should now admit the wisdom of the Council in postponing active political hostility to Clause 2 of the Bill until the arrival of an opportune moment: he might also concede the possibility of the official leaders of the Society knowing something more of the real trend of parliamentary affairs than the rank and file knew. A bellicose and enthusiastic spirit is a very good thing in a body that is threatened by a powerful enemy; it is a very excellent spirit to have among chemists and druggists; but what practical utility can it serve if the cream of its vitality be expended in "demonstrations" and shadow-fighting? "Keep your powder dry, lie low, and wait for the signal," are the essential items in the policy of the Council regarding the Companies Bill, and now that the measure is to be stationary, at least, until June 14, the soundness of the official attitude appears amply justified. It may be mentioned that the commercial opposition to the Bill is growing, and Mr. Kimber has been joined on the notice paper by Sir J. Maclure and Mr. Crombie.

THE OLD ORIGINAL Early Closing Bill, which kept the name of Lubbock green in the Commons through many dreary sessions, had a meteoric career in the House of Lords on Tuesday—brilliant and beautiful, but very transitory. The Peers have not had a previous opportunity of considering the local option proposals of Lord Avebury, but under the diplomatic guidance of the Marquis of Salisbury they made up their minds very quickly not to have the unjust thing which would give to a majority of shopkeepers in a given district the power of imposing its will (at the ratepayers' expense) on the minority. There were sixteen peers in favour of the second reading of the Bill and seventy-seven non-contents, so that the Shops (Early Closing) Bill was thrown out by quite a large majority, in spite of the very plausible historical memorandum prefixed to the printed copy of the Bill, and notwithstanding the array of accumulated medical and commercial testimony adroitly submitted by its promoter. In short, the House of Lords recognises, as everyone must recognise, that the intentions of Lord Avebury are entirely praiseworthy; but the means by which he seeks to realise those intentions do not appear, as yet, to commend themselves to old parliamentary hands. As the Premier very pertinently stated—and the statement is not novel—it is a very serious thing to ask Parliament to interfere with the right of a tradesman to conduct his business in the manner he thinks fit.

THE REGISTRATION OF FIRMS BILL, which, as was announced in this column some time since, was referred to a Select Committee, has languished somewhat owing to the delay in appointing that committee. The tribunal has, however, now been set up, for on Tuesday last the following thirteen members were nominated to deal with Mr. Emmott's measure:—Mr. M. Austin (Limerick, W.), Mr. Emmott (Oldham), Sir R. Finlay (Inverness Burghs), Mr. Vicary Gibbs (St. Albans), Mr. H. D. Greene (Shrewsbury), Mr. Hazell (Leicester), Mr. Holland (Rotherham), Sir Seymour King (Hull, Central), Mr. C. J. Monk (Gloucester), Mr. G. Palmer (Reading), Sir J. Rankin (Leominster), Sir A. Rollit (S. Islington), and Sir J. Stirling-Maxwell (Glasgow, College). Five members will

form a quorum, and the usual powers will be accorded to the committee. Though the legal element is somewhat prominent, commerce is well represented, for many of the luminaries of the Law are intimately connected with large industrial concerns. We do not expect to see the Bill emerge from the committee in time for consummation this Session; but chemists would do no harm in helping it on by timely representations to their members, more especially if those members happen to be serving on the Select Committee. The Pharmaceutical Council has already expressed approval of the principle of the Bill. A petition in favour of the measure has also been recorded from the Incorporated Society of Law Agents in Scotland.

ANOTHER SELECT COMMITTEE has just been constituted to consider a far-reaching question—namely, whether it is desirable, in the public interest, that hospitals and similar institutions for the care and treatment of the sick should be relieved, either wholly or in part, from liability in respect of local rates. The committee is asked to report not only on the expediency of making this concession, but as to what extent it should go, and with what conditions, if any, it should be coupled. The principal members of the committee are Dr. Farquharson, Sir Cameron Gull, Mr. T. W. Russell, Sir J. Maclure, and Sir James Woodhouse.

MR. W. F. LAWRENCE, of the Abercromby Division of Liverpool, has notified his intention of voicing the woes of tradesmen who innocently employ borax or boric acid to keep their wares sweet, and are prosecuted for so doing. He will ask the President of the Board of Agriculture whether, pending the publication of the report of the Departmental Committee now inquiring into the use of food preservatives, he will bring pressure upon local authorities to stop such prosecutions as those to which his attention has been directed. Of course Mr. Long has no power to interfere with the due operation of the law, and he will no doubt so inform Mr. Lawrence; but the question is another indication of the unsatisfactory, not to say chaotic, nature of the present condition of things in respect to preservatives. If local authorities are to be pressed to suspend prosecutions for the sale of heavily "preserved" commodities until the Board of Agriculture Committee has reported, the ingenious masker of stale products is likely to have a rare good time.

THE VETERINARY SURGEONS BILL for extending the disciplinary powers of the Royal College of Veterinary Surgeons passed its second reading unopposed during the early hours of Tuesday last, and was duly committed to the Grand Committee on Law. There is every prospect of this simple, non-contentious measure becoming law this Session.

FATE IS UNKIND to the Petroleum Bill, Mr. Bousfield's Weights and Measures Bill, and to the Architects' Registration Bill. The first-named is deferred until the last Wednesday in June, when Mr. Balfour hopes the House will not be sitting; the second is down for Tuesday, when the Whitsuntide clearance will be in full swing; and the last-named is postponed until Friday, June 15, when members will be in no mood to discuss very much, as it will be the first working day after the holidays. Other badly-placed measures are Mr. Lloyd Morgan's Payment of Jurors Bill, down for June 11—right in the heart of the recess—the various Shop Hours Amendment Bills, and the Street Noises Bill. The Midwives Bill, which has been amended by the Standing Committee on Law, has been awaiting consideration for some time. It is now tabled for Wednesday, June 27, when it will be third on the list; it is, however, opposed by several members who are not satisfied with it even in the amended form, and the chances of the debate, which is sure to arise, being concluded by half-past five, as required by the rules of the House, are rather slender.

THE INCORPORATED LAW SOCIETY draws £2,500 a year from the Treasury in aid of its expenses incurred in keeping the profession

clear of untrustworthy persons. According to Mr. Gibson Bowles, the Society does not perform its duties either effectively or satisfactorily. Other persons have said similar things about the Society and then let the matter rest. Not so Mr. Bowles, who, like a sworn enemy of the Tite Barnacle family, "wants to know" with a persistence there is no withstanding. He has given notice that on June 19 he will move that it is inexpedient to continue the grant in aid of £2,500 a year from public funds to the Incorporated Law Society without an audit of such grant by the Comptroller and Auditor-General, and without any return being made of what becomes of the unexpended balance of the grant. The temperament of the energetic member for King's Lynn must indeed be sanguine to the highest degree if he imagines that a House of Lawyers will accept this motion, but it may have a salutary effect for all that.

ENGLISH NEWS.

CAMBRIDGE APPOINTMENTS ASSOCIATION.—The Secretary of this Association, writing from 73, Trumpington Street, Cambridge, says: "Will you kindly give publicity to the fact that we have upon our books a large number of those who are just completing their career at the University, and who are anxious in the course of the summer to enter upon various departments of practical life both in England and abroad. This Association has met with so much sympathy during the short time it has been started that we feel confident that many, especially old Cambridge men, need only to be reminded of its existence to avail themselves of its aid if opportunity occurs."

COAL TAR AND ITS PRODUCTS.—On Friday, May 18, the students of the Imperial College of Chemistry visited the works of Messrs. Burt, Boulton, Haywood and Co., Silvertown. The works deal with coal tar and the products obtainable therefrom. The party were met by Mr. Hubert Fergusson, who explained the points of interest. The tar is fractionated from Tower Stills into light and heavy oils, the light oils or naphthas containing benzol, toluol, xytol, phenol, and cresylic acid, etc.; the heavy oils or creosotes subsequently yielding phenol, cresylic acid, naphthalene, anthracene or paranaphthalene, acridine, etc. The pitch from the Tower Stills being run off into beds, from which it is afterwards cut out and removed in barges. The crude phenol is purified by treatment with caustic soda and subsequent addition of sulphuric acid, but the purest of commercial carbolic acid always contains aurin, and it is the presence of this substance which causes phenol to become pink upon exposure to light. The students were well pleased with the methods adopted for purifying naphthalene, the melting and beautiful fluorescence in the liquid state, the subsequent cooling and pressing into tablets of various shapes under a force of four thousand pounds by merely raising a lever. The workmen ascertain the quality of the anthracene oil by throwing it on to water; the anthracene crystals then separate. Anthracene is employed in making alizarin, purpurin, etc. The students were afterwards shown specimens of sulpho-naphthalene compounds with chromium, cobalt, copper, manganese, iron and lead, etc. Mr. Frederick Davis thanked Mr. Hubert Fergusson on behalf of the students, and the proceedings terminated.

READING AND DISTRICT CHEMISTS' ASSOCIATION.—The chemists of Reading and district met together on Tuesday, May 15, to discuss the advisability of forming a local association. Mr. C. Bradley acted as host, and after supper those present settled down to the business of the meeting. Twenty-seven invitations had been sent out, to which seventeen responded by their presence and others sent letters expressing regret at their inability to attend. It was unanimously decided to form an association to be called "The Reading and District Chemists' Association," and all those present pledged themselves to support the same. The objects of the association will be to promote good-fellowship among the members, to discuss all questions affecting the interests of the trade, to watch

any proposed legislation affecting the interests of pharmacy, and if necessary to take action thereon, and to promote the education of the body. An Executive Committee was elected to draw up rules to be submitted to a future meeting of the members. Mr. C. Bradley was elected president, Mr. G. W. Harrison hon. secretary, and Mr. F. Tunbridge hon. treasurer. A vote of thanks to the host brought a very pleasant evening to a close, the spirit of the meeting auguring well for the future of the association.

EXPORTATION OF PICRIC ACID AND PHENOL.—The *London Gazette* of May 18 contained an Order in Council taking off the prohibition, subsisting under her Majesty's Proclamation of January 11, on the exportation out of the United Kingdom or the carrying coastwise of picric acid (trinitro-phenol), trinitro-cresol, carbolic acid (phenol), and cresylic acid (cresol).

DEFICIENT SEIDLITZ POWDERS.—A woman named Margaret Jane Smith, described as a huckster, was charged at the Solihull (Birmingham) Police Court, on May 22, with selling seidlitz powders deficient of the proper drugs—in the blue paper to the extent of 37·2 per cent., and in the white paper to the extent of 58 per cent. Mr. Cross, who prosecuted on behalf of the Warwickshire County Council, remarked upon the serious aspect of the case. Dr. Bostock Hill, who analysed the powders, said the effect produced by them would not be such as would be prescribed by a physician, and might be serious. The boxes were labelled "superior to the ordinary pharmaceutical preparation." Defendant informed the magistrates that she bought the powders from a traveller unknown to her, who called at her place of business. A fine of £2 and costs was imposed.

SALE OF CAMPHORATED OIL.—At Lambeth Police Court, on Thursday, May 17, Mr. Francis concluded the hearing of summonses taken out by the Camberwell Vestry against George Shambrook, Heaton Road, Peckham, and Frederick George Quance, Wingfield Street, Peckham, for selling camphorated oil which was not of the nature, substance and quality demanded by the purchaser. (See *ante*, p. 563.) The evidence given at the previous hearing was, briefly, to the effect that the article purchased from the defendants was not up to the standard prescribed by the British Pharmacopœia.—For the defence it was contended that the Inspector, who in each case had purchased three penny bottles of the oil, acted contrary to the requirements of Section 14 of the Act in mixing the contents of the three bottles together, the contention being that each bottle should have been dealt with separately. In the case of the defendant Quance it was also stated for the defence that notice was given to the purchaser that the article supplied was not camphorated oil, but "campholeum."—Both cases were adjourned for the attendance of the public analyst, Dr. Frank Teed, who now stated that the mixing of the contents of the bottles was necessary in order to provide a sufficient quantity for analysis; one-third of the contents of one of the small bottles would not be enough to perform a proper test.—Mr. Francis said that it was argued that he could not convict because the Inspector had no right to mix the contents of the bottles together and then divide the article. Upon the analyst's evidence he came to the conclusion that it would have been almost impossible to come to a satisfactory decision upon an analysis of a third of the contents of one bottle, and he felt, moreover, that no hardship was inflicted upon the defendants by what was done. Though the Statute stated that the article must be divided into three parts, he did not see that the Act said that the stuff should not be mixed together and then divided, and he saw nothing to prevent that being done. In the second case, apart from Section 14, it was contended that there could not be a conviction, because under Section 6 the person who bought the article got what was asked for. It was argued that the words on the bottle, "Campholeum, formerly known to the public as camphorated oil," was enough to convey to the purchaser that the

article supplied was not camphorated oil, but something different. If the purchaser had been told "This is not camphorated oil, but it is campholeum," he did not think there could have been a conviction, but the label, "Campholeum, formerly known to the public as camphorated oil," seemed to him to convey that campholeum was camphorated oil. He should convict in both cases. He did not think the defendants were the real culprits, therefore he should not impose the heavy fines that had been imposed at that Court in such cases. He should order each of the defendants to pay a fine of 40s. and 38s. 6d. costs.

POISONING BY PRUSSIC ACID.—An inquest was held at Bolton on Friday, May 18, concerning the death of Edmund Parkinson Greenhalgh (27), pharmaceutical chemist, 136, Bradshaw Gate, Bolton. According to the evidence, deceased had recently purchased the business formerly carried on by Mr. Joseph Hamer at the above address. On Thursday afternoon, May 17, about four o'clock, deceased left the shop in charge of Mr. Hamer, who since the transfer of the business had occasionally attended to assist, and went upstairs to the drug store. Shortly afterwards an errand boy went to call him down, but on entering the room found him lying dead with a bottle of prussic acid, a portion of which had been consumed, by his side.—There was no evidence to show that deceased had had trouble of any kind, but Dr. Garstang stated that in his opinion deceased had been seized with an uncontrollable impulse and had hurriedly opened the bottle, the neck being damaged in tearing off the capsule, and drank some of the liquid. He did not think it was a case of inadvertence nor yet of deliberate intention.—A verdict of "Suicide while temporarily insane" was returned.

SALE OF OLIVE OIL.—At Tunbridge Wells Police Court last week, Henry Beeching, grocer, Lower Green, near Pembury, was fined 5s., including costs, for selling cottonseed oil as olive oil.

FOREIGN NEWS.

DEFRAUDING THE CUSTOMS.—There are very many ordinary drugs and specialties and chemicals which, for some reason or other best known to the Customs authorities, are not allowed to enter France upon any account whatever. There are upon the other hand drugs and chemicals, whilst perhaps much more cheaply produced outside France, become much dearer than the "home" article, by virtue of the excessive duties levied thereon. Full of the knowledge of this fact, Monsieur X., a former Customs officer, whom since his retirement has been looked upon as a conscientious "commerçant" in the Val-de-Grace quarter of Paris, has essayed to profit by it. For long enough he has plied pharmacists, analysts, and perfumers with circulars and price lists, in which he offered various foreign chemical and pharmaceutical products and specialties at ridiculously low prices, with the result that he did quite a lucrative business. But, alas for him, the lynx-eyed minions of the law caught a glimpse of one of his circulars, though unaware at the time that they emanated from X.'s bureau. Accordingly Monsieur Leydet, Juge d'Instruction, was ordered to make an inquiry into this roaring piece of illicit traffic, and terminated the same by the arrest of Monsieur X. and one of his employees. The latter was caught whilst receiving at the post-office the correspondence (orders) addressed to his employer "poste restante." Subsequently an order was made out by the authorities of Pontoise authorising a thorough search of the premises of Monsieur X.'s relatives at Bougival, with the result that an enormous quantity of drugs and chemicals (contraband, of course) was seized. Though arrested, they were both liberated forty-eight hours afterwards profiting by Article 113 of the Code de Justice Criminelle, a sort of Habeas Corpus Act. They are, however, under the vigilant eye of the police, and will later on be brought up for defrauding the State.

Obituary.

COOPER.—On May 14, William Henry Cooper, Pharmaceutical Chemist, Holloway, N. Aged 77. Mr. Cooper had been a member of the Pharmaceutical Society since 1862.

GREENHALGH.—On May 17, Edmund Parkinson Greenhalgh, Pharmaceutical Chemist, Bolton. Aged 27. Mr. Greenhalgh, who was the son of Councillor E. P. Greenhalgh, J.P., of Bolton, served his apprenticeship with Mr. Joseph Hamer, chemist and druggist, 136, Bradshaw Gate, and about three months ago purchased the business from his old master. He was of very cheerful disposition and was well-known in the town. The circumstances attending his death (see p. 584) caused great regret amongst those who knew him.

HEADLEY.—On May 12, William Headley, Chemist and Druggist, Bridlington Quay. Aged 67.

HUME.—On May 17, William Andrew Hume, Chemist and Druggist, Middlesborough-on-Tees. Aged 56.

HUDSON.—On May 22, Thomas Herbert Hudson, Chemist and Druggist, Liverpool. Aged 39. Mr. Hudson, who was one of the Assistant Local Secretaries of the Pharmaceutical Society at Liverpool, commenced business for himself about ten years ago, and the last few years especially he devoted much time to local secretaries' duties, with advantage to the Society: His genial and happy temperament made him popular wherever he was known, and Liverpool pharmaceutical circles have sustained a loss by his death. He was recently elected to the Council of the Liverpool Chemists' Association, and was appointed one of the representatives of that body on the Federation of Local Pharmaceutical Associations. His death occurred after a very short illness. He leaves a widow and several children.

MOFFAT.—On May 14, James Close Moffat, Chemist and Druggist, late of Manningham, Bradford. Aged 53. Mr. Moffat was a native of Orton, Westmoreland, and settled in Bradford about twenty-five years ago, a few years later commencing in business on his own account in Carlisle Road, which business he conducted until about four years ago, when he retired owing to failing health.

WESTERN CHEMISTS' ASSOCIATION (OF LONDON).

A meeting of this Association was held at the Westbourne Restaurant, Craven Road, Paddington, on Wednesday, May 23, the **PRESIDENT**, Mr. J. F. Harrington, in the chair.

The minutes of the previous meeting having been read and confirmed, several gentlemen were nominated for membership.

The **PRESIDENT** then stated that the Committee had met to consider the question of the annual dinner, and had decided that, subject to the approval of the meeting, it should be held on the third Wednesday in November at the Café Royal, and that a small committee, consisting of the President, Messrs. Cracknell, Philp, Mathews and Bowen, be appointed to make the necessary arrangements.

The meeting having expressed its approval of the Committee's decision, letters of apology were read from several members who were unable to be present. Before proceeding to the chief business of the evening, Mr. J. H. **MATHEWS** announced that a letter had been received from Mr. Wm. Martindale, stating that he was much better in health. He hoped that by the time Mr. Martindale arrived in England—about June 1—he would be quite himself again.

Mr. F. A. **ROGERS**, of Oxford Street, W., then read a paper on

THE DISPENSING OF PROPRIETARY MEDICINES,
which is printed at page 569.

Mr. R. H. **PARKER** entirely supported the views put forward by Mr. Rogers. The proprietary article was one of the most troublesome phases of modern pharmacy. He considered it struck at the

root of pharmacy, because it takes away from the pharmacist the work for which he has been educated and trained. Therefore, he was of opinion that pharmacists should endeavour to prevent the development of the practice of prescribing proprietary articles in every possible way. Of course, whatever a doctor prescribes pharmacists should carry out his instructions to the best of their power; but at the same time, although it is no business of the pharmacist to dictate to a doctor what he should prescribe, everyone present was fairly intimately familiar with a few medical men, to whom they could point out the difficulties attending the dispensing of proprietary articles and the possible evil results arising therefrom. When a pharmacist receives a prescription to dispense in which, say, a certain article of a particular manufacture is ordered, he has the crude drug on his shelf, yet cannot compound it, but has to send an express messenger either to the manufacturer or to the wholesale house for it, thus causing not only delay in making up the medicine, but also additional cost. He thought that Mr. Rogers' suggestions were distinctly good in regard to the dispensing of proprietary articles—viz., to keep strictly to what is ordered and send out the exact quantity. The necessary corollary was, of course, that the pharmacist must be remunerated for the outlay in having to purchase a larger quantity—probably of an article which would be left on his hands—than that ordered and supplied; therefore he must make a higher charge. It was not the business of pharmacists to bewail the present state of things, but to make the best of them.

Mr. C. B. **ALLEN** supported the remarks of Mr. Rogers and Mr. Parker. He thought that pharmacists could do much good by influencing the doctors with whom they were intimately acquainted. It was, of course, a delicate position, because they assumed that the doctor has some knowledge of what he orders, but he was afraid that very often doctors do not know the nature of the articles they prescribe. Pharmacists were not the only people who were injured by the prescribing of proprietary articles; he believed that doctors themselves were beginning to find that their patients have a knack of finding out what is prescribed for them and where such remedies can be obtained in wholesale quantities. Mr. Allen instanced a case in point. An institution having about three thousand members has a staff of doctors to attend them in cases of illness. At one time proprietary articles were sometimes prescribed, but it was found that the patients began to doctor themselves, to their own injury. Consequently, the doctors consulted together and passed a resolution to the effect that doctors connected with that institution must not prescribe anything that is not included in the British Pharmacopœia, except after special consultation of their committee. One point touched upon in the paper was that the pharmacist is compelled to dispense whatever is ordered. It sometimes happened that a prescription contained three different proprietary articles. "How is it possible," he asked, "for me to dispense that prescription as ordered with the dispatch that I should like and could, if I were allowed to compound the preparations myself?" He thought that doctors who prescribe such medicines must take the responsibility of any delay in supplying what they order. He had known cases in which a week, or even as much as three weeks, had elapsed before a prescription could be made up; not that an effort was not made, but because of the out-of-the-way nature of the preparations prescribed. Mr. Rogers deserved their thanks for the temperate way in which he had brought the matter forward.

Mr. A. **COOPER** was of opinion that the prescribing of proprietary articles was caused by the insufficient training of the younger generation of medical men. It was to be regretted that there were not more medical men like Sir William Broadbent, who, on one occasion at least, mildly rebuked a doctor who had called him in to a consultation. Noticing a bottle of a certain make of tablets, he asked if they had been prescribed. The doctor admitted that he had prescribed them. Sir William then stated three reasons why such preparations should not be prescribed. "First," he said, "there is the danger of inaccurate doses; second, it is not fair to your

patient; and third, it is not fair to yourself." He (Mr. Cooper) thought pharmacists should take every opportunity of condemning the practice of prescribing proprietary articles. His own opinion was that they must look to the medical profession to help them before a remedy would be found.

Mr. NORTON thought that Mr. Rogers' suggestion to form a central establishment where the many different proprietary preparations could be obtained, was an admirable one.

Mr. GAUBERT said that the matter resolved itself into the question of how to get rid of factory-made articles. Unless the factory itself could be crushed he saw no chance of the problem being solved. Personally, he frequently got prescriptions to dispense containing things he had not in stock; consequently, as he lived some distance out of town, it took quite a day to get the required articles. Then, too, there was the additional cost of railway fares. He thought an effort should be made to interest the General Medical Council in the matter. He believed the difficulty arose through the inability of the present generation of medical men to prescribe, hence they were ready to accept the statements made by the proprietors of the various preparations as to their efficacy.

Mr. HYSLOP said the matter was a case entirely of education. Mr. Rogers had said that it was not a matter of prescribing the article, but of dispensing it. What was required was to find out the root of the evils under which pharmacists suffer, and to try to bring about a better state of things. In the old days the proprietors of so-called "patent" remedies used to bribe chemists to stock and push their goods; now they had thrown over the chemist and gone to the medical man. The medical faculty at its head was above suspicion, but the young men just passed through their examinations were often heard to say in plain English that they knew nothing about the B.P., and didn't want to. All they wanted was a multitude of patients to prescribe for, and the manufacturer or wholesale house would provide them with the remedy. He believed, however, that in the future a better system of education would largely do away with that state of things. Pharmacists must make love to the medical faculty, and not coquette with the baser forms of quackery, and so spoil their case.

Mr. WORSLEY suggested that it might facilitate matters in any particular locality if each pharmacist occasionally prepared a small list of the preparations he had in stock and passed it round among his friends. By that means he thought they would be able to get rid of superfluous stock.

Mr. HICK questioned Mr. Hyslop's remark about the bribing of chemists, but Mr. Hyslop maintained, and was supported by the assent of others present, that it was correct.

Mr. ALLEN suggested that it would be a good thing if the various medical associations in different parts of the country would set apart a day for the discussion of purely business matters, to which they might invite a few pharmacists, to confer upon subjects of interest to both. Until some such conference between medical men and pharmacists was brought about he thought it was not possible to find any remedy for the present state of things.

Mr. ROGERS then replied, pointing out that his object was to deal not with the prescribing of proprietary articles, but with the difficulties attending the dispensing of them, with a hope of being able to overcome those difficulties.

The PRESIDENT commented upon the paper and the discussion. He hardly agreed with Mr. Hyslop's remark, about bribery; he thought "persuasion" was the better word.

Mr. HYSLOP: Undue persuasion.

A vote of thanks was then accorded to Mr. Rogers for his paper.

DELEGATES TO THE CONFERENCE.

It was unanimously agreed, on the recommendation of the Committee, that the President and Vice-President attend the next meeting of the British Pharmaceutical Conference as the delegates of the Association.

The meeting then adjourned until October 24 next.

CHEMICAL SOCIETY.

A meeting was held on Thursday, May 17, Dr. T. E. THORPE, F.R.S., President, in the chair.

A paper was given by Messrs. SELL and DOOTSON, of Cambridge, on

SOME NEW AMINO CHLORO PYRIDINES.

A trichlor amino pyridine has been obtained by the steam distillation, in presence of alkali, of an uncrystallisable residue obtained in previous work. Mr. Sell believes it to be produced from the decomposition of a compound containing a double pyridine nucleus existing in this residue. He explained the method by which he had recognised the orientation of the substituting components therein.

Doctors CHATTAWAY and ORTON produced a paper dealing further with

SUBSTITUTED NITROGEN CHLORIDES

obtained by the action of hypochlorous acid on anilides and toluides. They showed that ortho and para chloro compounds could be separated by the steam distillation of the mixture partly neutralised with sulphuric acid. The ortho compound is distilled over while the para compound remains behind. By this method they were able to show that ortho compounds are formed as well as the para compounds by a direct process in the transformation of the substituted nitrogen chlorides.

Dr. WYNNE remarked that it was an exceedingly interesting thing to have proved this direct formation of ortho compounds.

Dr. HEWITT stated that he believed the method of separating ortho and para chloro derivatives used by the authors was not new, but had previously been discovered and used by Beilstein and another.

Professor COLLIE suggested to the authors that they might obtain meta chloro derivatives by attacking a compound in which the nitrogen was not bound directly to the ring as in aniline, but bound to an intervening carbon atom.

Dr. CHATTAWAY in reply, said, that this had been attempted, but all the compounds produced were so unstable as to break down at once.

Dr. DIVERS gave a preliminary note announcing the existence of

AMMONIUM IMIDO SULPHITE,

$\text{HN}(\text{SO}_2\text{NH}_4)_2$, a colourless crystalline substance, from which by decomposition with potash he has been able to obtain the corresponding potassium imido sulphite, $\text{HN}(\text{SO}_2\text{K})_2$.

Dr. JOCELYN THORPE gave the theoretical deductions drawn from the work described in three papers communicated by him on

ETHYL SODIOCYANACETATE,

and a condensation product of it with dimethyl acrylic ether. Cis and trans forms of an acid obtained by this condensation may be separated even in small quantities by the action of hydrogen chloride on the amides, an imide of the cis acid being produced while the other compound is hydrolysed to the trans acid.

Professor PERKIN remarked that the work of the author showed that cyanacetic ester must have a form different from that of malonic ester.

The PRESIDENT now announced an interesting communication from Messrs. W. J. Pope and S. Peachey on

THE OPTICAL ACTIVITY OF TIN COMPOUNDS,

the first installation of which was offered a short time ago. It will probably be remembered that the asymmetric compound on which the authors have been working is one in which three valencies of the tin atom are united to methyl, ethyl and propyl groups respectively, while the fourth valency is united to an acid radical, such as that of dextro-camphor sulphonic acid or dextro-bromo camphor sulphonic acid.

When a solution of one of these salts of the asymmetric tin radical is evaporated on the water-bath, nothing but the salt of the dextro tin base is obtained. This was believed to be due to the progressive racemisation of the base on the continued removal of the salt of the dextro base due to its smaller solubility, so that on evaporating to dryness the whole became converted. That this is true was proved as follows:—the molecular rotation of the dextro-rotatory acid used is 270° , that of the dextro-rotatory tin base is 45° . This gives a total rotation of 315° , while the number actually observed was 318° , which is as close an approximation as could be expected. Now the compound of dextro base and dextro acid must racemise on heating if the supposition be correct, yielding equal quantities of the dextro and lævo base combined with the dextro acid, the optical activity of which mixture would be that of the dextro acid alone. A one per cent. solution of the dextro base with the dextro acid had a molecular rotation of 318° , after heating this fell to 273° , showing that the base had racemised. A measured volume of this was evaporated to dryness and diluted again to its former volume. The molecular rotation now rose to 315° . That is, the evaporation had converted the racemic base into the dextro base once more. When again heated in a sealed tube the molecular rotation dropped to 275° , showing that the process can be conducted over and over again. Moreover the solution of dextro base and dextro acid prepared in the cold, and decomposed with potassium iodide, yielded a methyl ethyl propyl tin iodide, having a molecular rotation of 23° . But the same solution which had been heated and afterwards decomposed with potassium iodide yielded an iodide which was inactive.

Professor PERCY FRANKLAND said he had listened with, he might say, almost breathless interest to the artistic expositions given by Mr. Pope. He could only ask whether Mr. Pope was able to explain why these compound had so much greater mobility than analogous carbon compounds.

Mr. POPE, in reply, said that all present ideas of stability are derived from carbon compounds, but when those are left different behaviour must be expected. It was not altogether surprising to find such intramolecular mobility. It probably occurred in nitrogen compounds, by the study of which, together with tin compounds, something of the nature of that mobility may be learnt.

ROYAL INSTITUTION.

On Tuesday, May 15, Dr. ALEXANDER HILL, Master of Downing College, Cambridge, gave the first of two lectures on

BRAIN-TISSUE CONSIDERED AS THE APPARATUS OF THOUGHT.

Thought was described as the product of the grey matter of the brain. In strictness, observation, memory, the statement of likes and dislikes, are not thought, in which there is an element of prophecy. But without the senses there can be no intelligence, and without memory, in the absence of sensations, we should be permanently asleep. To study the apparatus—the brain-tissue—of which the product is thought we must begin with the brain of some of the lower animals in which the product is the definite sum of the sensations supplied. The actions of a jelly-fish are purely reflex, while the frog is capable not only of acting reflexly, but also of deciding how to act and of declining to act. It is significant that the first action that deserves to be called mental is negative rather than positive, consisting not so much in positive action as in the power of refusing to act.

On Thursday, May 17, Professor DEWAR gave the fourth and last of his course of lectures on

A CENTURY OF CHEMISTRY IN THE ROYAL INSTITUTION.

In this he continued his account of Faraday's work, and described the second stage of that investigator's experiments on the liquefaction of gases. Reference was also made to Faraday's studies in the

solution and opacity of metals and to his elucidation of the nature of indiarubber. In organic chemistry Faraday succeeded in replacing the hydrogen in an organic body with an electro-negative substance like chlorine; he was also the first to obtain what would now be called a sulpho-acid, by dissolving naphthalin in sulphuric acid, and he discovered benzene, which constitutes the basis of the whole coal-tar industry. Faraday's successor, Sir Edward Frankland, greatly extended his work in organic chemistry. The scope and variety of Frankland's researches making him second to none as an experimenter of the modern type. His work was largely identified with organic synthesis, one of his early successes being the isolation in a free state of certain of the compound radicals whose existence Wöhler and Liebig had pointed out. His organometallic bodies were instances of substitution, in which the hydrogen of certain organic substances was replaced by zinc and other metals; zinc ethyl, for example, is a very active body which takes fire spontaneously in air, and by the aid of which many organic syntheses have been effected. Frankland was the first to formulate the conception of atomicity; he investigated the theory of flame, finding that the luminosity varied as the pressure of the atmosphere in which the flame was burning, and concluding, therefore, that it could not be due altogether to the presence of solid incandescent particles; his technical work included elaborate investigations on water supply and on the manufacture of coal gas. The work of Dr. Odling and Dr. J. H. Gladstone was finally referred to by Professor Dewar, who said the former was distinguished by his philosophic grasp of the whole field of chemical theory, while Gladstone's name would be remembered for his studies of the relation between the refractive index of bodies and their destiny.

On Friday, May 18, Professor J. A. EWING, M.A., F.R.S., lectured on

THE STRUCTURE OF METALS.

Most people think, said the lecturer, that a metal is the nearest approach to a homogeneous structureless mass. Until Sorby's work of thirty years ago this was generally thought to be the case even by men of science. After Sorby the work was neglected for about twenty years, when it was taken up by many able metallurgists, including Roberts-Austen, Arnold, and Stead.

The lecturer stated that his remarks would bear largely on the work done by himself and a colleague, Mr. Rosenheim, in his own laboratory. To the latter was due the credit of some beautiful high-power microphotographs that were shown on the screen by means of the lantern.

In examining the structure of a metal, the surface is first polished to a high degree, and then lightly etched with an acid. When so treated, the microscope reveals the presence of minute granules on the surface, with irregular boundaries. These granules are crystals, having a regular internal structure, though not possessing the geometric form and regularity so typical of ordinary crystals.

When the metal is subjected to strain and the surface again examined under the microscope, the granules are seen to slip over each other, but they still remain crystalline. This is well seen in the case of ordinary plumber's lead. The metal may be strained by compressing, twisting, stretching, bending, hammering, or rolling it.

Strain also causes twin crystals to appear, through one of the pair moving through a definite angle. Besides this effect, it has been observed that the crystals grow in size, slowly at atmospheric temperatures, and more so on heating. This growth of crystals, as a result of strain, is explained by a theory which is due to Mr. Rosenheim. He supposed that in the boundary between one crystal and another there is some impurity, which forms a more fusible cement, or eutectic alloy. Perhaps an electrolytic process goes on, one crystal undergoing solution, and being deposited on a neighbouring crystal. The theory that an impurity on the surfaces caused the growth of the crystals was proved to be true by means of

the following experiments. Two perfectly clean surfaces of metal were welded together, with the result that no crystals formed across the boundary. The experiment was repeated, this time sprinkling some impurity on the surfaces. The crystals were found to grow across the weld in this case.

NOTICES OF BOOKS AND OTHER PUBLICATIONS.

'OCCASIONAL LECTURES ON THE PRACTICE OF MEDICINE.' By W. B. CHEADLE, M.D., F.R.C.P. Pp. 324. With seven illustrations. Price, 7s. 6d. London: Smith, Elder and Co., 1900.—Dr. Cheadle's lectures should be read by everyone who is engaged in the practice of medicine. They reflect faithfully the daily problems of the bedside and the consulting-room, and give the author's experience in the most natural and human and, hence, the most impressive way. This small work is an example of the best kind of clinical teaching. Such works form a necessary corrective to the systematic works that treat of therapeutics. Here in a few sentences a wholesome caution is given to the student:—"One evil result of learning medical treatment almost entirely from books, and partly also of the dogmatic way in which therapeutics are necessarily taught to the student, is that it creates a tendency to a mechanical and routine practice. In a certain disease give a certain drug or drugs." With many practitioners the practice of medicine is little more than a repetition of the same routine treatment in all cases of the same disease; given the disease, the appropriate remedy is ready labelled for use in its pigeon-hole, and is brought out and applied without doubt or hesitation. The student on his first entrance into practice, having little personal experience, is naturally tempted, or, indeed, obliged almost, to rely upon what is put down as the proper treatment, or to give what he has seen given in like cases. And thus he is led to treat all cases much alike, according to regulation formulæ. Ipecacuanha and squill and ammonia for bronchitis, aconite or an ice-bag perhaps for pneumonia, salicylate of soda for acute rheumatism, stramonium for asthma, digitalis for heart-disease, and so on. Now this rule-of-thumb procedure has the advantage of simplicity, and it saves much anxious thought and mental labour; it cannot, however, be regarded as satisfactory to the patient, or as a high form of medical art. The lectures include subjects such as: The Use and Abuse of Tonics; The Clinical Uses of Opium; Prevalent Fallacies in the Diagnosis and Treatment of Certain Minor Diseases of Childhood; Chronic Constipation and Dilatation of the Colon; Rickets in its Medical Aspects; Some Practical Points in the Treatment of Diseases of the Lungs and Air Passages; The Rheumatism of Childhood. Every subject is approached chiefly from the clinical standpoint, but in such a way that the essential nature of the disorder or disease is kept in view, and the result is one of the most profitable and enjoyable of the smaller works on clinical medicine that have appeared in recent years.

'A TEXT-BOOK OF MEDICAL TREATMENT.' By NESTOR TIRARD, M.D. (Lond.), F.R.C.P. 1 Vol. Pp. 692. 15s. London: J. and A. Churchill.—In the preface of this work the author explains that it has been written to supply a want created by the present system of medical education:—"Students learn practical pharmacy at an early stage in their career; they also attend lectures on pharmacology, which frequently include only the physiological actions of drugs. When they have to apply their knowledge of therapeutics at the bedside they feel the need of further guidance, since in most of their text-books on medicine the subject of treatment is dealt with not only briefly but in general terms, thus affording little help in practical work." The subdivisions of the work are made upon the physiological basis; thus diseases of the circulation, respiration, digestion, nervous diseases, specific infectious diseases, and, finally, constitutional diseases form the headings of sections of the book. Under the heading of the separate affections such symptoms as afford definite indications for treatment

are alone mentioned. This method of subdivision of the matter works practically well, although the author is obliged here and there to explain that such an arrangement is but partially in accord with the facts of disordered physiology; for instance, insomnia, which is placed among nervous diseases, is thus introduced:—"Insomnia is symptomatic of so many conditions that, although it is not to be regarded as a disease, it may save time and reference to different parts of this book to consider the treatment of this symptom in one place." As an instance of the manner in which the author deals with each subject, some extracts may be made from this same section:—"No treatment of insomnia is satisfactory which ignores the conditions under which the symptom arises. It may originate in some trifling error of diet, or of habit, or it may be a symptom of some serious organic disease, and it is obviously impossible and irrational to deal with all forms of insomnia by the routine administration of hypnotic measures without endeavouring to ascertain the exciting cause. With regard to the errors which are capable of alteration, the chief perhaps are those which depend upon consumption late in the evening of some indigestible article of diet or some cerebral stimulant. Strong tea or strong coffee will frequently cause insomnia, and a full meal taken late at night may have the same effect. On the other hand, however, sleeplessness sometimes results from an insufficiency of food. Those who dine early and work late at night frequently suffer from sleeplessness, which can readily be controlled either by discontinuance of work for an hour or so before retiring to rest, or by taking some slight nourishment just before going to bed. . . . When the habit depends upon disorders of digestion, such as acidity, or upon habitual constipation, these conditions can readily be dealt with, the former by the use of a little sodium bicarbonate with hot water, the latter by purgatives. . . . In conclusion, I would once more lay stress upon the importance of ascertaining the cause of insomnia before attempting to deal with the condition by hypnotic drugs. Although frequently dependent upon some physiological error, insomnia is also frequently the result of habit, and perhaps a firm conviction that wakefulness will persist until some drug has been taken. . . . It must be admitted, however, that occasionally insomnia may persist in spite of almost every known drug, even when given in large doses, while it may ultimately yield to a combination of two or three hypnotics in small doses." These extracts serve to show the practical and reliable character of the information supplied by this work. The admirable index, the clear print and convenient size of the book aid in rendering the mass of information readily accessible, and the author is to be congratulated on having written a work which constitutes a valuable addition to the library of the medical practitioner.

NEW REMEDIES.

SIDONAL AND UROSINE.—Under this name a combination of piperazine and quinic acid has been introduced as a uric acid solvent. The value of the piperazine has been long known, and lately quinic acid has been found to give beneficial results in the treatment of gout, etc., so that the combination should prove valuable; compounded with lithium citrate sidonal is known as urosin.—*Oesterr. Zeits. für Pharm.*, 54, 247.

LOW TOXICITY OF CHINOSOL ON ANIMALS.—According to J. Schneider, although chinisol is a very active antiseptic and germicide, it has a relatively low toxicity for animals. He fixes the toxic dose at 130 Gm., and 35 Gm. for the ox and the sheep respectively. For the dog, toxic action only commences at 0.75 Gm. per kilo. of body weight. As the usual antiseptic is a 1:5000 solution, it is obvious that it is practically harmless.—*Vet. Record*, 12, 599.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Eucalypti Gummi.

EUCALYPTUS OR RED GUM is a ruby-coloured exudation from the bark of *Eucalyptus rostrata*, Schlecht. (N. O. Myrtaceæ), and other species of *Eucalyptus*, the product of *E. rostrata* being preferred for medicinal purposes. The tree is very common on the banks of the Murray River, New South Wales, and other species—*E. marginata*, *E. amygdalina*, *E. sideroxylon*, *E. fissilis*, etc.—which yield similar kino-like gums, are also natives of Australia. The gum is secreted as a treacly liquid in cavities in the wood, or between the bark and the wood. It may exude naturally and be found in the dry state in cavities of the trunk, but it is usually collected by making incisions in the trees, inserting trough-shaped pieces of tin, and allowing the viscid liquid to drain into buckets or tins. The average yield of each tree is rather more than a litre; some yield none, others have been known to yield as much as 18 litres. The liquid dries into a solid mass in a few days, but it is sometimes evaporated by the aid of artificial heat. The gum possesses astringent properties, is administered in doses of 2 to 5 grains, and is used in the preparation of Trochiscus Eucalypti Gummi.

CHARACTERS.—Eucalyptus gum occurs in grains or small masses, thin fragments being transparent and of a ruby-red or garnet-red colour; the powdered gum is pale red. Fragments of the gum are somewhat tough and have a very astringent taste, owing to the presence of much tannin; when chewed, the gum adheres to the teeth and the kino-red it contains gives the saliva a reddish tinge.

TESTS.—Eucalyptus gum should be almost entirely soluble in 90 per cent. alcohol dissolve and to the extent of 80 to 90 per cent. in cold water, forming a neutral solution. Good qualities of gum may yield more than 90 per cent. to cold water.

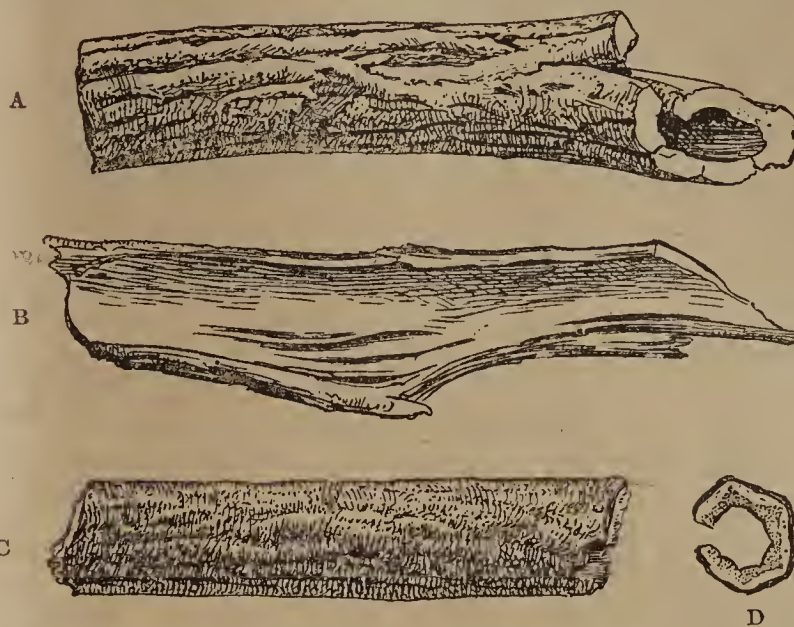
NOTES.—The distinctive characters of eucalyptus gum are its reddish colour and dusty appearance. Its principal constituent is kinotannic acid, of which it contains about 47 per cent.; other constituents are catechin, pyrocatechin, kino-red, gum, etc. The original red gum tree is undoubtedly *E. rostrata*, but the product of several other species satisfies the official requirements. Many red gums are only imperfectly soluble in alcohol or water, and it is to be noted that the solubility of all eucalyptus gums may be affected on keeping.

Euonymi Cortex.

EUONYMUS, OR WAHOO BARK, is the dried root-bark of *Euonymus atropurpureus*, Jacquin (N. O. Celastraceæ), a tall erect shrub, common in shady woods in the eastern United States, southward to Florida and westward to Wisconsin. The plant bears small dark purple flowers, which are succeeded by crimson fruits, and the bark of both root and stem is collected, though that of the root alone is official. The drug possesses tonic, cathartic, and diuretic properties; it is used in the preparation of Extractum Euonymi Siccum.

CHARACTERS.—Euonymus bark occurs in small, more or less irregular, quilled or curved pieces, varying in thickness from 2 to 4 Mm., and not usually exceeding 7.5 Cm. in length, or 12.5 Mm. in width. The outer layer of the bark is a soft, friable, finely-fissured cork of a light ash-grey colour; it is friable and easily removed with the finger nail. There are occasional small transverse scars and darker lines or patches on the bark. The inner surface of the bark is of a pale tawny white or buff colour and smooth, except when some of the whitish or pale yellow dense wood adheres to it, as is sometimes the case owing to the difficulty experienced in separating the bark from the root. The bark breaks with a very short fracture, the fractured surfaces appearing yellowish and—when separated very gently—connected by delicate silky threads, said to be formed by the mucilaginous contents of some of the cells of the bast. A transverse section exhibits, when moistened, a narrow whitish cork, a pale cortex and the darker bast. The faint but characteristic odour of

the bark is due to the presence of a pungent principle; the drug tastes somewhat mucilaginous at first, but afterwards the euonymin it contains causes it to taste bitter and slightly acrid.



EUONYMUS BARK.—A, Root-bark, outer surface; B, Ditto, inner surface; C, a stem bark; D, transverse section of bark.

NOTES.—The distinctive characters of euonymus bark are the friable grey cork, the silky threads connecting fractured surfaces when carefully separated from one another, and the bitter taste. Euonymus stem-bark, which must not be used, occurs in long, thin, narrow strips, and has a dark greenish-grey cork, green cortical portion and fibrous bast. The chief constituent of the root bark is euonymin, a nearly colourless, amorphous, and intensely bitter principle, which is soluble in alcohol or water. The bark also contains dulcitol, or an isomer thereof, together with the pungent principle to which its characteristic odour is due, citric, tartaric, and malic acids, resin, fixed oil, wax, starch, pectin, etc. Commercial euonymin is usually a powdered extract of euonymus bark; the name "euonymin" is also applied to the mixture of substances precipitated from a concentrated alcoholic tincture on adding water.

Fel Bovinum Purificatum.

PURIFIED OX BILE, or ox gall, is prepared from the contents of the gall-bladder of the domestic ox, *Bos taurus*, Linn. (Order Ruminantia). The fresh viscid greenish or brownish-green liquid is evaporated to one-fourth its bulk, freed from mucin, etc., by precipitation with 90 per cent. alcohol, and evaporated to the consistence of a thick extract. The product possesses antiseptic and purgative properties; it is administered in doses of 5 to 15 grains, usually in the form of keratin-coated pills, as it is not desirable that it should come in contact with the stomach.

CHARACTERS.—Purified ox bile is a yellowish-green hygroscopic substance, with a bitter-sweet nauseous taste. It is soluble in water or in 90 per cent. alcohol, but insoluble in ether. The aqueous solution should give no precipitate on adding 90 per cent. alcohol.

TESTS.—Purified ox bile should be free from mucin and other substances insoluble in alcohol. Its aqueous solution (1 in 20 or 30) should gradually acquire a cherry-red colour—changing in succession to carmine, purple and violet—on adding a drop of freshly-made syrup (sugar, 1; water, 4), followed by strong sulphuric acid, added cautiously until the precipitate at first formed is redissolved.

NOTES.—The distinctive characters of purified ox bile are its colour, consistence, and taste. It contains the bile salts (sodium glycocholate and taurocholate), lecithin (a complex fat), cholesterol (a monatomic alcohol), and various colouring matters—bilirubin, biliverdin, bilifuscin, etc. Lecithin is a characteristic constituent of nerve substance, brain, yolk of egg, etc., which breaks up on saponification into choline, glycerin-phosphoric acid, stearic acid and palmitic acid; it may therefore be regarded as glycerin, in which the three hydroxyl hydrogens have been replaced by the phosphoric, stearic, and phosphoric acid residues, the first still remaining in

ethereal combination with choline. Glycocholic acid is decomposed by alkalies into cholic acid and glycocholl (amido-acetic acid); taurocholic acid, under similar conditions, yields cholic acid and taurin (amido-ethyl-sulphonic acid).

Ficus.

FIGS are the dried fleshy receptacles of *Ficus carica*, Linn. (N.O. Urticaceæ), a native of Persia and neighbouring countries, but now cultivated in most warm and temperate climates. By the abnormal growth of lateral shoots, green, hollow, pear-shaped receptacles are produced, each of which has a small aperture closed by bracts and bears numerous small flowers on its inner fleshy walls. As ripening proceeds the latex or milky juice disappears from the laticiferous vessels contained in the walls, sugar is formed, and the receptacles become pulpy, sweet, and agreeable to the taste. They are then collected and, after being dried in the sun, constitute the figs of commerce. The so-called "natural" figs have been packed loose, and retain their original shape, more or less; "pulled" figs are such as have been pressed and kneaded to make them supple and with a translucent "skin"; they are packed in small boxes for exportation. The pressed figs alone are official. Figs are nutritious, laxative, and demulcent; they enter into the composition of *Confectio Sennæ*.

CHARACTERS.—The fig consists of the enlarged, hollow, succulent receptacle (syconus), bearing very numerous minute one-seeded fruits (achenes) on its inner surface. As met with in commerce figs are compressed, irregular in form, soft, tough, brownish or yellowish, with a sweet taste and pleasant fruity odour.

NOTES.—The distinctive characters of figs are their shape, taste, and odour. They contain from 60 to 70 per cent. of grape sugar,

proper constitutes only about half the thickness of each piece, the rest being made up by the dark-brown bases of the petioles that have been left attached. Those are usually about 25 Mm. in length, from 6 to 12 Mm. in thickness, hard, persistent, curved and angular. They are also more or less densely covered with numerous dry brown membranous scales, the marginal cells of which are seen under the microscope to be prolonged at intervals into simple hair-like processes, each consisting of two parallel and contiguous cells; glandular hairs are usually absent, though sometimes there are two at the base of the scale. The bases of the petioles should be green internally and exhibit in smoothed transverse sections from seven to nine fibro-vascular bundles (steles), arranged in a diffuse circle. The brown rhizome should also be green internally, and exhibit in transverse section about as many principal steles as the petioles. Peculiar secreting cells occur in intercellular spaces in the parenchymatous tissue of the rhizome and petioles. The drug possesses a faint disagreeable odour, and a taste which is sweetish and astringent at first, but subsequently bitter and nauseous. The same odour and taste characterise the impure fixed oil, obtained from the drug by extraction with ether.

NOTES.—The distinctive characters of male fern are the presence of secreting cells in the parenchymatous tissue, the number of bundles or steles at the base of the petiole, and the absence of glandular hairs from the margins of the scales. The lady fern, *Athyrium filix-fœmina*, has no secreting cells, and only two large bundles in the base of the petiole; the shield fern, *A. spinulosum*, produces glandular secreting cells on the margins of the scales. The activity of male fern is generally assumed to be due to filicic acid, an amorphous substance, of which it may yield as much as 5 to



MALE FERN.—A, rhizome, as met with in commerce; B, transverse section of base of rachis.

and stellate crystals of calcium oxalate occur in small quantity. Smyrna figs are most esteemed, being thin-skinned, soft, and luscious; Greek figs are thicker-skinned, tougher, and less pulpy.

Filix Mas.

MALE FERN consists of the rhizome of *Aspidium filix-mas*, Swartz (N.O. Filicineæ), one of the commonest indigenous British ferns. It produces a circular tuft of fronds, which attain a height of 30 to 90 Cm., and have a pinnately divided lamina, while the petiole (rachis) bears numerous brown scarios scales, especially on the lower part. The rhizome is collected late in the autumn—when it is richest in filicic acid—and dried, after being divested of rootlets, leaves, and dead portions. It possesses slight tonic and astringent properties, but is generally used, in the form of *Extractum Filicis Liquidum*, as an anthelmintic for tapeworm.

CHARACTERS.—Male fern usually occurs in pieces from 7.5 to 15 Cm. in length and from 2 to 2.5 Cm. in diameter. The rhizome

8 per cent., though it is frequently present in traces only. If the rhizome be kept more than a year the filicic acid tends to degenerate into its inactive crystalline anhydride—filicin; a similar change may take place in preparations of the drug. Other constituents of the drug are about 6 per cent. of fixed oil, together with volatile oil, tannin, glucose, resin, etc., whilst Boehm claims to have isolated several crystalline bodies, including aspidin, albaspidin, aspidinin, aspidinol, and flavaspidic acid. All the substances named are probably formed in the peculiar secreting cells previously referred to, and they are present in the ethereal extract of the drug, which is the fixed oil in an impure state, containing volatile oil, resin, etc. It has been asserted by Boehm that the anthelmintic value of the drug depends upon the presence of aspidin as well as filicic acid, and he is of opinion that a preparation rich in aspidin is preferable to one containing filicic acid, which, as previously stated, may be present in the drug in traces only.



Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

R. T. Baker describes an apocynaceous plant, *Parsonia paddisoni*, which yields large edible tubers. The plant is a woody climber, and has been found at New Angledool, New South Wales. It is interesting to note that one plant yielded 101½ lbs. of tubers after a drought of four years. They have been termed locally "native yams," from their resemblance to the yam of the South Sea Islands, obtained from species of the family Dioscorideæ. A chemical analysis of one of the tubers shows this new food to be inferior as an article of diet, being deficient in nitrogenous and carbonaceous compounds. Water constitutes 90.774 per cent. of the weight of the tuber.—*Proc. Linn. Soc., N.S.W., 1899, 385.*

SYRUPUS PRUNI VIRGINIANÆ.

F. W. Haussman states that syrup of wild cherry will not keep unless glycerin be present. He recommends 75 C.c. per litre, as against 62.5 C.c. in the B.P. formula. The glycerin prevents precipitation in both syrup and infusion of wild cherry to a marked degree, though not entirely. It is best to add the glycerin as part of the percolating menstruum. This is especially necessary in summer, when a slowly percolating infusion, even if allowed to drop upon glycerin, will rapidly become cloudy. It is noted that the addition of glycerin causes the infusion to assume a darker colour.—*Am. Journ. Pharm., 72, 71.*

AKAKIA.

David Hooper brings the knowledge of the ancient Eastern medicine Akakia up to date. This substance has been used in the East, especially among the Muhammadan community, as a panacea. The drug is an astringent extract of an *Acacia*, and is imported into India *via* Bombay from the Red Sea ports and the Persian Gulf. As sold by the native apothecary the drug is unsatisfactory owing to its variability.—*Journ. Asiatic Society, Bengal, 68, 245.*

BASIC BISMUTH SALICYLATE.

L. F. Kebler has examined the basic bismuth salicylate, which various workers have found to vary in composition. He criticises the alcoholic test in the B.P. for free salicylic acid, and regards it as too rigid, because the alcohol decomposes the salt. In seven samples examined, the percentage of oxide varied from 61.60 to 66.20. The indigo test for nitrates is recommended. It is applied as follows:—Mix 0.5 gramme of the salicylate with 3 C.c. concentrated sulphuric acid, add 4 drops of indigo test solution, when the bluish colour will gradually disappear if much nitrate be present, while a small amount will rapidly destroy the colour on warming. Bismuth salicylate is a white or pinkish-white micro-crystalline amorphous powder, nearly odourless and tasteless, insoluble in water, alcohol, and glycerin, but is slowly decomposed by these liquids. It should not contain more than traces of chlorides, sulphates, nitrates, or arsenic.—*Am. Journ. Pharm., 72, 66.*

PREPARATION OF GALENICALS BY DIALYSIS.

E. Kremers, in an introductory paper on galenicals and solvents, refers to a method of obtaining galenical preparations as free as possible from what Professor Lloyd terms "plant-dirt," involving the use of dialysis. Fresh plants are used and their juice subjected to a process of dialysis, avoiding as much as possible all solvents and reagents that might produce chemical change. From a purely scientific standpoint the process seems to approximate the ideal, but whether these new dialysates—which are made by Golaz, of Saxon Switzerland—will meet with practical success remains to be seen.—*Pharm. Rev., 18, 109.*

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RESIN IN BEESWAX.

H. V. Army directs attention to an error that may creep into the test for resin in beeswax if the strongly alkaline hot solution be filtered through paper, the subsequent addition of hydrochloric acid causing a flocculence, due to the cellulose dissolved from the filter paper. He suggests that the text of the test in the next U.S.P. should be amended to read: "after filtration through glass wool or asbestos." This suggestion is equally applicable to the B.P. test.—*Am. Journ. Pharm., 72, 74.*

SYRUPUS ROSAE.

F. W. Haussmann points out that a brighter coloured syrup, with an agreeable acidulous taste, is obtained by the addition of diluted sulphuric acid (10 C.c. per litre). It is open to the disadvantage, however, that the sugar is liable to inversion, and consequently a deposit of grape sugar may form on standing.—*Am. Journ. Pharm., 72, 73.*

COAGULABILITY OF ALBUMIN.

Professor J. B. Farmer finds that when albumin is dried at a temperature of 52° to 55° C. in an incubator it is not altered as regards solubility and coagulability, but resembles the unheated material in these respects. If precautions are taken to ensure appropriate desiccation it is possible to heat albumin for, at any rate, thirteen hours to a temperature varying between 102° and 110° C. without producing any change in its ultimate molecular structure. This investigation was undertaken with a view to studying the influence of high temperatures on seeds. Dr. Morris found such treatment did not necessarily destroy their power of germinating, even when they were exposed to the action of boiling water or even heated to a higher temperature in an oven. It has been noticed that, in heating seeds in water, if the seedcoat becomes ruptured, softens or swells, the seeds so affected lose their vitality, possibly through the admission of water to the living cells.—*Chem. News, 81, 207.*

NATURE OF OINTMENTS.

Louis Kahlenberg and L. F. Ruschhaupt have performed a series of experiments on ointments which prove that the ointment of lead carbonate, U.S.P., is merely a mechanical mixture of the carbonate and lard; so also are ointments of zinc oxide and of mercuric oxide with vaseline. Zinc ointment made with lard contains but an insignificant amount of zinc oleate at atmospheric temperature; this amount is increased when heated to 150° C., though it is not great. Zinc ointment made with simple ointment, U.S.P., contains, especially at higher temperatures, more zinc salts, probably because of the free cerotic acid contained in the wax. Lanolin is much more saponified by zinc oxide than lard. What is said of zinc ointment applies also substantially to the red oxide of mercury ointment. Therapeutically it would seem that those ointments in which a certain amount of saponification takes place would prove more effective than those that are mere mechanical mixtures. If this be the case, the ointments made with lard plus wax as the base are superior to those in which vaseline is used; but lanolin is a better base than either of these. Again, an ointment prepared at a high temperature is better than one prepared in the cold.—*Pharm. Rev., 18, 156.*

COLLECTION OF HAMAMELIS LEAVES.

Grace E. Cooley has compared the leaves of *Hamamelis virginica* collected in spring with those gathered in autumn. The leaves contain more tannin in the autumn than in the spring. The cell walls of the hairs are comparatively thin in the spring, and thicken gradually towards autumn, when a dark line often marks the lumen of the cell. At the same time the colourless walls become coloured yellow and the granular and oily contents disappear. The autumn leaves are official in the U.S.P.—*Journ. Pharmacol., 7, 52.*

DISPENSING ON ACTIVE SERVICE.

BY E. A. H.

The Royal Army Medical Corps is having a busy time in South Africa just now, and a fair sample was seen in a recent visit to the Base Hospital (No. 2 Stationary) at East London. The Agricultural Show buildings came in very handy to the Military authorities when hundreds of poor fellows were being sent down from the front to the base just after operations had started in real earnest. At present, it presents a remarkable sight. The long sheds or sections have been converted into regular wards, "fever" and "surgical" cases being kept separate as far as possible. Over three hundred patients were at the time under the care of Major James, R.A.M.C., who is officer in charge here, and three civil surgeons. It speaks well for these medical men and their attendants that very few deaths occur, and these are extreme cases. All the beds are fitted with mosquito-nets, and on entering one of the long wards the appearance is that of a transparent military camp, the light muslin bell-tent shaped net giving it that effect. Most of the cases were of enteric fever, which has been so very prevalent and weakened the ranks of several of the Divisions. It was in the dispensary where the busiest part was found. This had been temporarily fitted up with shelving, etc., and everything was handy to the dispensers on duty. Hundreds of bottles of solid and liquid drugs were about, bearing the labels of Messrs. Davy Hill and Son, Yates and Hicks, who have the Army contract for drug supplies. Antiseptics were the most in evidence, carbolic and boric acids, iodoform, etc., in $\frac{1}{2}$ lb. and 1 lb. bottles ready for use or distribution. Poisons were under lock and key, also the dental and surgical instruments.

Tablets of Messrs. Burroughs Wellcome and Co., lamellæ of Messrs. Savory and Moore, everything in a compressed form were here, all to a purpose—that of obtaining a *multum in parvo*. The wicker-cases (panniers) for field use, field-surgical, and field-medical, were very compact, and fitted up with a few of the most used drugs in the "medical," the "surgical" containing antiseptics, lint, bandages, tourniquets, etc. These are made to be carried by mules, slung on either side of the animal pannier-fashion, and as they open outwards they need not be taken off but used direct, the mule being able to move in and out among the wounded where a waggon could not go. There are also reserve duplicates of these panniers ready packed, and when a "wire" is received at the base for a field medical or surgical pannier it is immediately sent off through the "lines of communication" to the field. When one sees these things in the naval and military hospitals at home in times of peace, the compactness and portability receive just a passing glance, but out here on the spot at the present time it is wonderful how they have been of use in saving precious time and space. Another notable item was the large medicine chest, fitted with numerous drawers and divisions, each filled with liquids and sundries, The lid on being raised, and a sliding-board drawn out, a capital dispensing counter is obtained, with scales, weights, etc., to hand, and everything "get-at-able." The chests are intended for carrying quantities of drugs, etc., sufficient for a battalion either on a voyage in a troopship or on the march in a pharmacy-waggon. Field cases of compound splints, etc., for serious accidents and spare stretchers were here for transit, also pocket-cases of tablets, hypodermics, syringe and needles for injection.

The water used is purified by means of a pumping Berkefeld filter, which is a great boon in a country where the water is not of a "nectar" variety. Care is taken on the field, where possible, to use one of these filters, thereby lessening the liability to enteric fever. As to the *personnel*, the dispensary is under the control of a Sergeant-Major, with Staff-Sergeant and Sergeant compounder, also an extra compounder, enlisted on the recent short service system, all practical men, some holding the full qualification of the Pharmaceutical Society. The nursing is done by the privates, who are similar to the sick-berth attendants in the Navy. These see to the carrying out of the treatment ordered by the doctors, and come

more in contact with the painful side of the war. Each man has had a training in "first aid," "ambulance," and "nursing," and is as useful on the field at the "front" as he is in the hospital at the "base." Just now they are under-staffed, and twelve are doing the work of twice their number, but withal they are a cheerful lot considering the amount of sickness with which they are continually surrounded. On the Boer side the treatment of the sick is far from being so methodical and thorough, except in the cases of the foreign Ambulance Associations, who have come out in the cause of humanity, regardless of the issue at stake. The Dutchman is his own doctor, and with his Borst-, Versterk-, Endres-, or Pijnstillende-droppels, and the inevitable "Wonder-Essentz," will cure most of the ills that come his way. It is the surgeon he will need, and not the physician.

PHARMACY AND PHARMACISTS IN CAPE TOWN

AS THEY APPEAR TO A SIX MONTHS' RESIDENT.

Probably six months' residence in Cape Town under present warlike conditions hardly justifies one in pronouncing too emphatically on the prospects of pharmacy in this quarter of the globe. But there are certain tendencies observable (to me, at any rate) which are worth presenting in a concrete form. One of these—and of most importance to the average chemist—is the paramount sway of the wholesale druggist and his gradually increasing control of the retailer. All the big wholesale firms run retail pharmacies under their own names. Each of them has an imposing establishment in Adderley Street, the Regent Street of Cape Town. They also have direct financial interests in many other retail firms besides, carried on under other names. As they are keen rivals their prices, while favourable as compared with those prevailing at home, are unapproachable, except at a loss, by the general retailer; for in many instances they supply the public at wholesale rates, and sometimes below it. Against such competition as this the chemist has but a dubious remedy. He is, as often as not, financed by the wholesaler, in which case he is helpless; and when he is not he is exposed to the risk, if his business be a good one, of being cut out by the more powerful and less scrupulous of his wholesale rivals, one of whom, I am informed, in particular, has an unpleasant habit of intimating to the independent one that unless he can see his way to increasing his account with them they must start a branch establishment in his immediate neighbourhood! This kind of rivalry is difficult to cope with.

There are a few obvious methods open to the small man, none of which are unattended with serious drawbacks. For instance, he may import his goods himself, in which case the Revenue requires him to take out an annual licence costing £12, over and above his trading licence of £5 per annum. With the extra labour and other incidental expenses thus incurred, and the carrying of unnecessarily large stocks, he may still obtain better remuneration than by local purchase. But it is precarious, and it may at once be said that there are very few retail concerns whose business is of sufficient extent to justify such expenditure on the large scale. Still, this difficulty can be overcome by several retail chemists combining their order and negotiating through the ports as one individual or firm. This is probably the best plan to adopt, and is frequently done. The method is not free from friction, and has the disadvantage of letting other retailers know the extent of your business.

Another "plan of campaign," and one familiar to all at home, lies in pushing your own specialties. This is only possible by persistent advertising—*i.e.*, persistent spending in which, as always, the initial outlay is altogether disproportionate to the immediate returns. With plenty of cash, plenty of patience, and a good thing to push, you may do very well if you live long enough; though I am of opinion that there are many investments in which the return on your money will be far less remote and quite as substantial.

There is a novel and unpleasant feature about proprietaries here which I never remember to have met with at home, and that is the difficulty one has in persuading the average colonist, Dutch or English, that anything good can be made at the Cape of Good Hope. You may import it from England, France, Germany, Greenland's icy mountains, India's coral strand, the States, in fact, from *anywhere* outside South Africa, and you may be quite confident of disposing of it; but let it be known that it is a Cape product, you will then find that you must double your efforts and expenses to sell it; that the "judicious blarney" of your "ads." must be judicious indeed; and that you will need the persuasive powers of the American drummer.

The natural outcome of such a phenomenon is that the big chemists represent themselves as sole agents for some purely fictitious English firm (or French one in the case of perfumes and toilet preparations), who are vaguely known as "Squealer and Co., The Laboratories, London, England."

These imaginary firms possess a wonderful facility in getting up substitutes of all the well-known patent medicines—*i.e.*, the saleable ones, and as they are offered at slightly lower prices than the genuine they do surprisingly well at it, and the public are certainly impressed. English customers have said to me: "Squealer and Co.! Oh! I know them quite well. I saw their place just before leaving London"; whereat one has difficulty in restraining a smile.

A feature which strikes me as odd is the manner in which chemists are distributed throughout Cape Town. They are like carbuncles: they invariably occur in groups of two, three, or more. In Adderley Street (which is scarcely as long as Cheapside) and its few bye-streets there are seven, in another street there are five within sight of each other, in another three. It is the same in the suburbs; in fact, if you happen to be looking at a chemist's shop you may safely conjecture that within a stone's throw of your back, or your right hand, or your left, there is one or more of the same fraternity—if such a term be allowable to such close rivals. But you will need to go a long way before seeing another. Elegant pharmacies exist here, but are rare as angel's visits, being very few and far between. The average is no worse than at home, though the worst are in a much more deplorable state than any I have seen in England.

The Pharmacy Act appears to be well respected in the town, as infringements are rare, the Pharmaceutical Society's efforts towards maintaining such purity being (from the chemist's point of view) commendably prompt. On the other hand, the dearth of infringements may be due in some measure to the fact that there is little difficulty in acquiring the Society's diploma, the examination, from what I have heard of it, requiring no great intellectual effort. The secretary of the Society is a Government gentleman—*i.e.*, he combines his secretaryship with a post under Government; a fact which increases the Society's prestige, besides constituting an ingeniously economical arrangement.

At present the position of the English qualified assistant is good; that is, the single ones. I refer to those in first-class houses, though, to be sure, only first-class houses can afford them. So far as personal treatment by such firms is concerned, it varies considerably. Some could not be better, and I presume most men at home know which firms to avoid. The three years' system, with passage paid out, £12 monthly first year, £13 10s. second, £15 third, and commission and room are the best terms now available, and—as the vernacular has it—"they are not to be sneezed at either." Out of such salary there is only clothing and food to be found, and the latter need never cost more than £4 per month. Hours are long, but are so arranged among the assistants that they pan out a little easier than at home.

Of scientific pharmacy I have as yet seen no evidence. It is not encouraged. Commercialism is too rampant. It predominates over all other interests. Local productions and manufactures seem to me to be in a less advanced state than any other of our

colonies. It is difficult to assign the cause. Even the "manufacturing chemist" makes very few drug preparations. Nearly everything is imported, and quite everything is taxed, and yet very few seem to think it worth while to produce those things which they need most and which could be done with considerable profit.

Owing to the large numbers of military men which the war has dumped down here the Army and Navy Stores of London have decided to start a branch of their establishment here, and as an obvious consequence there is considerable fluttering among the local tradesmen. What the effect on the chemists' business may be is a moot point. Any way, the chemists themselves, strangely enough, do not seem particularly perturbed. Some even go so far as to say "that if the present Pharmacy Act is not comprehensive enough to deal with such a case it can quickly be made so." That is refreshingly optimistic. Such complacency in their ability to refashion Acts of Parliament has a strange and wild sound to English ears. I can only say that one of the officials whom I heard give utterance to this expression is a gentleman who seldom speaks without knowledge. However, whether or not the Pharmaceutical Society of Cape Town possess, or can acquire, powers to overwhelm such a powerful and influential organisation, and prevent them trading as chemists and druggists, it seems to me it will be of little benefit to the ordinary retailer, seeing that the big wholesale qualified men are as great sinners in undue cutting as any stores or "Shoes, Limited." So that here, as at home, the common every-day chemist is chronically between the devil and the deep sea; or, to vary the simile, he is either going to blazes or on the verge of falling into liquidation.

For the first time since history began, we have had the President of the Pharmaceutical Society of Great Britain in South Africa. A dinner in his honour was given on May 15, on his return from Durban, when there was a good attendance. For we all esteem Mr. Martindale, and trust he will return home a healthier man—it would be invidious to say a better man.

FORTY YEARS IN THE DRUG TRADE.*

BY DAVID MACLAREN.

On March 14, 1859, I found myself dressed in a clean striped shirt and white linen apron duly installed, on trial for a month, in a shop in a little country town. I had no care as to being plucked in the Preliminary Examination, and was not in any way pressed to attend classes of botany or chemistry. All that was required of me was to turn out at 7.30 a.m., and remain till nine p.m. on five days and eleven p.m. on Saturdays. My employer was a most excellent man, who had a thorough grasp of all the details of the drug business and many other businesses. The salary was 2s. 6d. a week, and my career made a bad start, as the second week's pay was withheld, because in trying the experiment with a No. 10 mortar on a doorstep as to their several powers of resistance, the mortar got the worst of the trial and was shattered beyond the hope of even cementing. However, the trial must have pleased the governor, as it did not come to an end till March 26, 1863. The four years spent in this place still linger in my memory as a time pleasantly and profitably spent. I had plenty of hard work—the usual routine of cleaning windows, outside and in, washing once a week the pavement in front of the shop, filling up spare time by amusing myself by mixing in a No. 10 mortar a paste of rottenstone and soft soap, and filling up a few grosses of 6d. pots and sending it to various wholesale houses in the cities of Scotland. As a change in amusements I would have my attention taken up with an emulsion of turpentine, wax, and XX pale soap. This was put into 8d. and 1s. bottles and similarly treated. Yet still another preparation, and with this I will finish: This time an

* Read at a meeting of the Edinburgh and District Chemists' Trade Association, March 28, 1900.

infusion, or, as we called it, essence of coffee, which, in 20-gallon lots, after being treated *secundem artem*, we also disposed of in the same way as the two former pharmaceutical products.

I was initiated into the sale of coffee, snuff and tobacco, sweets and biscuits, gold watches and penny brooches, Java and Patna rice, sago and manna croup, and had an occasional trip to some country house two or three miles out of town with a barrow-load of drugs. This was, you will say, a most excellent training for one who was expected to follow out the profession of a chemist and druggist. Be that as it may, I have yet to learn of another establishment wherein a better ground work was laid down for my after work. Prescriptions were plentiful. Whom did they belong to? Were they the property of the client or the chemist? No such question was ever raised. The medical men wrote their recipes in the shop, the medicine was dispensed, the piece of paper on which it was written finding its way at once to a file under the counter, and, as a rule, never looked at again.

There were three chemists in the town, and the customary friendly relations existed among them. True, they had in some mysterious way entered into an agreement that their several pharmacies were to be kept closed on the Lord's Day, and that only in cases of emergency would medicine be given out on that day. On speaking terms? Yes; when they met in the street they passed each other without even a nod of recognition, and woe betide that commercial man who did business with one of them if he were seen to go into the opponent's place of business. As frequently happened, say in the case of a medicine chest requiring to be filled in a hurry, we were short of some drug or chemical, it was the duty of the junior to doff his apron, put on his coat and hat, get a supply of cash, and go to a neighbouring town by rail some seven miles off, and get the required article. One of the three departed this life, and only two remained, till a gentleman from Edinburgh had the hardihood to open a shop in the town. The two old friends shortly after this met at the funeral of a mutual friend, and going along the street to the place of graves, our opponent came up to my employer, shook hands with him, hoped he was well, that they might agree to let bye-gones be bye-gones, and join hands and crush the newcomer.

The outlander is still there and doing well, the other two have departed this life.

One of the parties referred to wore a wig and dressed so shabbily that on one occasion a medical friend of his offered to provide a new wig and also a new rig-out if he would give his consent to the depositing of the more ancient remains in the local museum. If any out-of-the-way article was inquired for he used to reply, if he had it not in stock, "Perhaps you will get this in Cumming's Bazaar or Irvine's toy-shop."

Enough has been said of personal matters to enable you to form an opinion on the position and prospects of the drug trade there and then. The man with the wig died, leaving a sum of over £40,000.

In spite of all our hard work we had plenty of leisure. Many a respectable citizen had cause to remember our peashooters fired from the top of the roof. We early adopted a system of early closing, which now and again was successful. The governor was a man of very studious habits and literary tastes, and if things were not very brisk in the shop he used to retire to a cosy corner and be busily engaged with his pen. Then was our opportunity—8.30 p.m., out with boards, on with your garments, and off like shot. We had no pharmacy athletic club, but we had our morning and Sunday evening rambles, four or five miles before 7.30 a.m. on week days and fifteen to twenty miles after two Church services and Bible class attendance on Sundays. These rambles with apprentices of other trades have to me tender memories, and did more than anything else to form the man of the future. So much for the town of Alloa and its old and hallowed associations.

The neighbouring town I referred to was Stirling, where at that time four chemists lived very much on the same footing as their friends on the Carse. My old friend and relative, Robert Haldane,

had a little shop in Baker Street, where he for forty years sold drugs during the day and slept in a little room behind at night, till, compelled by a severe attack of rheumatic gout and the fortunate death of a cousin, who left him some money, he at last retired from business.

Price lists? No need for such. Only one instance may be quoted to show how uniform the prices were: Twelve pills by prescription in one place, 8d.; in another, 4d., and there being a third place where such could be had, my friend, though not requiring more, took his prescription to the third party, and he, modest man, charged 6d. His deliberate judgment was that the one was extortionate, the other a fool, and the third an honest man.

Some of my friends' present will be able to speak of their experiences in Forfar towns, where their apprentice days were spent under the sweet odours of aloes, myrrh, and cassia, the fragrant aroma of which, particularly the first, still haunts them in their dreams. We do not for a moment forget the pounding up of gum scammony, which was a favourite pastime with many. Nor do we pass over the very enticing occupation of weighing out hellebore powder. Putting aside all this, what has been the result? Good men and true, chemists and druggists above suspicion have been made, and some still remain with us to carry on the work.

In the Juteopolis of Scotland, with the notable exception of one drug shop, it was a red letter day when a prescription was handed in to be dispensed. I can well remember going on my usual rounds and waiting upon a certain wholesale and retail chemist in the High Street. He had been on the sick list, had to call in a medical man and get a prescription. On handing the formula to my customer, the doctor, quite forgetful of where he was, said: "You'll send this over to Hardie's and get it made up." My friend's retort was long, but very expressive.

I have heard that things have changed there, in the interests of the trade in general, for the better.

Time will not permit me to speak at any length on the trade as carried on in the West of Scotland, say, in such centres as Glasgow, Paisley, and Greenock. Few good chemist and druggist shops, and plenty, far too many, surgeries. Of the South of Scotland much may be said, where in the shop of Messrs. Fala and Peters, Jedburgh, a young man, Rutherford, first learned how to dispense physic, and in his leisure moments he mastered that delicate and telling instrument, the violin. The two combinations, I feel sure, were the foundation on which his future destiny was built. Under Dr. Fala he was trained as a medical practitioner, and Mr. Peters did the practical pharmacy. Sufficient to say that both in the south-west and south-east of Scotland not so very long ago doctors' shops were all the go: Advice gratis and eight doses of medicine for 2s. 6d.

These were indeed the merry days. Even entrance into the sacred realms of the Pharmaceutical Society and obtaining the style and title of Pharmaceutical Chemist was like going to a reception. Our late respected friend, Mr. Richard Raimes, when in one of his more humorous moods, used to tell of how he was admitted. In a large room, at the one end of which stood the examiner and at the other the examinee. The former held in one hand a bladder of lard and in the other a bath brick. The question was put, which was which, and if answered correctly the candidate was admitted, and on payment of his entrance fees, received in due course his diploma. There were no female aspirants in those days. It was a genteel profession. Ministers, teachers, and others of like pursuits, when failing to prosper in their own proper sphere, took to the selling and compounding of drugs. Well do I remember the genial faces of such men as the late James Duucan, of Penicuik, trained for the ministry, or David Jamieson, Auchtermuchty, who, though not trained to the trade, were ornaments to the profession of their adoption.

I might go on enlarging on such matters, but time will not permit. All through Scotland the same tale might be told. How poisons were sold in large quantities by unqualified hands, and such articles as arsenic, uncoloured, stored in barrels of a similar

style, alongside of cream of tartar and bicarbonate of soda. Were accidents of more frequent occurrence? I trow not. The boys and men of those days acquired habits of observation and care, which seem to be wanting to-day.

Leaving the home of my childhood on the morning of March 28, 1863, I found myself located in 29, Hanover Street as a full-fledged assistant, engaged at the magnificent salary of £25 a year, rising in six months to £30, if found suitable. I left after eighteen months' service, as under no circumstances could a salary of £39 be paid. Since that date on till now I have taken an active part in all that pertains to the furtherance of good fellowship among the members of our craft. I at once got into touch with the members of the Wilsonian Association, which met once a week in McLaren's Temperance Hotel, St. Andrew Street, and which had as its Honorary President the late Professor Archer, of the Museum of Science and Art, and among its first Presidents was Mr. James Mackenzie, Forrest Road. There are still others remaining in the town who at that early date took an active part in its affairs. I can well remember the first edition of the British Pharmacopœia and the many meetings held to discuss the merits and demerits of the work. I attended the meetings in the Bible Society's Rooms, and looking back now, am convinced that there was much talk and little wisdom. An effort was made about this time to get the shops closed at a more reasonable hour. Well do I remember the deputation waiting on the proprietor of 29, Hanover Street to ask him to give his name to close an hour sooner. "Certainly not; but I will shut two hours in the middle of the day, if you like."

But I must hurry on. How did the drug trade stand in Edinburgh forty or fifty years ago? From an Edinburgh directory, 1849-50, I find that at that date there were in the city and in Leith forty-nine apothecaries. The name "chemist and druggist" was not in vogue then. That is to say, that between doctors and chemists or druggists there were forty-nine open shops. The only names I have been able to identify in the directory of that date are Baildon, 73, Prince's Street; Duncan, Flockhart, and Co., 52, North Bridge and 139, Prince's Street; Duncan, Flockhart, and Powell, 18, Bernard Street, Leith; J. F. Macfarlan and Co., 17, North Bridge; John Mackay, 121, George Street (now John Mackay and Co., Canning Street); Raimes and Co., Smith's Place; Robertson and Watson (now James Robertson and Co.), 35, George Street; and Lindsay and Shaw (now Lindsay and Gilmour), 11, Elm Row. With these exceptions, all the others, even in name, have ceased to exist. There was at that time, and still is, in this city, a firm of manufacturing chemists (who are now looked upon as chemists and druggists under the meaning of the Pharmacy Act), who, though in business prior to 1849 and for ten or twelve years thereafter, were not in the opinion of the framers of the Edinburgh and Leith Post Office Directory considered worthy to be placed on the list of apothecaries. The firm of T. and H. Smith and Co., to whom I refer, was then designated as surgeons and druggists and manufacturers of aerated waters.

The only one who still lives, and was in business at that date, known to me is the honoured name of James Robertson Young, in 1849, druggist, 39, St. Leonard Street.

In 1860-61 the number had increased to fifty-three, 1869-70 to eighty-seven, 1880-81 to 109, till in 1898-99 the number of separate places of business had increased to 159. Can I account for the very rapid increase of open shops during these latter years? The Pharmacy Act, laying down rules for the conduct of, and making it compulsory for, anyone desiring to enter into business as a chemist and druggist to pass an examination, was passed in 1868. I have heard it said, and possibly there is something in it, that to this cause can be assigned much of the increase. Has pharmacy improved under these altered conditions, or were the former days better than these? Are the public better served and the prescriptions of our medical friends more accurately and neatly dispensed than formerly? That is a difficult problem to solve. True it is,

however, that it is more difficult than ever to secure the services of suitable apprentices. We hear this referred to on all sides. Should we insist upon them passing their preliminary examination before we take them into our service, or, having taken them in and they subsequently pass their examination, should they be obliged to serve at least three years after the date on which they passed? Some such regulation should, I think, be made.

Having got apprentices to train, is it our duty to give them time and opportunity to attend classes and supply other means to enable them to prepare for passing their qualifying examination? I think duty to a large extent binds us to see that this privilege is granted.

The vexed question of titles still remains. The 1868 Act in spirit, if not in word, meant that the names "chemist and druggist" could only be applied to those who had passed through the necessary ordeal. If the title cannot be conserved for use by qualified men or women, we had better move that the Act be repealed, and the chemists and druggists of Great Britain be set free from the fetters which at present bind them, and let us return to the former state of free trade, and let all who care to deal in poisons do so without let or hindrance.

PLANTS AND PLANT PRODUCTS.

DIE ROHSTOFFE DES PFLANZENREICHES. By JULIUS WIESNER, Professor of the Anatomy of Physiology of Plants in the University of Vienna. Second Edition. Parts 1, 2, and 3. Price, 5s. each part. Leipzig: Wilhelm Engelmann, 1900.

It is now nearly a quarter of a century since Professor Wiesner published the first edition of his "Rohstoffe." During this period great strides have been made, not only in our knowledge of the various materials treated of, but in the applications to which they are put. A complete revision of the work will therefore be most acceptable.

Under the title of 'Rohstoffe des Pflanzenreiches,' or, 'Crude Materials of the Vegetable Kingdom,' Professor Wiesner deals with all those vegetable substances that are put to technical use, and includes not only parts of plants, but such products of plants as have not undergone any far-reaching changes during their production for the market. In fact, the work deals with substances that are used technically, just in the same way as a modern pharmacognosy does with substances used medicinally. The author's object has been to show how such crude materials may be identified and their varieties distinguished; he also discusses their sources, constituents, and properties, with especial reference to their application.

Whilst taking into account the botanical and geographical sources, the cultivation of the various plants and production of the material for the market, Professor Wiesner very properly lays great stress on the necessity for familiarity with the morphological nature of the substance and on the importance of the microscopical examination. The latter he has extended to the examination of the minute vegetable debris present in many unorganised drugs, and even to the examination of the physical characters of the latter, independent of any extraneous debris that may happen to be present. Such examinations have yielded interesting results, for many substances that appear homogeneous to the naked eye present an unsuspected diversity when examined by the microscope.

The matter dealt with has been divided into natural groups, and the consideration of each group has been sub-divided into a general and a special account, the former including the physical characters, the chemical constituents, formation and occurrence of the group, whilst the special section contains a detailed account of the members. Thus, in that part of the work that deals with gums, under the heading, 'Occurrence of Gum,' no fewer than 119 gum-producing plants are enumerated, those that are of technical importance being indicated by spaced type. These more important gums are considered in detail. They are classified, in the first

place, according to their botanical sources as Acacia gums, etc. The Acacia gums are sub-divided into Arabic or (better) Nile gum, Senegal gum, German African, East Indian, Australian, and so on. The description of the Acacia gums occupies twenty-one pages, whilst that of the gums other than Acacia fills twenty-five pages. Although the latter are, in general, well selected, one would like to have seen such a gum as Ghatti receive a little more notice than the bare mention of its source; in this country, at least, it has its technical uses.

Part two deals with resins, gum-resins, oleoresins, etc., and the method of treatment is the same as that adopted for the gums. Several of the substances dealt with, such as galbanum, ammoniacum, asafetida, myrrh, etc., are of pharmaceutical interest, whilst colophony, copal, dammar, shellac, and others are of much greater technical importance. Here, too, the occurrence and formation of the members of the group, their physical characters and chemical constituents are dealt with in detail. Particular allusion might be made to the interesting description of dammar and copal and to the results of the minute examination of the surface of the latter resin and that of mastic.

The third part of the work contains the completion of the section on resins, and deals as well with caoutchouc, opium, aloes, indigo, catechu, and allied substances. The last five sections have been written by some of Prof. Wiesner's collaborators, viz., Professor Mikosch (caoutchouc, catechu, vegetable fats), Professor Vogl (opium, aloes), and Professor Molisch (indigo). The same arrangement is adopted as in Parts I. and II., and the numerous citations form a very complete introduction to the principal literature of each section. That dealing with the caoutchouc group (50 pages) is a particularly excellent résumé of the subject, being very clearly written and well brought up to date. Under kino, in the catechu group, it would have been well to furnish more particulars about the commercial varieties of kino, and the percentages of kino-tannic acid that they contain, for the published figures vary considerably. African kino, for example, is worthy of more than simple mention. But, like its predecessors, this section is full of valuable information.

In all three parts the chemistry has been written by a collaborator of the author's, a division of labour that is most advantageous, as in all cases it is clearly written and well up-to-date. The work teems with valuable and accurate information, and is, therefore, indispensable to all who have to deal with such matters. It is written in so attractive a style that it cannot fail to prove an incentive to younger men who are commencing their studies. "Investigations that have a practical object in view," says the author in his preface, "must be founded upon a scientific basis," and it is to the scientific investigation and examination of the crude materials that are already known that he would especially direct their attention.

COMMERCIAL ORGANIC ANALYSIS.

COMMERCIAL ORGANIC ANALYSIS. (Volume II., Part II.) By ALFRED H. ALLEN, F.I.C., F.C.S. With revisions and addenda by the author and Henry Leffmann, M.A., M.D. Pp. 330. Price 14s. London: J. and A. Churchill. 1900.

The second part of Volume II. of Mr. Allen's treatise on Commercial Organic Analysis deals with hydrocarbons, petroleum products and coal tar products, asphalt, phenols and creosotes. The section on hydrocarbons and on the products obtained in the distillation of petroleum, coal tar, and shale occupies two-thirds of the book, whilst the remainder treats of the phenols and the allied bodies. There is much interesting matter on the products obtained in the distillation of petroleum and shale oil—petroleum spirit, burning and lubricating oils, vaseline, paraffin—and the tests described (which include the English close test as well as other flash tests) are those generally adopted by most experts in the examination of these products.

The results are given of an examination of the rival burning oils of America and Baku, from which it appears that the Russian kerosine is usually of higher specific gravity than the American. It is also stated that the Russian kerosine gives less light than the American, but, on the other hand, there is less diminution in luminosity as the level of the Russian oil sinks in the lamp reservoir. A useful comparison can be made between samples of kerosine by burning them in similar lamps fitted with a loosely-woven wick and noting the rate of consumption and the intensities of the light yielded under the same conditions. Kerosines containing a larger proportion of light oils are said to give a better light, but burn faster than the others, while the presence of heavy oils retards the consumption and seriously diminishes the light. The requirements necessary in a lubricating oil are well set out, and methods are given for arriving at some idea of the value of an oil for lubricating purposes by determining the viscosity of the oil, which has no relation to its specific gravity, the thickening of the oil, flash, and burning points, gumming, acidity, etc. This part has evidently received the careful revision of Dr. Leffmann. The de-blooming of a mineral lubricating oil, it is said, can be produced by treatment with nitric acid, or the bloom obscured with turmeric or picric acid; but more usually it is treated with dinitro-toluene in the proportion of four pounds to the ton of oil. There is, however, no mention made of deodorising kerosine oil, which is a matter of as much interest to some persons as de-blooming. Benzene, nitro-benzene, "benzols," naphthalin, naphthol, anthracene, and the various commercial methods of testing these products are all described in detail, and the same can be said of the part dealing with the phenols. The determination of the phenols, or so-called tar acids, in carbolic powders and in coal-tar emulsions of the lysol and creolin character will be found of little trouble when followed in the manner here described. The author is no doubt correct in stating that the mixing of tar oils or other hydro-carbons of little value as antiseptics has been practised to an enormous extent, inasmuch as "carbolic acid and carbolic powders sold to corporations and other sanitary authorities afford a fertile field for the operations of the blender." There are also articles on blast furnace creosote, guaiacol, creosol, resorcin, hydroquinone, and one or two illustrations of new extractors for use with volatile solvents, and specific gravity and thermometric tables. It may be said, in conclusion, that Volume II. maintains the high standard of the previous volumes of this revised series, especially in containing the latest information bearing on the subject, and as far as possible the modern methods adopted in examination. Analysis of such materials is more a matter of expert knowledge—that is, in the sense of an acquaintance with recognised methods of procedure—than scientific exactness, and Mr. Allen has done his best to satisfy this requirement throughout his work on "Commercial Organic Analysis."

THE EXAMINATION OF POWDERED DRUGS.

DIE MIKROSKOPISCHE ANALYSE DER DROGENPULVER. BY DR. LUDWIG KOCH, Professor of Botany in the University of Heidelberg. Vol. I. Barks and Woods, Part I. Pp. 76 and plates. Price 3m. 50pfg. Berlin: Gebrüder Borntraeger.

There is no lack of evidence that, in the near future, the pharmacopœias of the more advanced nations will contain much more minutely detailed descriptions of drugs than has heretofore been the case. In the British Pharmacopœia of 1898 details of the structure were introduced in those instances in which they were considered to add precision to the description, and the Permanent Commission for the German Pharmacopœia, admitting the fact that many drugs are bought by the pharmacist in the condition of coarse or fine powder, has recommended that the descriptions should be so framed as to include the identification of the comminuted drugs. The work that Dr. Koch is now publishing has for its object the description of powdered official drugs, so as to enable the pharmacist to identify them and ascertain their purity.

It stands in sharp contrast with the Anatomical Atlas of Tschirch and Oesterle, for the latter deals principally with the anatomy, and briefly alludes to the characters of the powder, whilst Dr. Koch deals almost exclusively with the latter.

The first thirty-five pages are devoted to a consideration of the method of examination, and will well repay careful perusal. The advantages and disadvantages of the three principal mounting media, viz., water, glycerin, and chloral hydrate, are very clearly stated, whilst of the reagents in common use, three are treated of in detail; the others simply mentioned. Next follows a description of the particles that usually constitute a powdered drug, viz., fragments of cell-walls, contents of cells, isolated cells and collections of cells; the order in which they may be best studied, the magnification most suitable, the methods of mounting, the difficulties that may present themselves, and how they may be overcome, are successively treated of. All such information is extremely valuable, and is as interesting to the expert as it is to the student.

Dr. Koch very properly lays great stress upon the necessity for sketching, and recommends the outlines to be drawn with the aid of a camera lucida; the advantage of this is that the relative size is always preserved, and exact measurements can be made from the sketch if the magnification has been recorded. He also insists upon the necessity for determining whether or not admixture has taken place, the identification of the admixed substance being of much less importance. This is very true, for the number of possible adulterants is practically inexhaustible, and an adulteration once detected and published is likely to be abandoned in favour of another.

Each section is prefaced by a general exposition of the anatomical elements present and their distinguishing characters; in the section dealing with barks and woods no less than twenty-two pages are devoted to this exposition. The description of each drug is also very carefully written in tabular form, an arrangement that certainly has the advantage of lucidity.

The plates are lithographs of the author's own sketches, and as they form the most important part of the work, they deserve very careful consideration. It may at once be said that, with respect to the number of elements shown, to detail and elegance they surpass anything that has hitherto been published. Moeller's Atlas unfortunately contains too little of the separate cells and fragments that constitute a powder, Vogl deals but little with barks, and Tschirch's Atlas treats principally of the anatomical structure, whilst Collin, in his little work on official powders, has restricted his descriptions too much, and paid too little attention to the detail in the illustrations. Thus it will be seen that Dr. Koch's Analysis fills a distinct gap.

In regard to his illustrations there is, perhaps, a tendency to multiply unnecessarily the number of times each element is figured. Thus, in the illustration of powdered cascarilla (Plate II.), the cork cells are shown four times in section and nine times in surface view, bast fibres nearly as often, and so on. Such repetition tends to complicate the illustration, and this complication is increased by the representation of granular matter that is certainly to be found in the powder, but is of doubtful diagnostic value, and might, therefore, well be omitted or only figured in one portion of the plate. Accuracy of delineation is the most important point, but in this instance the cork cells have not been accurately drawn. Meyer has already pointed out the peculiar contents of the cork cells of this bark, and treatment with hydrochloric acid and phloroglucin would have accentuated that which is perceptible even in the unstained cell. So distinctive are these cells that by their means alone cascarilla bark can at once be distinguished from all other official drugs.

This indicates the desirability of a more extended use of micro-chemical reagents than the author apparently thinks necessary, and it also indicates the desirability of making oneself familiar with the anatomy of the entire drug by the examination of the

necessary sections before proceeding to the examination of the powder.

These observations are mainly differences of opinion that do not in the slightest detract from the value of the work. If the author's programme is carried through to the end the Analysis of Powdered Drugs will form a most valuable supplement to Tschirch and Oesterle's Atlas. It will repay the most careful, critical examination, and will be indispensable to everyone interested in such work.

PILL-EXCIPIENTS.*

BY ALFRED I. COHN, PH.G., NEW YORK.

The proper preparation of a pill mass, while apparently a simple affair, is in reality not quite so easy as it seems. Many facts must be taken cognisance of; for instance, the characteristics peculiar to the several ingredients, the possible action of one ingredient on another, the object for which the pill is prescribed, the coating, the solubility (whether slow or rapid) which the pill is to have, etc. Naturally, all of these considerations directly lead back to the employment of a suitable excipient, supplemented by proper and skilful manipulation.

From the great diversity of substances which may be prescribed in pill form, and from the varying characteristics exhibited by the medicaments, it can readily be seen that no one excipient will answer for all cases, but the one which is best suited for the particular instance in hand must be chosen. Frequently the correct choice is a matter of doubt; and it not infrequently happens that a great deal of time, labour, and material are wasted because the use of an improper excipient has resulted in an unexpected liquefaction, or made the pill mass so crumbling that pills cannot be formed, or the pills are so large and heavy that they cannot well be dispensed.

An excipient, to be considered suitable, must be capable, when used in minimum quantity, of thoroughly binding the various ingredients prescribed, and yield a stiff, yet plastic mass, which, when rolled and cut, will yield pills exhibiting no tendency to flatten, attract moisture, or harden so as to become insoluble, but which will perfectly retain their shape and be completely and rapidly disintegrated in the system.

Among the individual excipients in general use, clarified honey is perhaps the best. Glucose is also good, but its tendency to ferment rapidly is a bar to its general employment. Glycerite of tragacanth, glycerite of starch, and mucilage of acacia are also serviceable in a great number of cases, particularly where white pill-masses are to be made. With many, simple syrup or sugar is a favourite; while among Germans powdered extract of liquorice with a few drops of water is held in deservedly high esteem. All of these, and many more having similar properties, constitute one class of excipients which may be designated as "binders" or "coherers," so to speak; for they are used, as a rule, to bind powders which themselves have but little cohering power, so as to form a pilular mass.

There is another class of so-called excipients which possess little or no binding power, and are employed in cases where the substances prescribed are very soft or liquid, or where but very small quantities are to be made into pilular form. These substances may be termed "fillers," and to this class belong such articles as powdered liquorice-root, powdered althea, kaolin, magnesia, starch, flour, etc.

Frequently both binders and fillers are employed together, as when oils, fluid extracts, or other liquids having little cohesiveness are to be massed, or where very small quantities of drugs, like potent alkaloids, are to be made up in pill form. It is self-evident that the excipient used should, in addition to its cohesive properties, be perfectly innocuous in the quantity required for massing, and should have no tendency to incite or promote any reaction between any of the ingredients of the mass.

* From Merck's Report.

The substances generally employed as excipients, and their special values, may be epitomised as follows:—

ACACIA, in the form of powder, or aqueous solution (mucilage).—When used alone is too apt to afford pills which are very hard, and which dissolve but very slowly. Hence a little glycerin should be added, say about from one-eighth to one-fourth part. Such a mixture is useful for an extended range of work, and especially where a white pill is desired. If it is intended to coat the pills with gelatin, sugar, etc., the proportion of glycerin must be reduced, and particularly if a gelatin coating is to be applied, because in this case the hygroscopic character of the glycerin tends to retain the mass in too soft a condition, and the pills, on immersion in the hot gelatin solution, may either become very soft and fall off the pins, or the coating pills may "sprout" as the gelatin coating contracts strongly as it dries.

ADEPS LANÆ.—This, in connection with kaolin, etc., is of considerable use in the preparation of pills which are intended to contain phosphorus, potassium iodide, potassium acetate, and deliquescent salts in general. The latter may be dissolved in a minimum quantity of water, bolus alba or kaolin added to take up the liquid, and the whole massed with the adeps lanæ (wool fat). With silver nitrate, potassium permanganate and other very readily reducible substances, the excipient is not suitable because of its organic character.

ALCOHOL.—Many substances, such as gum resins, may be massed by the aid of alcohol alone. It is also very useful in enabling a minimum quantity of another excipient to be used. On adding a few drops of alcohol to the powder to be massed, it will be found that less excipient will be required to form a suitable mass than if no alcohol is used. This is advantageous in that the risk of using too large a quantity of excipient is avoided.

ALTHEA.—Powdered althea root is probably the most absorbent of all the powders used as fillers, and for this reason is very useful in many cases where the ingredients of a pill mass are naturally very soft, or even fluid. It has the serious drawback, however, of swelling up greatly, and making the mass prone to be elastic, or "rubbery," and consequently difficult to properly cut and roll. In practice it will be found best to mix with it some other inert filler, such as kaolin, which does not swell.

BREAD CRUMB (MICA PANIS).—Bread crumb is of frequent use as an excipient for oils. It is useful only, however, when the oil to be incorporated is in small proportion to the bread crumb, otherwise the oil will "work out" and appear on the surface of the pill. It is suitable for exhibiting croton oil or any other oil given in small doses. Bread crumb has also been recommended as an excipient for silver nitrate. In the writer's opinion, however, it is unsuitable for this, not only because of its organic character, but because of the sodium chloride usually present in dough. The sodium chloride reacts with the silver nitrate and forms silver chloride, and this foils the object of the prescriber.

CACAO BUTTER is but little adapted for use as an excipient for pill-masses because of its low melting-point. It has been used for preparing pills containing oils by melting the latter with the oil, and then massing with kaolin, bolus alba, powdered althea root, etc.

DEXTRIN.—This may be used like powdered acacia; it is not as effective as the latter, however. Only the white dextrin should be used because of the disagreeable odour which the yellow dextrin is likely to impart to pills made by means of it.

EXTRACTS.—Several of the extracts are extremely useful as excipients, and among those most in favour are the extracts of malt, gentian, taraxacum, and liquorice. Confection of roses is also good, and is a favourite in England. The extracts of gentian and taraxacum are particularly useful where inorganic soluble substances are to be massed, and where it is desirable to secure at the same time a bitter- tonic effect. In massing powders with the extracts the labour is sometimes very tedious, and even quite painful when a large bulk of powder is being massed, if care is being taken to avoid using

an excess of extract so as to obviate a tendency on the part of the pills to flatten. To avoid these contingencies it is well to first moisten the powder with a little alcohol and then incorporate with the extract; or, better yet, triturate the extract with a very little water or diluted alcohol, carefully avoiding an excess, of course, and when dissolved gradually add the powder to the solution.

POWDERED EXTRACT OF LIQUORICE is an exceedingly useful general excipient. It possesses very great binding power, and very little of it suffices to yield a firm and rather hard pill. The addition of too much of the powdered extract must be carefully guarded against, else the pills will not dissolve readily. When too much has been used a drop or two of glycerin will remedy the defect and tend to prevent the undue hardening. This extract has the advantage in that it may be added directly to the powders to be massed, and the pills made by simply adding a few drops of water. It is not eligible, of course, where pills are to have a very light colour. (Further information on extract of liquorice as a pill-excipient is given below.)

EXTRACT OF MALT constitutes another very efficient general excipient. Either the syrupy liquid or powder will answer, but the liquid is preferable, because of the proneness of the powder to "cake" or "lump" on account of its hygroscopic character. The extract possesses excellent cohesive power, and pills made with it readily disintegrate.

FLOUR constitutes a good means of massing creosote, guaiacol, and oils generally, a fairly workable mass being afforded by adding a few drops of water, honey, syrup, glucose, extract of malt, etc., after the oils have been triturated with the flour. The extract of malt is particularly good for oils because of its tendency to emulsify these.

GLUCOSE is used just like honey. It is inferior to the latter, however.

GLYCERIN.—This by itself must be used with great caution as an excipient, because, on account of its hygroscopicity, pills made by means of it are prone to become gradually soft, and ultimately flatten out and run together; or, if liberally rolled in powder, the latter forms an uneven, unsightly coating, and the pills present a very poor appearance. Combined with other substances, however, such as powdered acacia, powdered extract of liquorice, dextrin, powdered tragacanth, etc., it is useful because of its ability to prevent pills from completely drying out.

HONEY is one of the best excipients for general use. Besides possessing considerable cohesive power, it in drying yields a porous, crystalline mass of saccharine matter, which is promptly disintegrated on contact with water. Only a despumated light-coloured honey should be used, and this may be even employed with light-coloured powders such as quinine, salicylic acid, salicin, etc., as the finished pills will possess but a very slight, scarcely noticeable, colour. The excipient is particularly useful, because of its saccharine content, in cases where it is desirable to prevent the oxidising action of the air on the pill substance, as in Blaud's pills, in which the ferrous carbonate is effectually preserved from oxidation to ferric oxide by it. It should, however, never be used in pills containing calomel, mercuric chloride, or readily reducible metallic salts.

(To be concluded.)

TREATMENT OF ALOPECIA.—Balzer, to arrest the progress of the disease, treats the hair daily, after thorough washing, with the following solution:—Mercuric chloride, 0.2; acetic acid, 1.0; alcohol (90 per cent.), 100; ether and spirit of lavender, of each 50. To restore the functions of the hair follicles and of the atrophied papillæ the following hair wash is used:—Solution of ammonia, 5; oil of turpentine, 25; spirit of camphor, 125; or, acetic acid, 1.5; chloral hydrate, 5; ether, 25. For the last two the following may be substituted:—Lactic acid, 15; distilled water, 30. To be rubbed into the skin until redness is produced; or, instead of this, an alcoholic solution of acetic acid 1 in 3 may be used.—*Pharm. Post.*, 33, 188.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

Of Minority Representation.

It is not quite obvious why Mr. Broadhead should assume that two-thirds of those who have a vital interest in the work of the Council of the Pharmaceutical Society are invertebrate. If he had said one-third I should have been in agreement with him, but surely he does not consider that the two-thirds of the members who took the trouble to record their votes are to be blamed for so doing. For the one-third who did not vote no valid excuse can be advanced, the more especially as their inaction has resulted in the newly-elected members of Council being returned by a minority of those they now represent. Mr. Hills, whose name comes first in the list of successful candidates, was not supported by half of the electorate and only one of those who had not previously served on the Council received the support of more than one-third of the members of the Society. The result is that the seven members of the Council recently elected are only minority representatives, a state of affairs which could easily have been prevented if a comparatively small proportion of the apathetic members of the Society had recorded their votes. There is, of course, nothing new in the position, but it is so unsatisfactory to find—concurrently with long-continued complaint about the alleged inactivity of the Council—such limited interest taken in the election of our executive body that I cannot refrain from referring to the matter once more, and pointing out to the majority of the members of the Society that they have missed a capital opportunity of making their influence felt in the direction of formulating a definite policy. It may be that many were so contented with the manner in which the Society's affairs have been conducted of late that they did not think it necessary to indicate approval or disapproval by returning their voting papers, but they ought to see that anything like a general prevalence of such a frame of mind may lead to more or less disastrous results, and that it is positively wrong to refrain from recording their votes as they have done.

Appearances may be Deceptive.

Let us, for example, consider the moral deduced from the result of the election by a trade journal, the conductors of which have for many years past been on the watch for opportunities to injure the Society. We are told in the latest issue of that publication that the members of the Society have shown themselves to be distinctly opposed to the position which has been taken up by the Council in regard to the Companies Bill. But though, as I pointed out last week, the balance seems to have turned in favour of the opponents of the "no-surrender" policy, it does not follow that appearances must necessarily be accepted as representing the facts of the case. Indeed, I think there is but little doubt that appearances are quite deceptive on the point in question, and that a poll of the members of the Society, taken now, would fully justify the action which has been taken by the Council. The election did not turn on the company pharmacy problem, and I am firmly of opinion that there is no general desire on the part of British pharmacists to offer concessions which they are not forced to make. If anything, I should imagine the election of three new members on the Council is due to a widespread feeling of dissatisfaction that a definite policy was not decided upon and disclosed much earlier than was actually the case. Those who were dissatisfied—a minority of the electors—wisely made full use of the ballot box to record their views; on the other hand, a large proportion of those who were content that events should progress on the lines which have been followed of late appear to have been too indifferent to back their own opinions. Naturally, therefore, enthusiasm prevailed over indifference, and an attempt is now being made to persuade us that the expressed voice of the minority represents the views of all. But what about the expressed voice of that other minority—almost equal in number—which, as

Mr. Gifford points out, has specifically instructed the Council to surrender nothing and to repudiate anything in the nature of compromise? Are the views of nearly sixteen hundred members of the Society to be totally ignored because rather more than sixteen hundred other members are—according to trade journalists—eager to emulate Esau?

Continuity of Policy Desirable.

I am far from convinced, however, that the minority by which the seven members of Council have been returned is solid on the question of company trading in pharmacy, nor do I see any reason whatever for assuming that the other fourteen members of the executive body—or any portion of them—ought to decide forthwith to abandon the position they have taken up because a trade journal chooses to thrust upon the Council its views regarding the manner in which the result of the election should be interpreted. It is altogether too absurd to suppose that the majority of the Council should sacrifice their most deliberate convictions because three of their late colleagues have been displaced by the caucus, especially since that one of the three who had least votes recorded in his favour was far from being a supporter of the "no-surrender" policy, while the most ardent advocate of that policy narrowly escaped election in spite of his name not appearing on the caucus list. Mr. Hills, therefore, will be well advised to hesitate before acquiescing in the trade journal's direction that he should adopt its "wonderful panacea," and, by so doing, sacrifice his reputation for consistency. Loyalty to his colleagues is a strong point with our past-president, and, as he is to a considerable extent bound by the recent decision of the Council that the only course open is to oppose Clause 2 of the Companies Bill, he can hardly go back on that decision so soon by supporting the retention of the Clause in a slightly modified form. Not that any such step would count for much now that Parliament is about to dissolve and the Bill virtually doomed, but it should hardly be possible for any past-president to propose such an entire change of policy within the space of a few brief months, and certainly not at the dictation of an irresponsible trade journal. Important questions of policy are not to be so lightly decided by administrative bodies, and when once a decision on a momentous question has been arrived at a certain measure of continuity is desirable.

An Important Factor in the Situation.

So far as the future policy of the Council is concerned much may be expected to depend upon the election of a president for the next twelve months, and, in that connection, it is interesting to find that—during the period of the year when the most important business of the Society has to be transacted—a country member of the Council has proved himself fully competent to cope with all the difficulties that presented themselves. It has become customary to consider that, as a matter of course, a London member of the Council should be president of the Society, but the experience of the past few weeks—during Mr. Martindale's regrettable absence on account of ill-health—has shown that there is no reason to suppose that the interests of the Society would suffer in the hands of a country president. Mr. Newsholme, who has for three years acted as vice-president, is generally acknowledged to have fulfilled the difficult duties, which so unexpectedly devolved upon him, in a highly efficient manner. If, therefore, as rumour has it, there is any prospect of London failing to supply presidents, why should not past usage be set on one side and a country member of Council—who has on an emergency officiated in such a thoroughly satisfactory manner—be elected to the highest office with a London member to act as his deputy in case of need? The General Medical Council is now presided over by a distinguished individual who is not resident in London, and it cannot reasonably be contended that the interests committed to the charge of that body are in any degree less important than those over which the Council of the

Pharmaceutical Society has to keep a watchful eye. It will, no doubt, be a heavy tax on a country member of Council to do justice to the office of president, but it is not inconceivable that certain duties which have come to be regarded as inseparable from the position might with advantage be delegated to others. In any case, the Society must have an efficient individual as its head, and, if the London supply should fail, a country member must be prepared to step into the breach. But I would prefer to see the matter considered on general grounds rather than as a case of necessity, and, if the Editor permit, it might be worth while to have the question discussed in the correspondence columns of the Journal.

POLITICAL GOSSIP.

EARLY CLOSING BILLS are evidently subjects upon which political gossipers must touch gingerly. Last week in this column the attitude of Lord Salisbury and the House of Lords in regard to Lord Avebury's Bill was clearly summarised, but we have the misfortune to know that that summary has occasioned some irritation to one of our friends carrying on a retail business in Nottingham, who forwards a post-card of more or less gentle remonstrance. After associating the writer of the "Gossip" with the Premier in a common condemnation, our correspondent asks, "What liberty do you think there is in being compelled to keep one's shop open just because your next door neighbour wishes to work all the hours God sends?" Whatever relevancy or force there may be in this question is, surely, rather for the House of Lords to determine than the Editor of this Journal, for the hostile views put forward in the last issue were expressed at Westminster, not manufactured in Bloomsbury. One other point may also be advantageously stated—namely, that even if Lord Avebury's Bill were passed into law forthwith, it would not benefit retail chemists one jot, for it contains a saving clause expressly designed to meet the special position occupied by the pharmacist in relation to the public. The correspondent referred to, as well as others who may have erroneously imagined us to be opposed to the principle of earlier closing, are hereby assured that if there were the slightest grounds for supposing that the Shops (Early Closing) Bill could beneficially affect chemists and druggists, it would be supported in this Journal in no ambiguous words, and with no suspicion of "faint praise."

SPEAKING OF SHOP HOURS, it is of interest to know that Mr. Cameron Corbett, M.P. for the Tradeston Division of Glasgow, has notified his intention of moving at the first convenient opportunity a resolution in the House of Commons respecting the excessive and unnecessarily long hours of labour in shops. The motion is to be much after the model of the one submitted a session or two ago by Sir John Lubbock, and will assert that long hours are injurious to the comfort, health, and well-being of all concerned. Mr. Corbett's remedy is that local authorities should be granted powers to enable them to carry out the general wishes of the shop-keeping community with reference to the hours of closing. It will probably occur to a good number of the members of the House that the lawful "general wishes" of any aggregation of individuals may be carried into effect now by general agreement without the necessity for interference either by Parliament or by local authorities. It is the lack of that general agreement among the parties concerned that blocks the way to improvement, rather than any political objection to a reduction of shop hours.

CARBURETTED WATER GAS has been impeached several times of late in the Commons. Only a few weeks ago Mr. T. Healy referred to the alarming increase in the death-rate of Dublin, and wanted to lay the blame on the Gas Company, which was alleged to have been surreptitiously sending an increasing quantity of carbon monoxide into the city mains; and now it is Mr. Steadman (Tower

Hamlets) who has raised the question of the use of this poisonous gas—four times as poisonous, he says, as coal gas. Mr. Steadman asked the President of the Board of Trade last week whether there were any regulations or restrictions in reference to the use of this gas by London companies, and, if not, whether he would, upon medical and sanitary grounds, take steps to initiate legislation on the subject. Mr. Ritchie, in reply, admitted that no restrictions existed, and thought that any legislation proposed should not be confined to London, but should have a general application. In the case of general legislation, added the astute chief of the Board of Trade, the Home Office and the Local Government Board would have something to say, and, therefore, it would be impossible for him to make any promise at this period of the Session. This response brings to mind the smooth and efficient dual diplomacy of Messrs. Spenlow and Jorkins!

THE COMPANIES BILL is deferred till Monday, June 18, and, though the trade journals announced this last week, they have only to thank their good fortune that the postponement has fallen so luckily as to prevent their confusion of the measure with the Companies Acts Amendment Bill being detected. As a matter of fact, Mr. Ritchie's Bill was not placed until last Monday, and it is a pure coincidence that it should have been relegated to the precise day upon which Mr. Faithfull Begg's Bill had, the week previously, been tabled. So fortune brings in some boats that are not steered. With Mr. Begg's Bill we need have no concern—it is purely commercial, is thirty-nine down the list, and is "blocked." With the Companies Bill proper there need be very little more anxiety either, for it stands number nine on the agenda, and is preceded by such debate-provoking items as the Australian Commonwealth Bill and the Prevention of Railway Accidents Bill. Moreover, the rumours of approaching dissolution are gathering strength, and even the *Times* is contemplating as an imminent probability the winding-up process of the Session. Mr. Channing reminded Mr. Balfour of his pledges the other night, and asked, through Mr. Bryn Roberts, what the hopes of the Government were in respect to the Companies Bill and the Money Lending Bill. The reply was, perhaps, what might be expected, for though the First Lord did not point a moral by employing the Franklin dictum that they who live on hopes will die fasting, he gave just as little encouragement by saying that the hopes of the Government in respect to the legislation mentioned were embodied in the Queen's Speech. To those who recollect the wording of the speech from the Throne, Mr. Balfour's reply will appeal as being richly humorous.

THOUGH THE FATE of the Companies Bill is now pretty definitely settled, Mr. D. A. Thomas (Merthyr Burghs) will on June 14 make an effort to elicit a ministerial statement on the subject. He has given notice that he will ask the leader of the House whether the Companies Bill embodies the amendments which were said by the Government to be required in the law relating to limited companies, and which occupied the first place in the ministerial programme at the commencement of the Session. Further, the honourable member will allude to the length of time the subject of company reform has been before Parliament, and will ask point blank whether there is any intention to proceed with the Bill this Session—if so, when will the second reading be taken?

PATENT LAW REFORM may not be so far distant as one, knowing the strength of departmental armour, might be supposed to imagine. Sir J. Leng has often raised his voice against the system which enables a patent to be granted in respect to a device or a process that possesses no novelty, and has nothing of intrinsic value to recommend it. The Pharmaceutical Council, too, has, time after time, tried to prevent the granting of patents for medicinal preparations which were as old as the hills, and were only passed through the Patent Office for the purpose of escaping

the jurisdiction of the Pharmacy Acts, but such action has always been in vain, inasmuch as the Comptroller had no power to notice objections of that kind, and was obliged to inform objectors that they must go to the Chancery Court and put in motion expensive, slow-moving legal machinery if they wished to quash a bad patent. Now, however, a Departmental Committee has been appointed by the Board of Trade to consider, amongst other things, whether any, and if so, what, additional powers should be given to the Patent Office to control, impose conditions on, or otherwise limit the issue of letters patent in respect of inventions which are obviously old, or which have been previously patented in Great Britain. The members of the Committee are Sir E. Fry, the Master of the Rolls, the Solicitor-General, Sir W. Houldsworth, M.P., Mr. J. Fletcher Moulton, Q.C., M.P., Mr. F. J. S. Hopwood, C.B., Mr. S. E. Spring-Rice, C.B., Col. T. W. Harding, Mr. Herbert Hughes, and Mr. Arthur Paget as Secretary. It is understood that the Board of Trade is not disposed to act upon any suggestions for the institution at the Patent Office of a regular system of examination as to novelty of applications for patents that may be sent in, but it is gratifying to find that the possibility of doing something towards stopping outrageously bad patents has found official recognition at last.

MUNICIPAL TRADING is in course of investigation by the Joint Committee of both Houses of Parliament recently appointed. Up to the present the hybrid body has had two sittings, under the presidency of Lord Crewe. Sir C. Boyle, the Chairman of Committees of the House of Lords, and one of the principal clerks to the Home Office, have been examined, but only in so far as concerns the procedure officially adopted in regard to local authorities applying for powers in respect to gas, water, electric lighting, and tramway concerns. Apparently there is no intention to go beyond these items of local activity.

PROCEEDINGS UNDER THE PHARMACY ACTS.

ILLEGAL SALE OF LAUDANUM.

The Procurator-Fiscal (Wigtown) v. Richmond.

At the Sheriff Court, Wigtown, on Tuesday, May 1, before Sheriff Watson, Henry Richmond, stationer, North Main Street, Wigtown, was charged, at the instance of the Procurator-Fiscal, who was acting on instructions from the Lord Advocate, with selling a quantity of laudanum in contravention of Section 15 of the Pharmacy Act, 1868, and with keeping open shop for the retailing, dispensing, and compounding of poisons, he not being a duly registered pharmaceutical chemist, or chemist and druggist. Defendant pleaded guilty to the first charge, and was fined 10s., and £1.9s. 6d. costs.

Pharmaceutical Society v. Robertson.

At the Sheriff Court, Linlithgow, on Friday, May 25, 1900, before Sheriff McLeod, Kate Robertson, assistant in the shop of Dr. Alexander Scott, Main Street, Broxburn, was charged, at the instance of the Pharmaceutical Society, with selling a quantity of laudanum in contravention of Section 15 of the Pharmacy Act, 1868.

Mr. Peter Morison, jun., S.S.C., appeared for the Society. Accused pleaded guilty.

Dr. Scott, who was allowed to make a statement, said he had only taken over this business about eight months ago. Miss Robertson was his apprentice, and there was also in the shop an unqualified chemist, who was studying for his examination and expected to pass in July next. The shop was under his (Dr. Scott's) supervision and that of his medical assistant, who were out and in during the day several times. It was not on economic principles that he employed only unqualified assistance, as he paid as large a salary as he would have to do if he had employed

a qualified chemist. These unqualified assistants were in the shop when he took it over, and to have dismissed the assistants would have damaged his relations with the people in the town. He was helping them to get qualified. The shop was generally in charge of the unqualified chemist, but on this occasion he was out for tea, and it was just an accident that Miss Robertson sold the laudanum. She had instructions not to sell laudanum.

The Sheriff: If a prescription had been brought into the shop, who would have made it up?

Dr. Scott: I usually see them made up. If the unqualified chemist was in he would make it up.

The Sheriff: I am afraid, Dr. Scott, that your own admission comes to this, that if the unqualified chemist had been in he would have sold the laudanum without hesitation, so that in any case an offence would have been committed. He is no more qualified to sell laudanum than Miss Robertson. I do not see that your only course was to dismiss these assistants; you might have taken in a qualified man for a month or two till your assistants qualified.

Dr. Scott: I only use the shop for my club medical practice, and it is conducted at a financial loss.

Mr. Morison said these proceedings have been taken in consequence of complaints made to the Registrar that poisons are being illegally sold in this shop. Dr. Scott's statement is really an aggravation of the offence, for he admits that he could have employed a qualified chemist for the salary he at present pays. The unqualified chemist is no more entitled to sell poisons than the accused. The doctor knows the law quite well. It is far too common for doctors to keep open shop for the general sale of all kinds of poisons, and to employ no qualified assistants at all. The last case we had was in Airdrie, where laudanum was sold in a doctor's shop by an unqualified person to a little child, whose mother committed suicide. It is very unfortunate that we should have to bring this lady before your lordship, but the law provides that the actual seller is liable, and we have no means of getting at the doctor. He is the real offender, and surely he will see to it that he shall pay any penalty which the Court may impose. I have to ask your lordship to impose the penalty provided by the Statute.

The Sheriff: The last case before me was a sale of belladonna plaster. I regard this as a more serious case. I must tell you, Miss Robertson, that when an interesting and attractive young lady like yourself is brought here on any charge there is a natural inclination to allow you to go with an admonition. But there is a very obvious reason why I cannot do so. If I did, then all the chemists in the country would engage attractive young ladies as their assistants, and the object of the Statute would be defeated. I must impose a penalty just as if you were a man. The penalty will be £3, with £1 7s. 8d. of expenses.

Accused: I cannot pay the fine.

The Sheriff: Shall I, Mr. Morison, insert in the judgment power to recover by poinding or imprisonment?

Mr. Morison: I am informed by Dr. Scott that he does not intend to pay the fine, and therefore I must ask your lordship to insert recovery by poinding in the conviction. But imprisonment is not competent.

The Sheriff: I think it is. Section 8 of the Summary Jurisdiction Act, 1881, surely gives that power to the Sheriff. It is evident that in this case there is nothing to poind, and that means of recovery will be of no avail. In such a case, if there is no power to imprison, no real punishment can be inflicted, and the whole prosecution becomes a farce.

Mr. Morison: There is a decided case in Law Reports 35, which lays it down that where a particular Act provides a specific method of recovery imprisonment is excluded. That is our position, because the Pharmacy Act, 1852, specifies poinding.

The Sheriff: Very well, I shall say poinding, but the sooner you seek to have that Act amended so as to permit of imprisonment in a case of nonpayment of the penalty the better.

LETTERS TO THE EDITOR.

Gelatin Capsules in Pharmacy.

Noticing in the current issue of the *P. J.* the desire of Mr. Rogers for soft gelatin capsules, may I make a suggestion? The preparation of soft gelatin capsules in small quantities is very simple; all that is requisite is to have a small stock of moulds, say, three sizes (half dozen of each). I have found those to be the best which are recommended in the 'Art of Dispensing,' and the formula given in that book is the one I have been most successful with. The moulds are very slightly oiled with almond oil and dipped in the melted gelatin basis to a short distance up the stalk, so that when the capsule is removed, as it can be in a few minutes, a small funnel of gelatin is left above the capsule. The capsule may now be filled with powders or liquid, as the case may require, the funnel of gelatin preventing waste. When the capsule is full the funnel is cut off, and the orifice closed by dropping a little of the melted gelatin basis on it from a glass rod; the capsules are left a few minutes to harden, and are then ready.

London, May 28, 1900.

F. MIDDLETON.

Standardisation of Cinchona Preparations.

Mr. Stenhouse states that he finds it difficult to understand how I arrive at the conclusion that his process for determining the alkaloids in cinchona liquid extract and tincture "gives a low result." He goes on to say that he sees no reason for departing from the method of assay which he proposed in the *Journal* of January last, and that a mixture of ether and chloroform in the proportion of 1 of the former to 9 of the latter amply ensures the removal of the alkaloid. Mr. Stenhouse cannot be aware that in his original process he recommends the use of a mixture of ether and chloroform in the proportion of 9 of the former to 1 of the latter, which is a very different solvent from one consisting of 1 of ether to 9 of chloroform, which he now recommends. I can only repeat that the solvent in which the ether predominates separates excellently and causes no trouble, but "gives a low result." On the other hand, the one in which chloroform predominates produces in my hands almost insuperable emulsions. His process involves the shaking of the diluted galenic with ammonia and the chloroform mixture in the first place, and this principle is practically obsolete. That of a preliminary shaking with acid and the solvent takes its place with advantage.

Stroud Green, N., May 29, 1900.

J. A. DEWHIRST.

Income-tax Overcharges.

Although it is generally understood that the cost of the South African war will ultimately have to be borne by the Transvaal and Free State, we fear that the British taxpayer will not for some time obtain any relief in regard to the rate of the income-tax, which now stands at no less than five per cent. of the assessed income. It is, therefore, the more necessary to bear in mind that while the rate of the tax may remain the same, it is possible in many cases to obtain relief by way of abatements that have not already been allowed. In the matter of overcharges under Schedule D, the small trader often fails to obtain relief through his inability to furnish accounts satisfactory to the Inland Revenue authorities, consequent on the fact that he has kept no complete record of his business transactions. It is noteworthy that those who are thus compelled to submit to over-assessment are the very class upon whom the tax falls most heavily. If proper accounts be kept, or even if a cash account be presented—which, by the use of 'The Taxpayer's Cash-Book,' becomes a perfectly simple and easy matter—there is very seldom any difficulty in establishing a just claim. Those who paid too much for the year 1899-1900 should at once appeal against the assessment for that year, or they may be told that they are too late. Thousands of people who pay tax for which they are not liable can now claim repayment for three years; the amount

recoverable might in the case of many amount to upwards of £30. We shall be pleased to advise your readers gratuitously whether they are entitled to any repayment in respect of tax deducted from rents, interests, dividends, annuities, etc., whether paid "free of income-tax," or not, and also in respect of life assurance premiums, on their sending us full particulars of their incomes from all sources and a stamped directed envelope for reply.

THE INCOME-TAX ADJUSTMENT AGENCY, LIMITED.

12 and 13, Poultry, London, E.C., May 30, 1900.

ANSWERS TO QUERIES.

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

PYROCATECHIN DEVELOPER (R. D.—42/24).—Yes, it should be sodium sulphite.

SALARY (C. W. C.—42/26).—It is difficult for us to say, but probably about £80 per annum.

BACTERIOLOGY (F. J. Y.—42/27).—Crookshank's 'Bacteriology' is published by H. K. Lewis, at one guinea net.

WALNUT JUICE (D. L.—42/25).—There is no difficulty about staining the skin with it, as you will find if you apply a little. The stain cannot readily be removed, but it wears off in time.

BOTANICAL WORKS (J. H.—33/21).—Of the books you possess, let him begin with Edmonds', with as much practical work as possible on fresh material. He should begin field work, with the aid of Shirley Hibberd's 'Field Flowers' (Groombridge, 4s.).

SOLUBLE ESSENCES (O. D. N.—42/3).—Foreign houses who prepare "terpeneless essence of lemon" are (1) Heinrich Haensel, Pirna-on-the-Elbe, Germany; London agent, William Poppelreuter, 19, St. Dunstan's Hill, E.C. (2) Messrs. Schimmel and Co., Leipsic, Germany; London agent, Mr. McCrombie, Mincing Lane, E.C. Citral, or geranic aldehyde, is contained in essence of lemon to the extent of about 7-10 per cent. Terpeneless oil of lemon contains other oxygenated constituents besides citral, e.g., citronellal. Citral does not therefore exactly represent the flavour of essence of lemon. This is readily observable if citral, instead of essence of lemon, be used in flavouring sherbert. A process for preparing the concentrated or terpeneless oil of lemon is given in 'Notes on Essential Oils,' by T. H. W. Idris. Oil of verbena, or lemon grass oil, contains, according to J. C. Umney, 44-75 per cent. of citral. It is also present in considerable quantity in the oils of *Backhousia citriodora* and *Eucalyptus staigeriana*. For methods of preparing citral artificially see Gildemeister and Hoffman 'Die Ätherischen Oele' (p. 212-213), published by Julius Springer, Berlin, 1899. Citral is used to add to ordinary essence of lemon to increase its strength. Thus the proportion of 7½ grammes of citral to a kilogramme of normal essence of lemon is recommended by Messrs. Schimmel and Co. (*Bericht*, April, 1897) to double its strength and 22½ grammes of citral to quadruple its strength, on the supposition that 7½ per cent. of pure citral is the average percentage present in normal essence of lemon. A soluble essence of lemon is also sold which is prepared from the fresh lemon peel by means of alcohol, which dissolves the oxygenated constituents but not the terpene (citrene). We are not aware of any book devoted especially to the manufacture of soluble essences. You will find a chapter on the subject in MacEwan's 'Pharmaceutical Formulas.'

PHARMACEUTICAL JOURNAL.

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WHAT IS THE MANDATE ?

BEFORE the passing of the Pharmacy Act, 1868, a present member of the Council—who then occupied the position of a local secretary and, in that capacity, had been requested to assist the Council by obtaining an expression of opinion on the Bill which had been proposed—wrote a letter to the Journal in which he said “it is a source of regret that a more cordial spirit of co-operation does not exist among ourselves as chemists and druggists. We present another illustration of the sad truth that ‘a man’s foes are they of his own household.’ Our greatest difficulty will not be the House of Commons or the nation, but our divided position before them both.” Notwithstanding the lapse of time since that statement was made, a similar condition exists—in spite of the provision that has since been made, by legislation and otherwise, for protecting the interests of chemists and druggists, for bringing them into harmony with the interest of the public and, on that basis, securing protection of those who carry on the business—the incoherence prevailing at the present time among chemists and druggists is as great as, if not greater than, it was when that letter was written. In the first place the Pharmaceutical Society—the only possible means through which protection of the interests of chemists and druggists can be made effective—numbers only about one-third of the persons who are engaged in the business and are, thus, brought into continual contact with conditions which make them feel the want of protection. That such a state of things should continue is almost inconceivable, especially since the support of other attempts to provide protective organisation has proved the want and should, with experience of the failure of those attempts, have brought conviction as to the mode in which protection is alone possible.

Even in the narrower range of members of the Society, there is similar evidence of incoherence and of great diversity of opinions relating to matters of primary importance, which suggest the divided house and its natural consequence. Thus, for instance, on the subject of company trading, as it affects the position of chemists and druggists, the views entertained seem either unintelligible or quite irreconcilable. After all that has been said and written about that subject by chemists and druggists, the fact that one-third of the Society’s members, apparently, took no part whatever in an election that was supposed by some to involve decision as to

the mode in which that subject should be dealt with, is in itself passing strange. Is it to be inferred that the non-voters were absolutely indifferent to this matter? Or can it be that where, as some say, their very existence is at stake, they are content to leave their interests to chance and altogether in the hands of others? What, moreover, is to be inferred from the action of those who voted in the recent election of members of Council, but the existence of division that is most perplexing? One of the newly elected members of the Council—who takes a very liberal view of pharmacy—has emphatically declared that it is no part of the Society’s business to take part in the regulation of companies that undertake to sell or dispense poisons; that its protective action should be strictly confined to defending the right of registered chemists to exclusive use of the title indicating their qualification. Two others, on the contrary, are willing to sacrifice the principle of qualification by compromise; they propose that the Society should undertake the task of regulating companies; while one of them has advocated the recognition of such companies—in the position of legally qualified persons—provided they are “controlled” by qualified directors or managers—a proceeding which appears to be like hanging on to the shadow of proprietary qualification after the substance of it has been lost, besides having the further objectionable feature of failing to secure public safety by requiring effective qualification of the actual seller or dispenser of poison.

The opinion expressed in a recent article as to the unaltered position of the Council in regard to the Companies Bill as it now stands, will probably not be adopted by every one; it may even be that, in some quarters, the result of the Council election will be considered as affording some indication of a course to be taken different from that hitherto adopted by the Council. How far that view is justified is, however, a question that is not, by any means, settled by the election results, for—without any reference to the effect produced by abnormal efforts to counteract what is scoffingly spoken of as “the Bloomsbury clique”—it is evident that each of the newly-elected members of Council has only been returned by about one-third of the members of the Society, the other two-thirds in each instance either voting against them or remaining inactive. If, therefore, the judicial decision—that, when a company employs a qualified seller or dispenser, the public object of the Act, 1863, is sufficiently secured—has to be accepted by chemists and druggists as an authoritative construction of the Act, it is by no means a necessary consequence that Clause 2 of the Companies Bill could be opposed only in so far as it proposes to give away the title by which the qualification of individuals to sell or dispense poisons is to be indicated for the safety of the public. That proposal is utterly irrational, whatever may be said of the common-sense view that seems to have been taken by the LORD CHANCELLOR of the claim to keep open shop when considered in conjunction with the provisions of the Widow’s Clause. But keeping open shop for the sale or dispensing of poison, and the use of a title denoting qualification, are so closely connected that they, almost of necessity, go together. If either be admitted, the other must also be admitted. Consequently Clause 2 must be opposed altogether. There is no reason for supposing that, by augmented membership, the interests to be protected by the Society—either as a representative

or as an administrative body—have been changed as well as enlarged: they are still the interests of legally qualified persons. Unless regard for the “enlarged interests,” by which it is suggested that the action of the Council is to be regulated, means a return to free trade in physic, the purport of the electors’ mandate would seem to amount to nothing more or less than continuance of the policy the Council has already decided upon. In any case no reason has been shown for the action of the Council being controlled by those who have abused, bullied and—as far as they could—injured the Society.

COMPANIES BILL.

As substitutes for Clauses 2 and 3 of the Companies Bill, the following suggestions may be useful inasmuch as they would serve to bring companies within the operation of the Pharmacy Act, but would not, like the proposed amendments, involve sacrifice of the principle of qualification and of the use of a title to distinguish qualified persons.

2. No company may carry on the business of retailing, dispensing or compounding any article that is, or may be hereafter declared, a poison within the meaning of the Act, 31 and 32 Vic. cap. 121, unless the sale, dispensing or compounding of such article is, in every instance, conducted on behalf of the company by a person duly qualified under that Act, who shall conform to all statutory regulations relating to such business, and in case of any contravention of this enactment, either by a company or by the negligence of any person acting in its behalf, the company shall be liable, on summary conviction, to a fine, etc.

3. It shall be unlawful for any company to assume, use, or exhibit the title of physician, surgeon, dentist, pharmaceutical chemist, or chemist and druggist, or any name, title, or sign, implying legal qualification to carry on the profession or business of a physician, surgeon, dentist, pharmaceutical chemist, or chemist and druggist, and any company contravening this enactment shall be liable on summary conviction to a fine not exceeding five pounds for every day during which the contravention happens.

THE CHIEF OBJECT OF THE SOCIETY.

In the report of the Nottingham Association meeting which was received shortly before going to press, Mr. FITZHUGH—in returning thanks for his re-election as President for the twentieth time—spoke of the benefits which have been conferred by the educational work of the Association, and of the progress it has recently made. While advocating “a more severe test for students,” he expressed a hope that the Pharmaceutical Society would at the same time give more benefit to the outside members. If we do not misunderstand Mr. FITZHUGH in supposing that he referred to more systematic teaching that would enable candidates to acquire the requisite knowledge, and pass the qualifying examination with greater certainty, his further remark in reference to protection to the trade is but an expression of the view which has always been held by the Society, viz., that protection of those engaged in the business can be expected only as a result of systematic educational training, and that whatever the nature of the particular trade carried on by a chemist and druggist, it is only from the professional side that he can look for advantage over other traders.

ANNOTATIONS.

THE PRESIDENT OF THE PHARMACEUTICAL SOCIETY has always been a member of the Council residing in London, and in the course of the past sixty years it has come to be regarded as a necessity of the situation that such should be the case, though there is nothing in the Royal Charter or elsewhere to restrict the choice of the Council in the matter. The probability is that—as the Council consisted almost exclusively of London members during the early years of the Society’s existence, but few provincial members being elected on the representative body until after the Pharmacy Act of 1868 was passed—there was originally no option in the matter, and that what was thus at first a matter of necessity became an established custom in the course of years. It is a fact worthy of note, by the way, that only three out of the twelve Presidents prior to 1868 were not members of the original Council of the Society; since 1868 there have been only eight Presidents, not one of whom was a member of the original Council. The whole twenty, however, have resided during their term of office in the metropolitan district and, as a matter of convenience, it has been found distinctly advantageous for the President to reside in London. In the early days, when travelling facilities were not what they are at present, it would have been impossible for country members of Council to attend at headquarters as frequently as is desirable in the case of the President, and grave inconvenience might have been caused to everyone concerned when affairs of weight were under prolonged consideration. That difficulty is now minimised, though it will still remain a serious undertaking for any member living at a distance from headquarters to bind himself to spend a considerable portion of the year in London. That consideration, however, will not arise if a country member should be found willing, in case of need, to act as President, and, the conditions to-day being so different generally from those of twenty or thirty years ago, the only reasons that can be advanced for maintaining the old custom are that it has always prevailed, and that the Council has never thought it necessary or worth while to alter it.

IN VIEW OF THE FOREGOING FACTS it is quite easy to see both why the early Presidents should all have been London pharmacists and why, when the custom had been established for more than a quarter of a century, a habit should have been formed, which has never since been broken. Nevertheless, it is only an unwritten rule that the President of the Society should be a London pharmacist and, in case of need, it would be quite easy to suspend that rule. As will be seen at page 599, it is suggested by “An Ordinary Pharmacist” that, in view of the possibility of any difficulty being experienced in filling the presidential chair after Mr. Martindale’s retirement, the Council might do well to take advantage of the opportunity which, in his opinion, now appears to present itself for making such a change. This is not the first time the suggestion has been made, and only a few months ago a letter was received from a member of the Society, in which the appointment of a country member of Council as President was advocated. It was felt at the time, however, that since the selection of President is essentially a matter for the Council to deal with, the topic was hardly suitable for discussion in the correspondence columns of the Journal, the more especially as there appeared to be no immediate necessity for its consideration. But since there are now indications that the point may have to be dealt with before long, and there is no particular reason that members of the Society should abstain from expressing their views on the matter, as on all others connected with the affairs of the body corporate, no objection need be taken to the publication of suitable letters on the subject.

SO FAR AS ABILITY is concerned, there have always been country members of Council as capable of fulfilling the duties associated

with occupancy of the presidential chair as any of their London colleagues. Whether or not Mr. Newsholme would be willing to accept the responsibilities of the higher office we are unable to say, but, as recent experience has proved, there is no question of his ability to perform the duties of President in a manner that would give general satisfaction. The same may be said of other country members of Council, but, though the interests of the Society would undoubtedly be properly cared for in their hands, the difficulty remains that no one living at a distance from London may be prepared to devote the necessary time and attention to the conduct of the Society's affairs. The appointment of a London member as Vice-President would, of course, go far to meet that difficulty, and possibly, as our contributor suggests, certain duties which have come to be regarded as inseparable from the position of President might with advantage be delegated to others. In fact, there is good reason for believing that matters could be quite satisfactorily arranged in case of need. But whether the occasion to effect so novel a change may arise in the immediate future remains to be seen. Apart from that, however, it is well to be prepared for all eventualities and, as the constituents of a purely democratic body, the members of the Society may do well to devote careful consideration to the subject and to accustom themselves to an idea which, after all, is not so revolutionary as it may appear to them at first sight.

THE PRELIMINARY EXAMINATION conducted by the Pharmaceutical Society will be held for the last time in a few weeks from the present date, and it is satisfactory to find that opposition to the coming change in that direction is dying out, particularly in Scotland, where objection to the raising of the standard of elementary education has been most strongly manifested. At the annual meeting of the Forfarshire and District Chemists' Association (see p. 611) Mr. Kermath is reported to have said that, though he had been opposed to the change, he had since been looking into the matter, and was now inclined to think the new scheme might work out better than he had previously thought. There is not the least doubt that it will work out much better than the existing system, and any little difficulty that may be experienced in securing apprentices, because of the increased severity of the preliminary test, should be much more than compensated for by the better class of youths who may, in future, be expected to take up pharmacy as a profession. Registered chemists must rid themselves of the notion which leads so many of them to regard apprentices as a source of cheap labour. That idea has been responsible for much of the trouble which has come upon pharmacy as a trade and retarded its progress as a profession. But an opportunity now presents itself for getting rid, once for all, of the inferior material which it has been customary to introduce into the ranks, and it would be as well for chemists to resign themselves to the inevitable and endeavour to help themselves in a more creditable manner than is implied in lamenting the lack of cheap labour which is, in reality, dear at any price. Above all, it should be remembered that the desirable reform which involves the raising of the standard of elementary education among pharmaceutical students was initiated in Scotland.

THE QUALIFYING EXAMINATION was the subject of discussion at the same meeting, Mr. Kermath having introduced the topic by moving that the examination regulations should be altered, to the extent that candidates may be credited with the pass marks they obtain in any subject, even though they fail to satisfy the examiners in other subjects. His plea was that an endeavour should be made to lessen the burden of the examination to candidates, a thing which is eminently desirable in itself, provided nothing is done which may impair the standard of efficiency. Mr. Kermath thinks it is very hard that a candidate who has been successful in part of the examination should be compelled to present himself a second

time for that part because he has previously failed in other subjects. But it would be equally hard, if not harder, upon the public if a sense of pity were allowed to prevail and a number of unfit persons were sent out with the Pharmaceutical Society's hall-mark, nominally qualified to handle and distribute potent remedies with the skill and discretion such duties demand. As long as the State insists upon the due qualification of those who compound, dispense, or retail poisons, so long must the Society maintain a proper standard of efficiency, and that cannot be done if ill-prepared candidates are permitted to pass the qualifying examination in instalments. In drafting his original proposition Mr. Kermath evidently intended to permit candidates to pass in one subject at a time, but such a relaxation of the existing conditions would obviously lend itself to great abuse. Under such conditions cram would be more rampant than ever and registration would cease to be synonymous with qualification.

ALL MR. KERMATH'S ARGUMENTS might fitly be advanced in favour of imposing a compulsory curriculum, the one thing which would thoroughly justify splitting up the qualifying examination in a manner that would commend itself to many pharmacists. It is unfortunately true that pharmaceutical students are not, as a rule, educated at public schools, but that is no reason why apprentices should be taken from a very inferior class. If youths of the better classes prefer to enter some other profession, that is probably because too many of those who profess to practise pharmacy have not been careful to maintain the standard of their profession at a proper elevation. If the right class of youth is to be attracted to pharmacy, let it be understood that no one can secure registration as a pharmacist unless he is well educated generally, has been trained by a practising pharmacist for three years or more, and has gone through a compulsory course of study, supplemented by examination. As it is, the ranks have been crowded with illiterates who have been unable to secure the necessary technical training and, finding no real apprenticeship or proper course of study essential, have delivered themselves into the hands of the crammers and—presenting themselves for examination—attempt to foist themselves off as duly qualified individuals fit to be registered. Mr. Kermath thinks there is a danger of aiming at too high an ideal, which can never be attained; but even if so, that is better than attempting to fathom the bottomless depths of illiteracy and inefficiency. Fill the ranks of registered chemists with individuals who are unfit to enter any profession, and neither protection of titles nor any other privilege need be looked for. That is the moral to be drawn from the report of Mr. Kermath's utterances; no one has put the case for a compulsory curriculum better for many a long day.

THE PHARMACOPŒIA COMMITTEE of the General Medical Council, in its latest report, which was adopted by the Council on Wednesday, states that 31,500 copies of the British Pharmacopœia of 1898 have been printed, and 28,783 of those have passed into circulation, leaving in hand 2,717 copies. A communication from the Privy Council, forwarding a copy of a Note addressed to the Secretary of State for Foreign Affairs by the Belgian Minister, on the subject of a proposed International Pharmacopœia limited to drugs of a drastic nature, has been referred to the Committee, and it is recommended that, should an International Conference on the subject in question be arranged, the Council should be prepared to appoint representatives to participate in it, and to authorise the President to appoint one or more members to act as delegates. Another meeting has been held of the Conference of members of the Pharmacopœia Committee with representatives of the Pharmaceutical Society of Great Britain and the Pharmaceutical Society of Ireland, and on its recommendation certain questions of a pharmacological and pharmaceutical nature have been referred to experts for further investigation and report.

THE CANADIAN SUGGESTION, recently referred to in the Journal (*ante*, p. 483), appears to have been taken up by the authorities, since the report of the Pharmacopœia Committee states that communications have been opened with the United States authorities with a view to bringing about greater uniformity in the official preparations contained in the British Pharmacopœia and the United States Pharmacopœia respectively; and the hope is expressed that, by mutual concessions, important approximations and assimilations in the contents of the two works may be ultimately secured. Further communications have been received with reference to the Indian and Colonial Addendum, and important suggestions from Canada have been considered by the Committee in detail and reported on. It is hoped that a final draft of the Addendum may be presented to the Council at the November meeting, and that the Addendum itself may be authorised for issue by the end of the year. In conclusion, it is stated that, by the assiduous efforts of Dr. Leech, a valuable collection of British and foreign works bearing on the history and development of the Pharmacopœia has been got together and deposited in the Council's office. Thanks are expressed to Dr. Leech, Mr. Bryant, Mr. Ekin, and Mr. Walter Hills for important contributions to that collection, and the Committee hopes that from time to time further additions may be made to it by members of the Council and others. A list of the works already deposited has been printed, and occupies sixteen octavo pages.

A PHARMACY ACT CASE, reported at page 601, is interesting as showing how prosecutions under the Act may, as Sheriff McLeod expressed it, become a farce. The defendant, a female assistant in a shop belonging to a medical practitioner, was charged with the illegal sale of laudanum, and pleaded guilty, but is unable to pay the fine imposed by the Sheriff. Her employer, who is morally responsible, declines to pay the fine, and as the terms of the Pharmacy Act, 1852, do not permit of imprisonment in default, the defendant gets off scot free. Another Scotch case, brief particulars of which are given this week, is remarkable for the fresh light it throws upon the operation of the Pharmacy Act of 1868 in Scotland. In England and Wales, as is well known, the Pharmaceutical Society alone can institute proceedings under Section 15 of that Act, and it has been thought that, in spite of the great difference in procedure in the English and Scottish Courts, the same was the case in Scotland. It is claimed, however, that, in accordance with Scotch law, a Procurator-Fiscal, in virtue of his office as public prosecutor, has a concurrent title to prosecute for offences under Section 15, the procedure in such cases being governed in Scotland by the provisions of the Summary Jurisdiction Acts. Until the case reported at page 601 was instituted, the Lord Advocate—who instructs the Procurator-Fiscal—has always contented himself with notifying the Pharmaceutical Society of offences under Section 15, when reported to him, but in the present instance he has authorised a prosecution without referring the matter to the Society, a penalty has been imposed, and what appears to be a further complication is introduced in connection with the administration of the Pharmacy Acts in Scotland.

THE SECRETARY OF THE PHARMACEUTICAL SOCIETY has been surprised at receiving from the postal authorities on Thursday, May 24, 1900, a voting-paper posted at Bristol by a member of the Society on May 25, 1891. It appears to have travelled from Bristol to London without delay, the post-mark of the W.C. district office being dated May 26, 1891. But the space of nine years, less two days, elapsed before the voting-paper reached its destination at 17, Bloomsbury Square. Moreover, the sender has now been dead for three years

ENGLISH NEWS.

THE STUDENTS OF THE MANCHESTER COLLEGE OF PHARMACY spent a most enjoyable and instructive afternoon on Wednesday, May 23, in looking over the extensive warehouses and works of Messrs. Evans, Sons, and Co., Liverpool. The party, which numbered about fifty, left Manchester in two reserved saloons at 1.30, and on their arrival proceeded, under the guidance of Mr. Wellings, to see the enormous stores of drugs, etc. The Montserrat lime-juice, of which there were piles of pipes, evolved a most appetising odour. Mr. Bird took charge of the party at the works in Fleet Street, and described fully the many stills, drug mills, and other pharmaceutical appliances—in one pan there was being prepared 200 gallons of ext. cascar sagrad. liq. in a percolator of gigantic size, a ton of podophyllum rhizome was being exhausted for the preparation of resin, and a similar percolator was at work with a ton of scammony root. The ingenious contrivances for the recovery of the spirit were explained. The hydraulic tincture press, working at 300 tons pressure, was most interesting. Mr. Evans jun., joined the party later in the afternoon, and afterwards went with them to the tea which had very kindly been provided by Messrs. Evans for the visitors. A cordial vote of thanks was proposed to the firm by Mr. J. L. Scott, seconded by Mr. Boothroyd and carried with hearty goodwill.

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION.—A meeting of this Association was held in the Lecture Theatre, at 17, Bloomsbury Square, on Friday evening, May 18, Mr. E. M. Chapman in the chair. The minutes of the previous meeting having been read and confirmed, the Chairman called upon Mr. H. Deane to read a paper on "Explosives." Mr. Deane, after giving a brief *résumé* of the history of the development of explosives used in war, proceeded to give an account of the manufacture of the more important explosives in use at the present day, paying particular attention to nitroglycerin and gun-cotton. Specimens of gun-cotton, blasting-gelatin, roburite, and fuses of different kinds were handed round for inspection. At the conclusion of the paper many members expressed their thanks to Mr. Deane for the interesting manner in which he had dealt with his subject, and several questions were asked. Mr. Deane having answered the questions put, the Chairman thanked him for the paper. Mr. Chapman also called the attention of the meeting to a specimen of *Utricularia* on the table, kindly lent by Mr. Pollard. Some discussion with regard to this plant had arisen at the previous meeting of the Association.

POISONING BY CARBOLIC ACID.—The Birmingham coroner held an inquest on May 23 with respect to the death of a child named Charles Henry Docker (4), of Paradise Terrace, Darwin Street. Evidence showed that on the previous Sunday, while alone in the bedroom, he picked up a bottle containing carbolic acid, of which he swallowed a quantity. "Death by misadventure" was the verdict.—Another death from the effects of carbolic acid poisoning occurred at Shenfield on Friday, May 25, Henry Linsell, a jobbing carpenter of Ilford, being found lying dead in a field. At an inquest, held on Saturday, a verdict of "Suicide by carbolic acid poisoning while in an unsound state of mind" was returned.

SALE OF SPIRIT OF NITRE.—On May 16 at Fenton Petty Sessions, before the Stipendiary Magistrate, Isaac Bowers, grocer, Fenton, was ordered to pay the costs, 16s., for selling sweet spirit of nitre deficient in ethyl nitrite to the extent of 33 per cent. It was stated that the deficiency was due to improper storage, and the magistrate remarked that it was indiscreet for small tradespeople to keep drugs, the properties of which they know nothing.

SCOTTISH NEWS.

WEST OF SCOTLAND COLLEGE OF PHARMACY.—On Thursday May 24, being the Queen's Birthday holiday, the students, conducted by Mr. Thomas E. Barrie, botanised along the Clyde from Cambuslang and Carmyle to Kenmuir. The turn-out of students was the largest on record, and in honour of the event Mr. Barrie had the party photographed. A large number of specimens was collected and studied, the following being a selection:—*Caltha palustris*, *Ranunculus ficaria*, *R. acris*, *Barbarea vulgaris*, *Cardamine amara*, *C. pratense*, *Lychnis diurna*, *Stellaria holostea*, *Pyrus padus*, *Geum rivale*, *Cytisus scoparius*, *Vicia sepium*, *Myrrhis odorata*, *Taraxacum officinale*, *Doronicum pardalianches*, *Petasites vulgaris*, *Lamium album*, *Myosotis palustris*, *Symphytum officinale*, *Agraphis nutans*, *Allium ursinum*.

POISONING BY POTASSIUM BICHROMATE.—Robert Smith, the one-year-old child of William Smith, Renfrew, died on May 23 from the effects of chrome poisoning. While the mother was making breakfast on Sunday the baby picked up from the floor a piece of potassium bichromate, which had been used for some laundry purpose, and sucked it. A doctor was at once called in, but the child died, after great suffering.

POISONING BY CARBOLIC ACID IN EDINBURGH.—On Sunday morning last, about two o'clock, Mrs. Susan Elliot, fifty-nine years of age, 12, Haddington Entry, Canongate, Edinburgh, took a draught of carbolic acid in mistake for a kind of non-alcoholic ale. The deceased's husband and other members of the family were in the house at the time. She at once noticed the mistake she had made and a doctor was sent for but life was extinct before he arrived. There were, it seems, two bottles, alike in shape and appearance, standing together on a shelf, the one containing carbolic acid and the other the ale, and it was by taking up and drinking from the wrong bottle that the unfortunate fatality occurred.

IRISH NEWS.

OVERDOSE OF LAUDANUM.—An inquest was held on May 24, at Kingston, co. Dublin, concerning the death of Dr. Edward Finucane (45), evidence being given to the effect that deceased had been invalided out of the Cunard steamship service, and had since suffered from lumbago and sleeplessness. On the evening of May 23 he was found in his bedroom unconscious, a bottle containing laudanum being near at hand. Medical aid was summoned, but death occurred early the following morning from the effects of an overdose. The jury returned a verdict that deceased died from an overdose of laudanum, taken as a remedy for insomnia.

ANALYSIS OF DRUGS.—At the last meeting of the Guardians of the Mitchelstown (Co. Cork) Union a communication was read from Sir Charles Cameron, Dublin, analyst for the Union, to the effect that the pepsin supplied by the contractor and analysed by him contained only 5 per cent. of the proper strength. The Clerk said that the medical officers of the Union had complained of the length of time that elapsed before a report was obtained from Sir Charles Cameron on the medicines and drugs sent by them for analysis. In fact, all the medicines were used up before a report on them was received from the analyst. The matter was referred to the medical officers.

FOREIGN NEWS.

THE GERMAN PATENT OFFICE has struck out the words "Lanolin" and "Lanolinum" from the register of trade-marks. The words will for the future be free to use in Germany.

ACCIDENTAL POISONING.—Of late there seems to be quite an epidemic of poisoning by "canned" fish, etc., in Paris. The latest is that of a gas-lighter, upon whose body Dr. Socquet has just held a post-mortem examination at the Morgue. Monsieur Villette, his wife and daughter, who inhabited the Ternes quarter of Paris, partook of a box of sardines which was purchased from a neighbouring grocer. All were seized with violent pains in the intestines, and medical aid was summoned. Notwithstanding careful treatment Monsieur Villette died on April 30. His wife and daughter are by no means yet out of danger. Acting upon a mandate issued by Monsieur Josse, Juge d'Instruction, Monsieur Chapel, Commissaire de Police, has seized all the boxes of sardines of the incriminated brand, and will order an analysis to be made at the Municipal Laboratory.

AUSTRALASIAN NEWS.

PHARMACEUTICAL SOCIETY OF AUSTRALASIA.—The forty-third annual meeting of this Society was held on March 30, the formal business, as on the last occasion, being disposed of in the early part of the day, while the annual distribution of prizes to the successful students at the Melbourne College of Pharmacy was associated in the evening with a conversazione and concert, which attracted a large number of members and their lady friends. There is nothing of special interest in the report that has not already been dealt with in these notes. The statement of receipts and expenditure presented were of the usual satisfactory character, and it says much for the solid position and prosperity of the craft in Victoria that the claims made on the Benevolent Fund during the year were covered by the small amount of £3.

AMONG THE SUCCESSFUL STUDENTS for the past year one, Mr. Thomas Stawell Hutchings, established an almost phenomenal record, having secured no less than six prizes—viz., silver medal for chemistry, silver medal for materia medica, silver medal for botany, lecturer's prize in chemistry, lecturer's prize in botany, and the gold medal of the Society to the victor in the Honour Examination. Next in order to Mr. Hutchings came Mr. Stanley Lehman, who secured the bronze medal for chemistry, bronze medal for botany, and the lecturer's prize and certificate of honour for materia medica. Both the young gentlemen were warmly complimented on their success by the President, and hopes were expressed that they would in due time attain to high positions in the scientific and professional world.

AT THE APRIL MEETING OF THE COUNCIL of the Pharmaceutical Society of Australasia the President (Mr. Witt), Vice-President (Mr. E. T. Church), and the Hon. Treasurer (Mr. E. G. Owen) were re-elected for the ensuing year, and leave of absence for six months was granted to two members, Messrs. D. Rankin and D. Shaw, who are about to pay a visit to the "old country."

MELBOURNE COLLEGE OF PHARMACY.—A further proof of the high estimation in which the educational facilities afforded by the College of Pharmacy are regarded by the authorities of the Melbourne University has recently been given, the curriculum for 1900-1901 having been so altered that the course in materia medica, as well as that in practical pharmacy, will be taken by medical students at the College instead of at the University, as hitherto. The Faculty of Medicine is further prepared to recommend to the Council of the University that one of the College teachers be appointed University Examiner for the year, and that it be open for the other teacher to make application for a similar appointment. And not only this, but that the senior lecturer be accorded a seat on the Faculty, an honour which has given very considerable satisfaction to Victorian pharmacists. When it is remembered that the College also provides for a special course of lectures and practical work in

chemistry for students of the Australian College of Dentistry and a course of instruction specially adapted for those desirous of qualifying themselves for the responsible work undertaken by public analysts—its certificate of examination being recognised by the Public Health Department—it will be seen that, apart from its more immediately pharmaceutical purposes, it occupies a very important position among the educational forces of the Colony.

APPRENTICES' INDENTURES.—Some interesting questions in connection with apprentices' indentures came before the Pharmacy Board of Victoria at the April meeting. In one case, where an indentured apprentice was reported to be devoting a portion of his time to other business, the question arose as to the competency of his master to furnish the necessary declaration to be approved by the Board that the apprentice had faithfully and without unreasonable intermission served for the time required by the Medical Act, 1890. The Board were advised that an apprenticeship would mean that the whole of the time of the apprentice should be devoted to his master's service during the ordinary hours of business, and it was not competent for him to elect to serve at any period it might be agreed upon. It was therefore resolved that both the apprentice and his master be informed that should these conditions not be complied with the Board would not feel bound to accept a declaration on the completion of the term stated in the indenture.

A SECOND POINT WAS RAISED by several apprentices, who, being desirous of serving in the Victorian contingent for South Africa, wrote asking that their indentures might be suspended during their absence. In these cases it was decided that a reply should be sent to the effect that the Board had no legal right to interfere in the indenture between master and apprentice, but that if it could be shown that the applicants were engaged in the Queen's service, and that a supplementary apprenticeship had been served completing the full period of four years, the Board, on being satisfied as to the *bona fides* of the service, would be willing to accept the declarations.

IN NEW SOUTH WALES an effort has recently been made to secure the recognition by the Pharmacy Board, as a school or college of pharmacy, of an institution known as the Technical College, situated at Bathurst. After mature deliberation the Board has decided to refuse, for the present, at least, this and any similar applications, being of opinion that such an education as is requisite for pharmaceutical students in New South Wales can only be supplied by the Sydney University, with the authorities of which the Board has made arrangements to carry on the lectures in botany, materia medica, and chemistry, and to conduct examinations in these subjects.

THE PHARMACEUTICAL SOCIETY OF NEW SOUTH WALES held its twenty-fourth annual meeting on March 29, when the balance-sheet presented showed an income of £231 16s. 6d., and expenditure of £229 13s. 10d., while, according to the statement of assets and liabilities, there is a surplus "capital" of £623 19s. 9d. Apart from the Early Closing movement, social functions, and the alteration of the Articles of Association, there was not much of general interest to report. Messrs. C. A. Marshall, S. Mears, and W. Short, the Councillors retiring by effluxion of time, were re-elected without opposition.—At a recent meeting of the Council a proposal was made by Mr. Marshall that a Defence Fund should be initiated, and as this would, according to legal advice, necessitate an alteration in the Articles of Association, the following draft of an amendment has been submitted by the Society's solicitors for consideration:—"That the following shall be an additional article of association of the Pharmaceutical Society of New South Wales, namely:—"That the Council of the Society shall without delay set apart the sum of £50 to be devoted to a defence fund, and shall add the sum of £10 yearly thereto till the sum of £100 shall be accumulated, and

such defence fund shall be available for any member of the Society who is and has been subscribing for two years, and provided that the Society's solicitors for the time being consider the case one of blackmail and not due to the fault of the defendant, and should the fund by reason of appropriations therefrom at any time be reduced to a less sum than £100, the sum of £10 shall be added yearly thereto until the fund shall amount to the sum of £100, the intention being that there shall at all times be the sum of £100 to the credit of such defence fund.'"

SOUTH AFRICAN NEWS.

MR. WILLIAM MARTINDALE, President of the Pharmaceutical Society, has been having a tour in Cape Colony, having arrived there by the s.s. "Scot." The chemists in Cape Town, Port Elizabeth, East London, Durban, and other towns, who have had the pleasure of meeting Mr. Martindale—and they are not numerous on account of that gentleman's retiring disposition—wish him a pleasant trip, and that on his return to the Old Country he may find his visit to South Africa has been beneficial in renewing his health. He expects to arrive in London on June 2.

MR. VICTOR BROWNE, one of the directors of Lennon, Limited, is, unfortunately, in a serious state of health. Since leaving Johannesburg, where he was the resident director, at the outbreak of the war, Mr. Browne has resided in Cape Town, and the change from the dry air of the Rand to the coast has proved far from advantageous. His friends wish him a speedy recovery.

MR. A. MASTERTON, senior assistant with Lennon, Limited, East London, and formerly with Bathgate and Co., Calcutta, and Grattan and Co., Belfast, has purchased the business of Mr. Leyshon Andrew, pharmaceutical chemist, of Grahamstown, Cape Colony.

THE WEST COUNTRY ASSOCIATION DINNER held in King William's Town on St. George's Day, was a notable event in the Eastern Province. Much of its success was due to the energy of the popular secretary, Mr. A. G. Doble (Tavistock.)

ONE OF THE EFFECTS OF THE WAR on the commercial element is felt in the transporting of goods from the ports to the inland and up-country towns. The military authorities have found it necessary to "commandeer" nearly all the railway trucks for sending stores and ammunition to the front, so that the traders and business men find that their goods are left on the wharves to the extent of thousands of tons. A good deal is being sent by the old method of the bullock-waggon, which is slow, indeed, compared to the "iron horse," and even the teams of oxen are being bought up by the Imperial Government for transport service, so that things are a bit awkward. The chemists in the coast towns have a great advantage just now over their up-country confrères in that respect.

AMERICAN NEWS.

SOME RETAIL DRUGGISTS OF NEW YORK have been caused a shock by the receipt of an apparently official "First Notice," dated New York, May 3, 1900, reading as follows:—"Your attention is called to the fact that under the provisions of Chap. 494, Laws of 1900, it is a misdemeanour to charge liquids with gases under pressure (manufacture soda water, mineral waters, sarsaparilla, ginger ale, root beer, etc.) in any building occupied in whole or in part by persons for living purposes, and the punishment for each and every violation is a fine not exceeding 500dols., or imprisonment not exceeding one year, or both. (Signed) James Jackson, Deputy Factory Inspector, Fruit Juice and Carbonator Department." The "notice" was evidently intended to scare the druggists, and to prevent them from making their own soda water. That it partially

succeeded in its object, in so far that it was taken seriously by many, is evinced by the fact that the subject was discussed by the King's County Pharmaceutical Society, the Legislative Committee being empowered to employ counsel for the defence of any member against whom a test case might be brought. Senators and Assembly men were interviewed on the subject, also several of the principal druggists in the district, all expressing surprise and indignation that an attempt should be made, through the Legislature, to prevent aerated drinks being made and sold by druggists, some freely expressing the opinion that the Bill had been introduced solely in the interests of certain manufacturers. Others pointed to the necessity for a closer watch being kept, in the interests of druggists, on legislative proceedings.

THOSE WHO MIGHT BE ANNOYED in any way by threats to enforce the alleged "law" were advised by the *American Druggist* to follow the advice of the State Factory Inspector—viz., to call a policeman. For inquiry at the office of the official referred to showed that no person named James Jackson was in the employ of the department mentioned, and that no law containing the provisions cited in the notice had passed the Legislature or been signed by the Governor. A Bill has, however, recently become law relating to the manufacture of explosives and liquid or compressed air or gases in buildings occupied in whole or in part as dwelling places, the section relating thereto stating that:—"A person who manufactures gunpowder, dynamite, nitro-glycerin, liquid or compressed air or gases, except acetylene and other gases used for illuminating purposes, naphtha, gasoline, benzine, or any explosive articles or compounds, or manufactures ammunition, fireworks, or other articles of which these substances are component parts, in a cellar, room, or apartment of a tenement or dwelling house or any building occupied in whole or in part by persons or families for living purposes, is guilty of a misdemeanour." The editor of the *American Druggist* remarks that "the average retail druggist appears to fall an easy victim to all and sundry swindling schemes that may be invented," and he goes on to state that "the language of the law has been purposely misapplied to frighten druggists into discarding the use of liquid carbonic acid gas."

AN ACT TO AMEND THE STATE PHARMACY LAW, which will come into operation in New York State on January 1, 1901, provides for a new State Board of Examiners. For the purposes of the Act the State is divided into three sections, by counties—eastern, western, and midland sections. The State Board of Pharmacy will consist of fifteen members, five from each of the sections, no person being eligible for election unless he be a citizen of the State of New York and a resident and licensed pharmacist of that section of the State for which elected. Each member of the State Board of Pharmacy will be entitled to receive five dollars for each day actually engaged in the performance of services as a member of the Board, or any one of its branches, provided that no member shall receive more than 150dols. in any one year, together with his necessary expenses and disbursements.

THE POWERS AND DUTIES OF THE BOARD are:—(1) To make such by-laws, rules, and regulations not inconsistent with the laws of the State as may be necessary for the protection of the public health and the lawful performance of its powers. (2) To regulate the practice of pharmacy. (3) To regulate the sale of poisons. (4) To regulate and control the character and standard of drugs and medicines dispensed in the State. (5) To investigate all complaints as to quality and strength of all drugs and medicines, and to take such action as may be necessary to prevent the sale of such as do not conform to the standard and tests prescribed in the latest edition of the United States Pharmacopœia. (6) To regulate the number of hours constituting a day's work of employees in a drug store or pharmacy, in cities having at the last State or United States census a population of a million or

more inhabitants, which shall not exceed one hundred and thirty-six hours in each two consecutive weeks. (7) To employ inspectors of pharmacy, and to inspect during business hours all pharmacies, dispensaries, stores, or places in which drugs, medicines, and poisons are compounded, dispensed, or retailed. (8) To hold meetings as often as its business shall require, and to conduct examinations of applicants for licences monthly, when so determined by the Board, except in July and August, and not less frequently than once in three months. Two grades of licences will be issued, known as "licensed druggist" and "licensed pharmacist," and one grade of certificates as "registered apprentice," except that in cities having a population of a million or more inhabitants a licence for the grade of "licensed druggist" will not be issued.

THE BOARD IS ALSO AUTHORISED to investigate all alleged violations of the provisions of the Act, or any other law of the State regulating the dispensing or sale of drugs, medicines, or poisons, or the practice of pharmacy, which may come under its notice, and whenever there appears to be reasonable cause therefor to take and hear evidence with reference to the same, and, in the discretion of the Board, to bring such cases to the notice of the proper prosecuting authorities, or bring actions in the name of the State Board of Pharmacy.

THE ANNUAL REGISTRATION OF EVERY PHARMACY, store, dispensary or place in which there is compounded, dispensed, or sold drugs, medicines, or poisons, is provided for by the new Act, the State Board of Pharmacy being empowered to require as a pre-requisite for such registration the furnishing of evidence satisfactory to the Board that the same is conducted in full compliance with the law and the regulations of the Board, and to charge and to receive the sum of two dollars for each such registration. It also has power to revoke any licence issued by any Board of Pharmacy of the State.

THE LEGAL DEFINITION OF A PHARMACY is as follows:—Every place in which drugs, medicines, or poisons are retailed or dispensed, or physicians' prescriptions compounded, shall be deemed to be a pharmacy, or a drug store, and the same shall be under the personal supervision of a licensed pharmacist, or druggist, respectively. And it is provided that every person, partnership, association, or corporation doing business as the proprietor, or proprietors, of a pharmacy, or a drug store, shall cause the actual name of such proprietor, or proprietors, to be displayed upon a sign, which shall be kept conspicuously placed upon the exterior of the premises where such business is conducted. It is also provided that every person practising as a licensed or registered pharmacist, assistant pharmacist, or druggist, must at all times display his certificate of licence or registration, conspicuously in the place in which he practises under such licence or registration.

THE LEGAL STANDARD for strength, quality, or purity of all pharmaceutical preparations sold or dispensed in a pharmacy, dispensary, store, or place, unless otherwise prescribed for, or specified, by the customer, will be the latest edition of the United States Pharmacopœia. And every proprietor of a wholesale or retail drug store, pharmacy, or other place where drugs, medicines, or chemicals are sold, will be held responsible for the quality and strength of all drugs, chemicals, or medicines sold or dispensed by him, except those sold in original packages of the manufacturer of those articles, or preparations known as patent, or proprietary medicines. Persons guilty of fraudulently falsifying or adulterating any drug, medical substance, or preparation authorised or recognised in the United States Pharmacopœia, or used, or intended to be used, in medical practice, or fraudulently offer for sale, sell, or cause the same to be sold will be guilty of a misdemeanour, all drugs, etc., so falsified or adulterated being forfeited to the Board, and, by the Board, destroyed.

NOTTINGHAM AND NOTTS CHEMISTS' ASSOCIATION.

The annual meeting of the Nottingham and Notts Chemists' Association was held at the Albert Hotel, Derby Road, on Wednesday, May 30, Mr. R. FITZHUGH (President) occupying the chair. There were also present Mr. R. H. Beverley (retiring Vice-President), Mr. J. Wilford (Hon. Treasurer), Messrs. A. Middleton, J. Smith, E. Gascoyne, W. Gill, W. H. Smith, J. Rufford, jun., E. Turton, F. R. Sergeant, C. A. Bolton, A. E. Beilby, R. Widdowson, T. Wilson.

The SECRETARY read the annual report, which reviewed the work of the past year, and on the motion of Mr. BEVERLEY, seconded by Mr. GASCOYNE, the report was adopted.

The CHAIRMAN moved, and Mr. SERGEANT seconded, a vote of thanks to Messrs. Newball and Mason for their donation of £5 towards providing prizes in connection with the students' classes, and the the proprietors of *The Pharmaceutical Journal* for supplying the Journal.

The Treasurer's report showed that the year began with £11 6s. 9d. in hand, and the total receipts, including this, amounted to £73 12s. 6d., while the payments during the past year absorbed the income within £8 16s. 11d.

ELECTION OF OFFICERS.

The election of officers was then proceeded with. To the nominations of President (Mr. R. Fitzhugh), Vice-President (Mr. W. Gill), Hon. Treasurer (Mr. J. Wilford), and Hon. Secretary (Mr. A. Eberlin), there was no opposition. The voting for the Council resulted in the following being elected:—Messrs. R. H. Beverley, F. R. Sergeant, C. A. Bolton, A. E. Beilby, E. Gascoyne, A. Middleton, T. Wilson, and J. S. Radford.

VOTES OF THANKS.

Mr. GILL, after returning thanks for his election, proposed a vote of thanks to the Vice-President for his services during the year, to which Mr. BEVERLEY suitably replied.

The PRESIDENT thanked the Association for re-electing him as President. He assured them that it had been a very great pleasure to preside over their meetings for the last twenty years. He could not expect for many years longer to preside over the Association, but so long as they were willing to elect him he hoped he should always be able to fulfil the position to their satisfaction. Like their late Vice-President, he had not done much during the past year, but he had left it to the Executive and the Council, and he tendered to them his sincere thanks for carrying on the business in such an efficient manner. He regretted they had not been so successful in the educational part of their work as before, but he was still in the hope that during the coming year they might have a larger number attending the classes. He thought he might say that it was the unanimous opinion of the Council that they should not attend the classes at the University were they to be thrown open to the general trade. He quite concurred in that opinion. He had held that opinion from the commencement of the Association, and up to the present time they had been able to have the classes kept for their own purposes; and he might say that they had been successful. He always looked back to those round that table who had received great benefits from that Association, and he wished they could look forward to that Association being as successful in this matter in the future as in the past. They should have a more severe preliminary examination for students, but he hoped that as it increased in severity the Pharmaceutical Society would give more benefit to the outside members than they had received in the past. He said that, because for all the trouble and expense they had been put to, he did not think they had received sufficient protection of the trade to encourage their continuing to support the Society as they had done. They must not think

that he was running down the Society, but if they got more representatives from the country they would understand the trade better than some of those gentlemen who lived in London and were on the Council, and who knew very little of what the country trade of a chemist and druggist was. He hoped he was not treading upon the toes of any of those gentlemen by expressing those opinions, but they were his opinions. He should like their business to be called a profession, but it would be some little time before that was a fact. While, however, they dealt in soft soap, blacklead, and other similar things, he did not think they would be able to call themselves a profession. He did not mind himself being called a tradesman. With regard to their Association, he hoped they might continue to increase their numbers, and that they might continue to be a flourishing Association. They were always looked upon in different parts of the country as an organising society—a fact of which they were proud, and he hoped they would not lose the esteem of their fellow tradespeople or of the country at large.

Mr. BOLTON proposed a vote of thanks to the Secretary, who, he said, was the right man in the right place for that Association, and their trade in the city at the present juncture. With regard to the classes at the University, it had been a disappointment to him that it had been thought desirable by certain people, who had taken a very narrow view indeed from a technical misunderstanding, to favour the course they had done. He was glad they had Mr. Eberlin at the helm, because he thoroughly understood the needs and requirements of the Association, the assistants and masters in reference to the coming changes in the examinations. They thought that the University College certificate might be accepted by the London authorities. If the College did not carry out the obligations which they felt they were under to the Association, to a certain extent they would have to fall back upon themselves. He had no fear about that, however, because he felt that the members of the trade would stand shoulder to shoulder, and would not leave the assistants and the apprentices without the means of being able to study for the examinations which were before them. He thought when that came to pass they would support the hands of the Secretary, the Executive of the Association, and their Chairman, so that if they were debarred the use of part of University College they would be able to make up that loss by providing proper and suitable classes. In that matter they could rely upon Mr. Eberlin at the present time. Mr. Eberlin did not begrudge any time, labour, and study, so long as he furthered the interests of the Association.

Mr. EBERLIN thanked the members for the hearty manner in which they had accorded him the vote of thanks. He felt, nevertheless, in spite of the extremely flattering way in which Mr. Bolton had spoken of him, that there were many shortcomings and that he had not carried out the work of the Association in the best manner. Pressure of time had prevented him from doing that, and nothing but a sincere desire to see the cause of education carried through had induced him to take the position of Secretary again. He was very anxious indeed that they should provide some very efficient system of education for their students. Of course, it was not possible for him to go into details. At any rate, they could rely upon whatever was done in the interests of the students being well considered, and he believed they would be able to formulate a scheme whereby the education of the students would be advanced. For some time past he had felt that they had not kept quite abreast of the requirements. He felt that they needed some further developments of their educational scheme, and he believed they would be able to carry out successfully what was wanted, and that they could make Nottingham what it had been in the past—the premier provincial town for the education of pharmaceutical chemists. He sincerely hoped that they would be able to accomplish this.

On the motion of Mr. GASCOYNE, a vote of thanks was also accorded to the Treasurer,

FORFARSHIRE AND DISTRICT CHEMISTS' ASSOCIATION.

The annual business meeting of this Association was held at the Star Hotel, Montrose, on Wednesday, May 23, 1900. Mr. CHARLES KERR, Dundee, occupied the chair, and there was a good attendance. The CHAIRMAN referred to the

WORK DONE DURING THE YEAR

in connection with the scheduling of carbolic acid, the Companies Bill, the need for seeking additions to the schedule of poisons, the regulation of the practice of pharmacy in hospitals and surgeries, etc. In regard to the resolution adopted at the March meeting, asking the Council to suspend the contemplated imposition of a higher standard in the Preliminary Examination, a printed card had been received from the Secretary, stating that the communication had been received, and would be attended to, but beyond that they had not heard that anything had been done. Although it would be much against their getting apprentices, he feared nothing would be done, and they would just have to submit. He had received from the Secretary a circular asking him to let it be known that July next would be the last occasion on which the present Preliminary Examination would be held.

Mr. KERMATH said he had opposed the proposed

NEW PRELIMINARY EXAMINATION

on the last occasion. He had since been looking into the matter, and was now inclined to think it might work out better than they thought then. He observed that the leaving certificates of the Scotch Educational Department were to be accepted, and if they got into touch with teachers in the secondary schools, though at present they had difficulty in getting apprentices, they would ultimately find themselves not so badly off.

MESSRS. ROBERTSON, CUMMINGS, and LINDSAY expressed the feeling that the tendency of the new standard was unduly severe.

Mr. JACK said the Educational Institute of Scotland had indicated a readiness to hold

SPECIAL EXAMINATIONS FOR PHARMACY STUDENTS

at fixed dates in Edinburgh, Glasgow, Dundee, and Aberdeen, if a sufficient number of candidates were forthcoming. As to the apprentice difficulty, he was inclined to think the problem would solve itself.

The SECRETARY read

THE FINANCIAL STATEMENT,

which was adopted, showing a balance of £4 6s. 10d. in hand.

The CHAIRMAN said they were much indebted to the Secretary (Mr. William Cummings, Dundee) for the able, energetic, and courteous way in which he had attended to all the business of the Association. The Association had given good reason for its existence, and their finances were entirely satisfactory.

The following were elected

OFFICE-BEARERS

for the ensuing year:—President, Baillie William Doig, Dundee; Vice-President, W. R. Kermath, St. Andrews; Secretary, William Cummings, Dundee; and as members of Committee, Messrs. Anderson, Dundee; Davidson, Montrose; Ferrier, Dundee; Ferrier, Brechin; Ford, Kirriemuir; Kerr, Dundee; Macfarlane, Naysmith, Arbroath; Park, Broughtyferry; Russell, Dundee; and Thomson, Lochee. Mr. Peter MacEwan, Editor of the *Chemist and Druggist*, as a Dundee man, was elected an honorary member of the Association.

On the motion of Mr. THOMSON (Lochee), seconded by Mr. W. L. CURRIE (Glasgow), a cordial vote of thanks was unanimously awarded to the retiring President (Mr. Charles Kerr) for the valuable services rendered to the Association during the three years he had occupied the chair.

Mr. KERR acknowledged the vote, and said during the thirty-seven years he had been in business in Dundee he had always endeavoured to do what he could to promote the interests of his craft.

DIVISION OF THE MINOR EXAMINATION.

Mr. KERMATH moved—"That the time has now arrived when the method of conducting the Minor Examination should be altered, and that the same rules should apply as in medicine and law—namely, that candidates be credited with the subject, or subjects, in which they obtain pass marks." He said this was a matter that was exercising the pharmaceutical world. He would refer to the latter part first. Candidates in medicine were allowed to enter for four subjects, and if they passed in any two they got credit for those. Indeed, if they got good marks in even one of the four they passed in that one. In law they had a choice of seven subjects, and they got credit for any one of those at any examination. In the Minor Examination candidates were required to pass in six subjects in two days. That was a large order when one remembered that pharmacy students were not educated at Eton or Harrow. They had to consider the class from which their apprentices were drawn, or from which they were offered pupils. They did not come from the class attending secondary schools. When lads of that class came to see what was required of pharmacy students they preferred to go in for a profession, or to a bank, or some similar employment. They should therefore endeavour to lessen the burden of the examination. Last year the standard was very greatly increased, and the fee had been changed from £3 3s. to £5 5s. in 1892, and now it was to be increased to £10 10s. The great increase in the requirements of candidates demanded something being done. It was very hard that when a candidate has successfully passed the first day's work and failed in the first subject of the second day's work he should have to come back again and pass the first day's work a second time. He had made no progress at all, and if only he got credit for what he had done he would make a fresh start with the remaining work, and some such concession as this would tend greatly to make the Society popular. He found support for this view in a statement of Mr. Boa, the present Chairman of the Scotch Board of Examiners, who said, in November last, that, in his opinion, the Minor Examination might be divided into two parts, with an interval of three months between them. Mr. Ewing, the ex-Chairman, also said he agreed that it would be an advantage to divide the examination, and he would go further and say that candidates might get credit for what work they had done. He had a letter from an eminent teacher to the same effect, deploring the apathy on this question shown by the members of the Society generally, who ought to insist on some alteration being made. Mr. Proctor, in 1899, expressed views of a similar kind. He questioned the need for imposing so severe a test as the present Minor Examination. It looked like a condemnation of the men who had passed during the last twenty years, as if they had proved themselves incompetent, and therefore a higher standard must be exacted. They were in danger of aiming at too high an ideal, which would never be attained. The risk they ran was that they would throw the trade more and more into the hands of drug stores, for the average man would not take out any qualification. Unless they could have protection of their titles and a reasonable standard of entrance to the ranks, they would be better without the Pharmacy Act of 1868 altogether. He thought the raising of the fee unnecessary, for the finances of the Society were good to-day, and the examination conditions were too hard on the candidates. A number of people seemed to think they were training men for the best districts of London. They should remember that in many towns and even villages of 1,000 to 2,000 inhabitants they had pharmacists who dispensed as skilfully as in the larger places, and in fixing a standard the general requirements of the whole country should be kept in view. It was no use to condemn the Council. Every pharmacist should enfranchise himself by joining the Society. They had to pay the piper and had a right to call the tune, and by joining the Society they could control its business and get effect given to what they desired to have done in this matter.

Mr. LINDSAY, as a recently-examined man, in an eloquent and humorous speech, full of trenchant criticism of the Council and the examiners, seconded the motion. He said the Council looked at the question too much from the point of view of the frock-coated gentry to be found in Oxford Street, and seemed entirely oblivious of the man in the short jacket who pursued his calling in the provinces.

Mr. JACK said he was quite of opinion that the time had come when a strong appeal should be made to the Council to consider seriously the whole question of dividing the Minor Examination. But he was not prepared, and did not consider it prudent, to commit himself to the details in the latter part of the motion. He would therefore propose that these be deleted.

Mr. WHITE having seconded the amendment,

Mr. CURRIE said that was also the view he favoured. It would perhaps be better to have the subjects of the examination taken in groups. It was doubtful if the Council, under the existing Acts, had power to divide the examination. The Privy Council alone could decide that point. It might be necessary to get a new Act of Parliament. He heartily supported the proposal to reduce the present very severe test of having to pass all the six subjects of the examination at one time, and agreed with much that Mr. Kermath had said.

Mr. THOMSON supported the amendment. It would be better to divide the examination into groups of subjects.

Mr. JOHN ANDERSON also supported the proposal for division of the examination.

Mr. KERMAITH said he had no desire to press the latter part of his motion, and, with the consent of his seconder, he would make the motion read:—

That the time has now arrived when the method of conducting the Minor Examination should be altered.

That was sufficient to show the Council that there was a decided feeling in favour of some change, and it would be for the Council to consider what change should be made.

The amended motion was then put to the meeting and unanimously agreed to, and, on the motion of Mr. NAYSMITH, it was remitted to the President, Vice-President, and Secretary to communicate the resolution to the Council of the Society.

FESTIVITIES.

The members then adjourned, and had a most pleasant drive of about ten miles, in beautiful weather, round the Basin and back by way of Bridge of Dun.

Returning to the Star Hotel, about thirty members sat down and did full justice to an excellent dinner, Mr. Alexander Davidson, Montrose, acting as Chairman, and Mr. Charles Kerr, Dundee, as Croupier. After dinner followed toasts. "The Navy, Army, and Volunteers" was acknowledged by Mr. NAYSMITH, "The Pharmaceutical Society," proposed by Mr. W. L. CURRIE, was acknowledged by Mr. RUTHERFORD HILL, in the absence of Mr. Storrar. "The Forfarshire Chemists' Association" was proposed in eloquent terms by the oldest member, Mr. HODGETON, Brechin, and acknowledged by Mr. KERR. In his reply, Mr. Kerr said it had been suggested that the British Pharmaceutical Conference might be invited to meet in Dundee in 1902. Of course, they would need to meet again to consider the matter more fully. The suggestion met with a favourable reception, and it was agreed to consider the matter more fully at a subsequent meeting.

Mr. Davidson, the Chairman, was cordially thanked for the excellent arrangements he had made, and which were carried out most successfully.

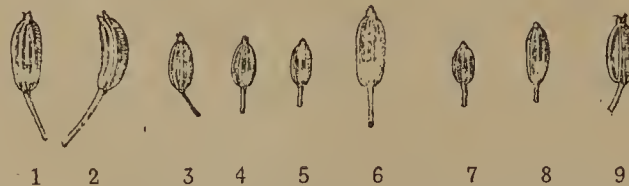
THE FUNGUS-DESTROYING ACTION OF HOP OIL has been investigated by T. Bokorny, who finds that in saturated solution (1:20,000), no antiseptic value could be observed, while with other oils, such as turpentine, clove, thyme and peppermint, in considerably greater dilution, the antiseptic action was manifest. This action is ascribed to the phenols—eugenol, thymol, menthol, etc.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

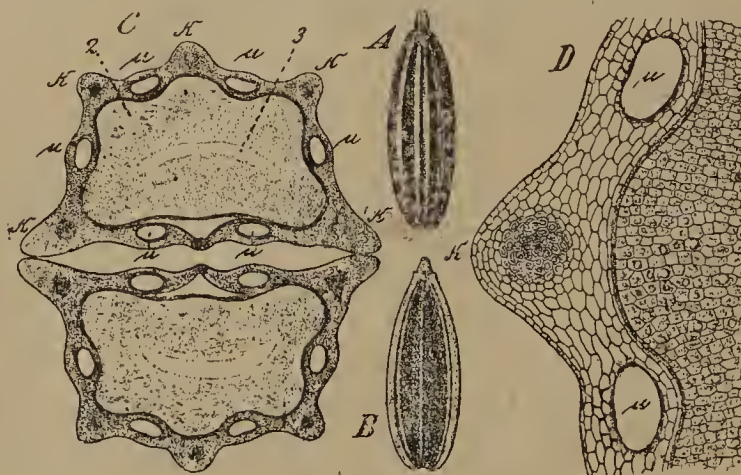
Fœniculi Fructus.

FENNEL FRUIT is obtained from *Fœniculum capillaceum*, Gilib. (N.O. Umbelliferae), which is apparently indigenous to the countries bordering on the Mediterranean, and is cultivated in France, Germany (Saxony and Thuringia), Russia, Galicia, Roumania, India, Japan, Persia, etc. The dried ripe fruit collected from cultivated plants is alone official. That grown in Saxony is the largest and best, and the official description is apparently based on the characters of Saxon fruit; but the Russian, Galician, Roumanian, and Japanese varieties are also suitable for pharmaceutical purposes, though not all in accordance with official requirements as to size. Fennel fruit possesses stimulant, aromatic, and carminative properties, its action being similar to that of anise; it is used for preparing Aqua Fœniculi and Pulvis Glycyrrhizæ Compositus.



FENNEL FRUIT.—1, German; 2 and 9, French (sweet); 3, Galician; 4, Russian; 5, French (bitter); 6, Indian; 7, Japanese; 8, Persian. All natural size.

CHARACTERS.—Fennel fruit should be from 5 to 10 Mm. in length and about 3 Mm. in diameter, oblong in shape, more or less curved, and capped by a conspicuous stylopod and two styles. The fruit is glabrous, greenish-brown or pale yellowish-brown in colour, and consists of two mericarps united and attached to a pedicel about the same length as the fruit. The mericarps are easily separated and each one bears five paler primary ridges which are so prominent as to give the fruit a winged appearance. In transverse section a mericarp exhibits six large vittæ—four on the dorsal and two on the commissural surface. The aromatic odour and sweet, agreeable, aromatic taste of the fruit are due to the volatile oil it contains.



FENNEL FRUIT.—A, Entire fruit, side view, magnified 3 diameters; B, half-fruit, showing commissural surface, magnified 3 diameters; C, transverse section of fruit, showing vittæ (u) and ridges (k), magnified 14 diameters; D, portion of transverse section, much enlarged. After Berg.

NOTES.—The distinctive characters of fennel fruit are the very prominent ridges, large vittæ, and characteristic odour and taste. It varies in size and colour according to its place of origin, as has been clearly shown by J. C. Umney. Thus, Saxon fennel is from 8 to 10 Mm. long, 3 Mm. wide, and greenish-brown or yellowish-brown in colour; the Galician variety is only 5 to 6 Mm. long, and from 1 to 1.5 Mm. wide; Russian fennel is from 4 to 5 Mm. long, 1.5 to 2 Mm. wide, and usually brownish-green in colour. Those three varieties of fruit yield between 4 and 5 per cent. of volatile oil which contains about 18 to 20 per cent. of fenchone and differs only as regards the three varieties in

the proportion of anethol present. The Japanese fruit is less pungent, as it contains only 2 to 3 per cent. of volatile oil; the fruit is also very small, pale greenish-brown in colour, from 3 to 4 Mm. long, and 2 to 3 Mm. wide. French sweet fennel is 7 to 8 Mm. long, 2 to 3 Mm. wide, pale yellowish-green in colour, and yields rather more than 2 per cent. of volatile oil which contains little or no fenchone, though it is richer in anethol than other varieties. French bitter fennel is from 4 to 5 Mm. long, 2 Mm. wide, and darker in colour than the sweet variety. The oil obtained from the Persian fruit is also very rich in anethol, though containing only 3 per cent. of fenchone; the fruit is very green, from 6 to 7 Mm. long, and less than 2 Mm. wide. Indian fennel fruit is from 6 to 7 Mm. long, browner in colour than usual, and contains less than 1 per cent. of volatile oil. The relative sizes and shapes of the different varieties are clearly shown in the accompanying illustration. The chief constituents of the volatile oil obtained from fennel fruit are fenchone, anethol, and two terpenes—pinene and phellandrene—which do not appear to affect the odour or taste of the oil. Fenchone is an isomer of camphor, possesses a pungent camphoraceous odour and taste, and is probably the most active constituent of the oil. Anethol is the substance of which oil of anise almost entirely consists; it is present in all fennel oils, but in greatest proportion in those oils which contain least fenchone. Pinene is present in all fennel oils, and phellandrene is found in appreciable quantity in the French and Indian varieties.

Galbanum.

GALBANUM is a gum-resin obtained from *Ferula galbaniflua*, Boiss. and Buhse (N.O. Umbelliferae), and other species. It appears to be produced by two plants growing in Northern Persia—*F. galbaniflua*, and *F. galbaniflua*, var. *β-Aucheri*, Boiss.; *Ferula schair*, Borszczow, a plant growing on the confines of Siberia and Turkestan is also stated to yield galbanum. Numerous schizogenous ducts, which secrete a milky gum-resinous juice, occur in the cortical portion of the stem and root of the plants yielding galbanum, and some of the juice appears to exude naturally in the form of tears. But the major portion of the gum-resin is probably obtained by removing the stem near the crown and collecting the juice as it exudes and hardens, successive slices of the root being removed at intervals of a few days. All varieties of commercial galbanum appear to come from or through Persia, but the gum-resin is imported by way of the Levant, Bombay, and Russia. Two chief varieties of galbanum are known in commerce—Levant and Persian. The so-called Levant galbanum may occur (1) in opaque or translucent tears; (2) in small lumps mixed with pieces of stalk and, sometimes, fruits; (3) in sticky masses containing slices of root, and consisting of small translucent yellowish fragments mixed with larger soft bluish or greenish portions. All three kinds have a decided musky odour, and the last-described is the kind usually met with in commerce; it is probably exported from Persia to India, and thence finds its way to Europe by way of Bombay, Egypt, or Turkey. Persian galbanum, definitely known by that name, may occur (1) as a brownish or reddish-brown liquid of the consistence of Venice turpentine; (2) in masses of small sticky tears with a varnished appearance, mixed with fragments of stem, fruit-stalks, etc. Those two kinds have a distinct turpentine odour, in addition to that characteristic of the galbanum usually met with; they appear to be exported from Persia to India, but some Persian galbanum also reaches Russia by way of Astrachan and Orenburg. Galbanum possesses antispasmodic and stimulating expectorant properties, resembling those of asafetida, though in a less marked degree. It is administered in doses of 5 to 15 grains, and enters into the composition of Pilula Galbani Composita.

CHARACTERS.—Galbanum should be in distinct tears or in irregular masses of agglutinated tears, both tears and masses vary-

ing in colour from opaque yellowish or orange-brown to translucent bluish-green. The latter appears to be the original colour of the gum-resin, but it becomes opaque and darker coloured with age. The tears are rounded or irregular in form, sometimes rough and dirty on the surface, and, on the average, about the size of a pea, though sometimes much larger. In cold weather they are hard and brittle, breaking easily with an irregular granular fracture and then usually appearing opaque, yellowish and soft internally, though sometimes translucent and of a bluish-green colour. The tears soften as the temperature rises, the heat of the hand sufficing to render them ductile and sticky. When agglutinated in masses, they are imbedded in a brownish mass and mixed with various foreign substances, including transverse slices of root. Similar slices, about an inch or more in diameter, may be found mixed with galbanum in tears; they frequently bear on one side some of the gum-resin which has dried there on exuding from the freshly cut surface of the root. The characteristic bitter and unpleasant taste of galbanum is due to the resin it contains; the equally characteristic aromatic odour is due to the volatile oil, umbelliferone and resin.

TESTS.—Galbanum contains umbelliferone and on heating a small fragment to redness, in a dry test-tube, that substance is liberated from its combination with the resin; its presence may then be detected by boiling the contents of the tube with water, filtering the resulting solution and adding solution of ammonia, which causes the same peculiar blue fluorescence as in the case of asafetida.

NOTES.—The distinctive characters of galbanum are the soft yellowish-brown or bluish-green tears, the peculiar odour, and the presence of umbelliferone. Umbelliferone, $C_9H_6O_3$, is the anhydride of umbellic acid and an oxycoumarin; it has an odour resembling that of coumarin (cumaric anhydride), behaves similarly with caustic potash, and shows a blue fluorescence when dissolved in dilute alkalies. It can be formed synthetically by heating resorcin with malic and sulphuric acids. Ammoniacum contains no umbelliferone, but it is present, both free and in combination with resin, in galbanum. According to Conrady the purified resin may contain 20 per cent. of combined umbelliferone. The resin, of which the drug may contain as much as 60 per cent., is an alcohol—galbaresinotannol—which yields resorcin when fused with caustic potash; other constituents of galbanum are 20 per cent. of gum and 5 to 10 per cent. of volatile oil. When submitted to dry distillation the resin yields a thick oil of brilliant blue colour, with an aromatic odour and bitter acrid taste, which deposits crystals of umbelliferone on cooling. By fractional distillation of this oil a product agreeing with the oil obtained from the flowers of *Matricaria chamomilla* can be obtained. Good qualities of galbanum should contain not more than 10 per cent. of moisture, should yield at least 50 per cent. to alcohol, and leave not more than 10 per cent. of ash on incineration.

Galla.

GALLS are excrescences on *Quercus infectoria*, Olivier (N.O. Cupuliferæ), which result from the puncture of the bark of young twigs by the female of *Cynips gallæ-tinctoriæ*, Olivier (Order, Hymenoptera), and subsequent deposition of eggs by that insect. Many plants are thus punctured by insects for the purpose of depositing their eggs, with the result that galls are formed, but only "Aleppo" galls, produced upon the particular plant named, and by the insect specified, should be used for medicinal purposes. The young twigs are pierced by the gall-wasp with its ovipositor nearly to the cambium, and one or more eggs are deposited. Those increase in size, and probably secrete a particular fluid which promotes the formation of a gall. As a result abnormal development of the vegetable tissues takes place, the eggs or larvæ hatched therefrom becoming completely enclosed in a nearly spherical mass, which projects from the twig and furnishes the larvæ with a supply of starchy and othe

nutritive material. The growth of the gall continues only so long as the egg or larva lives, or until the latter reaches maturity and passes into a chrysalis, from which the fully developed gall-wasp emerges and escapes into the air through a hole bored in the side of the gall with its mandibles. The best Aleppo galls are those collected before the insects escape. They are collected in Asiatic Turkey, particularly in the province of Aleppo, but they are also exported from Persia and Greece. When not perforated the galls are of a dark olive green colour, comparatively heavy, and known in commerce as "blue" or "green" galls; if collected after the insects have escaped the galls are of a paler yellowish-brown hue, lighter in weight and are known in commerce as "white" galls. The latter are less esteemed, being supposed to contain less gallotannic acid than the "blue" or "green" galls, which alone are official, though there is no definite information on that point. The drug possesses marked astringent properties and is used in the preparation of Acidum Gallicum, Acidum Tannicum, Unguentum Gallæ and Unguentum Gallæ cum Opio.



GALLS.—A and B, Aleppo galls; C, transverse section of gall. All natural size

CHARACTERS.—Galls should be hard and heavy, dark bluish-green or olive-green in colour, nearly spherical (sub-globular) in shape, and from 12 to 18 Mm. or more in diameter. Aleppo galls are tuberculated on the surface, the short bluntly pointed projections being most numerous on the upper portions; both projections and intervening spaces are smooth. On breaking a gall it appears yellowish or brownish-white within, and there is usually a small cavity containing the remains of a larva or gall-wasp. Galls have no marked odour, but they are characterised by their taste—due to the tannic acid present—which is intensely astringent, but followed by a slight sweetness.

NOTES.—The distinctive characters of galls are their shape, colour and astringent taste. English oak-galls or "oak-apples" are smooth, globular, brown, usually perforated, and much less astringent than Aleppo galls, containing only 15 to 20 per cent. of gallotannic acid. Chinese galls—produced by a species of *Aphis* on *Rhus semialata*, Murray (N. O. Anacardiaceæ)—are also of commercial importance, but they are employed chiefly for the manufacture of tannic and gallic acids, pyrogallol, ink, etc. They are not spherical but of extremely diverse and irregular form, their reddish-brown colour is masked by a covering of thick, grey, velvety down, and they contain about 70 per cent. of gallotannic acid. Aleppo galls contain from 50 to 70 per cent. of gallotannic acid and 2 to 4 per cent. of gallic acid, together with sugar, resin, etc.

Gelatinum.

GELATIN is an albuminoid substance extracted from animal tissues—such as skin, tendons, ligaments, and bones—by the action of boiling water. On cooling, the aqueous solution sets into a jelly, but if the water be driven off a thick syrupy liquid results which forms horny sheets on cooling and drying by exposure to the air. The crude product so obtained is known as glue, but by purification the odour and colour are removed, and commercial gelatin—the better varieties of which are known as "French gelatin"—is obtained. It has no medicinal properties, but is used in the preparation of the official Lamellæ and of Suppositoria Glycerini.

CHARACTERS.—Gelatin occurs in translucent and almost colourless sheets or shreds. When dissolved in 50 parts of hot water it should form an inodorous solution which will solidify to a jelly on cooling. It is insoluble in 90 per cent. alcohol, ether, or chloroform, but dissolves in acetic acid.

TESTS.—Gelatin is soluble in acetic acid, being thus distinguished from chondrin—a substance obtained from cartilage by boiling—which is precipitated from aqueous solutions by that acid. Aqueous solutions of gelatin yield no precipitate with solutions of any acid except tannic acid, the reaction in the latter case being the same as that which occurs during the conversion of hides into leather. Gelatin solutions are also unaffected by alum, lead acetate, ferric chloride, or the majority of metallic salts which precipitate proteids. Chondrin resembles gelatin in being precipitated from its solutions by tannic acid, but it also gives the reactions of mucin, being precipitated by acetic acid, lead acetate, and other reagents which do not affect gelatin.

NOTES.—The distinctive characters of gelatin are its translucency, practical freedom from colour and odour, and its solubility in hot water. It is not dissolved by cold water, but when immersed in that liquid it absorbs several times its weight, and is then readily reduced to the liquid form by the application of gentle heat. Gelatin is employed in pharmacy exclusively for its gelatinising power and, as that is apt to vary, Squire has suggested a simple test for the substance. He is of opinion that, on soaking 5 grains of gelatin in 250 grains of water for half an hour, then warming gently until dissolved, and finally cooling the test-tube in water at 15°·5 C. for half an hour, a jelly should be formed of such consistency that it will remain in position if the test-tube containing it be inverted.

Obituary.

HAYCROFT.—On May 10, at Florence, John Haycroft, Chemist and Druggist. Aged 55. For thirty years with Messrs. H. Roberts and Co., Florence. Mr. Haycroft was a member of the Pharmaceutical Society, his connection with the Society dating back to 1869.

WICKENS.—On May 26, at 78, Osborne Road, Southsea, Thomas Isaac James Wickens, Chemist and Druggist. Mr. Wickens had been connected with the Pharmaceutical Society since 1895, when he became a student in the Society's School of Pharmacy. After leaving the School he served for some time with Messrs. T. Morson and Sons, of Southampton Row, W.C.

WILSON.—On May 29, John Sheperd Wilson, Chemist and Druggist, Southsea (Hants). Aged 72.

Publications Received.

CHARTS FOR THE DETECTION OF ALKALOIDS, GLUCOSIDES, AND INSOLUBLE SUBSTANCES. For the Use of Minor Students. By F. PILKINGTON SARGEANT, Ph.C. Pp. 8. Leeds College of Pharmacy. 1900. From the Author.

NOTES ON ESSENTIAL OILS, With Special Reference to Their Use, Composition, Chemistry, and Analysis. By T. H. W. IDRIS, F.C.S. Second Edition. Pp. ix. + 234. London: Idris and Co., Pratt Street, Camden Town. 1900. From the Publishers.

AGRICULTURAL BOTANY, THEORETICAL AND PRACTICAL. By JOHN PERCIVAL, M.A. (Cantab), F.L.S. Pp. xii. + 798. Price 7s. 6d. London: Duckworth and Co., 3, Henrietta Street, Covent Garden, W.C. 1900. From the Publishers.

THE PHOTO-MINIATURE: A Monthly Magazine of Photographic Information—Developers and Development. Vol. I., No. II. February, 1900. Price 6d. London: Dawbarn and Ward, Limited, 6, Farringdon Avenue, E.C. From the Publishers.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

MANGANOUS FLUORIDE.

Manganous fluoride, MnF_2 , has been obtained by H. Moissan and Venturi in the form of a crystalline powder, by the action of aqueous solution of hydrofluoric acid, or of the gas, on metallic manganese; by the decomposition of manganous fluorosilicate, and by the decomposition of manganous carbonate with aqueous hydrofluoric acid. When the aqueous acid is employed, a pale rose-coloured solution of the hydrated fluoride is obtained; on heating this solution the anhydrous fluoride is precipitated in minute crystals. To obtain this in the form of well-formed larger crystals advantage is taken of the fact that it is soluble in anhydrous manganous chloride. A platinum crucible containing a mixture of manganous chloride and fluoride is placed in another porcelain crucible which in its turn is packed with charcoal in an earthen crucible. The whole is heated to redness so as to fuse the mixture and then allowed to cool slowly. The chloride is dissolved away with water and the crystals of manganous fluoride left are washed, first with dilute acetic acid and then with water. It forms handsome rose-tinted prisms, 1 Cm. long, having a density of 3.98, melting at $85^\circ C$. It is practically insoluble in water, in alcohol, and in ether. It is slightly soluble in ammonia, forming a definite crystalline compound having the composition $3(MnF_2)2NH_3$. Manganous fluoride is easily reduced by metals and metalloids, and readily combines with fluorine to form the sesquifluoride MnF_3 .—*Comp. rend.*, **130**, 1158.

CRURIN.

Crurin is the name now given to quinoline-bismuth-sulphocyanide; it is employed as an antiseptic. It has the composition $(C_9H_7N \cdot HSCN)_2 Bi(SCN)_2$, it melts at $76^\circ C$. and occurs as a coarse powder of reddish yellow colour with a somewhat sharp odour; it is insoluble in alcohol, water and ether. By treatment with excess of cold water, or by heating with diluted mineral acids, or by prolonged heating with alcohol, it is decomposed, otherwise the salt is very stable and may be kept for long periods. When dusted on slight secretions it forms a brown scab under which the wound rapidly heals.—*Pharm. Zeit.*, **45**, 27.

CHAULMOOGRA SOAP.

Gynocardia or chaulmoogra oil has long been known as a remedy for leprosy; but its continued use is difficult, on account of the unpleasant secondary action on the stomach and intestines. To obviate this difficulty, Unna proposes the use of chaulmoogra soap in pills prepared in the following manner:—Chaulmoogra oil, 1,000, are heated on the water-bath with a solution of caustic soda, 175, in water, 750 until the resulting soap solution is completely soluble in diluted alcohol (sp.g. 0.895). This soap is then heated to boiling with water, 2,500, then a solution of sodium chloride, 300, in water, 900, is added, and the whole again heated. The separated soap is then collected, washed, and pressed free from adhering moisture. A yield of from 1,400 to 1,500 is obtained. To mass into pills Unna employs, besides kieselguhr, a mixture of tallow and wax, compounded as follows:—Beef suet, 500, is shredded and melted with yellow wax, 100, then strained; to this cumarin, 0.5, in alcohol (90 per cent.), 5, is added. The pills are prepared according to the following recipe:—Chaulmoogra soap, 300; distilled water, 200. Melt together on the water-bath, then add of the above mass 200; kieselguhr, 100. Mass and divide into pills, each weighing 45 centigrammes. Coat with keratin. Each pill contains 0.18 Gm. of soap. corresponding to 0.15 Gm. of chaulmoogra oil. The daily dose of ten pills corresponds to chaulmoogra soap 1.8 Gm., or 1.5 Gm. of chaulmoogra oil.—*Oesterr. Zeits. für Pharm.*, **51**, 154.

VOL. 64. (FOURTH SERIES, VOL. 10.) No. 1563.

INTERACTION OF DIGESTIVE FERMENTS.

By means of the distinctive colour reactions of tyrosinase with the products of digestion V. Harlay has been able to show that panchreatin and papain are without any destructive action on each other, and that their individual activity in mixtures of the two ferments is unimpaired. Pepsin acts slightly on papain; while papain, in a neutral or acid liquid, partially destroys pepsin.—*Journal de Pharmacie*, [6], **11**, 466.

CHEMISTRY OF OLIBANUM.

According to H. Halbey, the resinous constituents of frankincense consist mainly of boswellinic acid, $C_{32}H_{52}O_4$, and olibanoresin $(C_{14}H_{20}O)_n$ in equal proportions, with a little of the former acid in the state of ester. Olibanum gives 4.7 per cent. of volatile oil, containing pinene, dipentene, phellandrene and cadinene; the gum resin also contains a small quantity of a bitter principle, which has not yet been examined. The gummy portion consists partly of calcium and magnesium gummate and partly of bassorin.—*Archiv.*, **236**, 487.

TUBERCULIN AND SUCCINIC ACID.

Koch has pointed out that the tubercle bacillus contains two unsaturated fatty acids, one of which is soluble in alcohol. Viquerat now shows that the compound present consists entirely of salts of palmitic and succinic acids, the outer integument containing the former, thus preventing its insolubility in water, the inner portion of the bacillus containing a definite body which is an alkaline succinate, thus proving that tuberculin TO or TR is not a proteid. To verify this the author has heated tuberculin to between 150° - $200^\circ C$. and finds that the reaction on tuberculous animals is not modified. At $235^\circ C$. tuberculin is sublimed; the sublimate showing distinct crystals of succinic acid under the microscope. Tuberculin gives a succinic acid reaction with barium chloride and with iron chloride. Tuberculous animals react as readily to the smallest dose of succinic acid as to tuberculin. Tuberculin glycerin extract TO or TR simply contains an aqueous solution of an alkaline succinate. It is suggested that the tubercle bacillus should be renamed the succinic acid bacillus.—*Schweiz. Woch.*, **38**, 87.

MALIC ACID IN HIPPOPHÆ RHAMNOIDES.

From the richness of the fruits of *Hippophæ rhamnoides* in malic acid Erdmann recommends it as a source of this body. The juice of the golden berries contains, as well, another acid, which was separated with difficulty from the mother liquor of calcium malate, owing to the large proportion of mannate present: it melts at about $150^\circ C$., but for want of material has not yet been identified.—*Pharm. Centralh.*, **41**, 200.

MANGANESE SELENIDE.

Fonzes-Diacon has obtained manganese selenide, $MnSe$, in a crystalline condition, both by wet and dry processes. When H_2Se is passed to saturation through a solution of manganese acetate containing a little hydrochloric acid, and the solution is allowed to stand for some days, protected from the air, it deposits fine greyish-black, opaque crystals of $MnSe$. When a mixture of nitrogen in H_2Se is passed over dried $MnCl_2$ heated to redness, a black mass is obtained which contains in the interior minute grey prisms which are yellowish grey by transmitted light. These crystals also have the constitution $MnSe$. Amorphous $MnSe$ obtained by precipitation, when heated in the electric furnace fuses to a button with a metallic lustre, which has a markedly crystalline fracture and structure. In an atmosphere of oxygen it is converted entirely into manganese selenate; this salt when heated in a current of hydrogen is reduced, SeO_2 is sublimed and a greenish friable mass, manganese oxyselenide, is left, mixed with some black $MnSe$.—*Comp. rend.*, **130**, 1023.

PHARMACEUTICAL NOTES.*

BY HERBERT SKINNER,

Pharmacist to the Great Northern Central Hospital.

CHRYSAROBIN AND PYROGALLOL.—The past year has not been a very prolific one in regard to new dermatological preparations. New formulæ have appeared, but no distinctly new and satisfactory remedy. In looking through Merck's Report for 1899, I find that opinions concerning the chrysarobin and pyrogallol substitutes have somewhat modified. Eugallol is still claimed to be more powerful than pyrogallol, but lenigallol, as far as my experience goes, is much too mild. Eurobin, the substitute for chrysarobin, also fails on the mild side, though it is claimed to be effective in psoriasis. Evidently reliance must still be laid on the old remedies, as the new ones are very uncertain; most of them are still on trial, and are more within the physician's province than mine at present. There is one new antiseptic, I notice, in this excellent report—asterol—chemically paraphenolsulphonate of mercury with ammonium freely and clearly soluble in warm water, though it is said to be seven times weaker than mercuric chloride in bactericidal power.

ANTISEPTIC SOAPS.—Many experiments have been made recently with antiseptic soaps. It is openly stated with regard to many that they are antiseptic in name only. Especially is this the case with sublimate soap, and this is what one would naturally expect. I have pointed out before how transitory their properties are, and when only a 1 per cent. of any antiseptic is used it follows as a matter of fact that scarcely any action could possibly result. It must of necessity be very strong to exert any action, and the majority of them do not contain half the antiseptic needed. Their number is increasing so largely that in prescribing them the object aimed at should be well considered, and the soap used as subsidiary only. True, the lather may be allowed to dry on, but that is a poor substitute for an absorbent ointment with an aqueous base and of a known definite strength. This leads me to a formula for an ethereal solution of soap which can be made extempore. It is a very useful one, and can be rendered antiseptic, not with mercuric chloride, but with the biniodide freshly prepared—that is, mercuric chloride dissolved in a strong solution of potassium iodide.

℞ Acidi oleici.
Spirit. vini. meth., of each ½ fl. oz.
Liquor ammon. fort., a sufficiency.
Ether. methylat. to 2 fl. oz.

The first two are mixed, and the ammonia added in order to neutralise the acid; care should be taken not to add excess. A little heat is evolved, but nothing to speak of; then add the ether, which may be increased to three ounces if a weaker solution is required. Petroleum spirit or benzene may replace the ether if necessary. It is undoubtedly very excellent for cleansing ointment-laden surfaces—far and away superior to any ordinary soap. It is better adapted for a physician's use in examination than for a patient. Any other antiseptic may be used, such as ether-soluble oils, IZAL, or Sanitas. Caustic tar preparations, such as Lysol and Creolin, are not excluded, but, naturally, should be sparingly used, as an ethereal solution is very penetrating. Liquor Picis Carbonis may be used instead of the spirit, providing it is made without resin soap—that is, prepared according to the Pharmacopœia. I saw an excellent ichthyol wash made with it, the hands requiring several hours to entirely get rid of the odour.

LIQUOR PICIS CARBONIS, WITH LIQUOR PLUMBI SUBACETATIS.—Mentioning Liquor Picis Carbonis brings to my mind a very useful modification of the well-known "Liquor Picis cum Plumbo."

℞ Liquor picis carbonis P.B. ¼ fl. oz.
Liquor plumbi subacet. 80 m.
Glycerin ad 1 fl. oz.

It is a small addition, but a very useful one. It suspends the flocculent precipitate, and when diluted is more soothing and cooling in

its application. When diluted to form a lotion, of course double the quantity should be used.

DUSTING POWDERS WITH BORIC ACID.—A conversation recently on dusting powders led me to try one of carbolic acid, and as it was required to be free from the old clogging fuller's earth, the following was devised:—

℞ Phenol. granul. 56 grs.
Ac. boric. pulv. subtil. to 1 oz.

The skin was found to absorb it readily, and in one case was rather irritating, so that a reduction in the amount of phenol was made. Boric acid is a slowly soluble base, and should never be used unless passed through a No. 60 sieve. There can be very little doubt that when a close application of anything that will admit of being mixed in this way, there is nothing equal to a good dusting powder, and boric acid, together with the other ingredient—be it chinol, izal, lysol, or sanitas oil—is slowly but continuously absorbed. The effect does not last so long as an insoluble base, and the medicament may be weaker. If a liquid is added the acid must be dried and passed through a No. 60 sieve, as in the case of the well-known creolin dusting powder.

CARBONATE OF ZINC.—One of the most common things the dermatologist uses is oxide of zinc; rarely, if ever, does he order the pure carbonate of zinc as distinct from calamine. It is to be regretted that the pure carbonate is not always used, as commercial calamine is often a far from desirable application to an inflamed epidermis. The oxide or carbonate used in the form of the so-called creams is one of the best ways of applying it:—

℞ Glycerin amyli.
Adeps lanæ hydros.
Zinci carbonas.
Glycerin of each ½ oz.

They are easily mixed, the first two together, then the second two, finally both together. The zinc may be increased to 50 per cent., or decreased, as the physician thinks necessary. A solidified "Lotion calaminæ" may be made on the same principle, and might prove more acceptable:—

℞ Glycerin amyli to 1 oz.
Zinci oxidi 1 drm.
Calamin 1½ drm.
Glycerin 1 drm.
Liquor calcis 2 fl. drms.

GELATIN APPLICATIONS.—I have been making many experiments to ascertain how far gelatin or agar agar can be used as an aqueous varnish, as hitherto the results are anything but satisfactory. The test for gelatin given in Squire's 'Companion' is that five grains dissolved in water, to produce 250 grains, just produces a solid mass. This can be preserved with thymol and applied to the skin; it then forms a very thin film, but it dries quickly, and it may then be felt on the skin. Agar agar is not suitable at all; a small quantity of acid liquefies it, but then it is worse than useless for the purpose. Gelatin, on the other hand, is more tractable, but any formula given will depend on the gelatin used. No two samples seem alike, whilst half an hour's heating will make two samples from the same lot behave differently. In trying to solve the difficulty I had recourse to the solvent action of acids, chloral, and sodium salicylate. In the first, half an ounce of gelatin in two ounces of water required three and a half fluid drachms of lactic acid to keep it in a pasty condition. The second, using the same quantity of gelatin and water, required 160 grains of chloral. This produced a beautiful thick film, comparable to collodion, and dried in two or three minutes. Sodium salicylate had much the same effect as chloral, using the same quantity. Going to the other extreme, I found that a 1 per cent. of chloral kept in a pasty condition a 5 per cent., and 1 of sodium salicylate a 6 per cent. solution of gelatin. All these solvents are somewhat objectionable, but where they are not the physician may find them very useful. In each case they formed a film varying in thickness according to their strength, but very durable and satisfactory in every way.

* From the *British Journal of Dermatology* for May, 1900.

Whilst dealing with gelatin I found an aqueous ointment base could be very easily made with oleic acid partly saponified:—

R	Glyco gelatin	1 oz.
	Ac. oleic.....	10 fl. drms.
	Liquor ammonia.....	15 m.
	Aqua dest.	2 fl. ozs.

It mixed well with aqueous preparations or oily ones.

In conclusion, I give two formulæ—one a modification of the Pharmacopœia, and the other a simple application of camphor, which is a very satisfactory way of applying it:—

R	Picis. liq.	5 ozs.
	Paraf. dur.	2 ozs.

The paraffin is melted, then the tar stirred in, the stirring being continued until cold.

R	Spirit camphoræ.....	2 fl. drms.
	Tinct. benzoin simp.....	½ fl. drm.
	Glycerin	½ fl. oz.
	Aqua dest. ....to	1 fl. oz.

Misce, secundum artem.

BACTERIOLOGICAL NOTES.

THE CLINICAL THERMOMETER AS A GERM CARRIER.—It is pointed out by Conklin (*Buffalo Med. Journ.*, February, 1900) that physicians are not always as careful as they might be over the sterilisation of their clinical thermometers. The degree marks, scratches, and other imperfections in the glass of the instrument form excellent situations for the lodgment of micro-organisms. A degree mark, for example, magnified 1,000 diameters, would measure 5ft. in length and nearly a foot in width! In this area 280,000 tubercle bacilli could be accommodated in a single layer. Conklin urges that not only should the thermometer be washed and wiped after use, but that the case should be large enough to contain some strong antiseptic solution in which the instrument would soak until used again.

BACILLUS PYOCYANEUS AND ITS PIGMENTS.—Jordan contributes a lengthy paper on the pigments of *Bacillus pyocyaneus* to the *Journal of Experimental Medicine* (IV., 1900, Nos. 5 and 6, p. 627), and the following are some of his conclusions:—The fluorescent pigment formed by some varieties of *B. pyocyaneus* is produced under conditions identical with those governing the production of pigment by other fluorescent bacteria. The production of pyocyanin is not dependent upon the presence of either phosphate or sulphate in the culture medium and occurs both in proteid and in non-proteid media. The fluorescent pigment may be oxidised slowly by the action of light and air as well as by reagents into a yellow pigment, and pyocyanin may be similarly oxidised into a black pigment. The power of producing pyocyanin under conditions of artificial cultivation is lost sooner than that of producing the fluorescent pigment.

INFLUENCE OF THE TEMPERATURE OF LIQUID AIR ON BACTERIA.—Macfadyen has subjected cultures of various bacteria to the temperature of liquid air (-183° to -192° C.) for twenty hours. The cultures of the organisms were young and vigorous and were tested both on solid and on liquid media, viz., gelatin, agar, potato, and broth. The organisms used in the experiments were *B. typhosus*, *B. coli communis*, *B. diphtheriæ*, *Spirillum cholerae asiaticæ*, *B. proteus vulgaris*, *B. acidi lactici*, *B. anthracis* (sporing culture), *Staphylococcus pyogenes aureus*, *B. phosphorescens*, and *Photobacterium balticum*. After being taken out of the liquid air, the cultures were carefully thawed and examined. In no instance could any impairment of the vitality of the micro-organisms be detected. The fresh growths obtained by subculturing were normal in every respect, and the functional activities of the bacteria were equally unaffected. The colon bacillus curdled milk, fermented

sugar, and formed indol, the *Staphylococcus aureus* retained its pigment-producing properties, anthrax its pathogenic action upon animals, and the phosphorescent organisms their luminosity. With regard to the latter, the cultures when cooled down became non-luminous, but on thawing the luminosity returned with unimpaired vigour. Plate cultivations made with liquid air itself gave colonies of the ordinary forms met with in air. (*Proc. Roy. Soc. Lond.*, vol. 66, February 1, 1900.) Further experiments by Macfadyen and Rowland confirm the foregoing results, but the test was more severe. ("Roy. Soc. Paper," April 5, 1900. *Lancet*, 1900, I., p. 1,130.) Cultures of the various organisms mentioned above, and also a sarcina, a yeast, and unsterilised milk were placed in a broth emulsion in fine quill tubing hermetically sealed. These were immersed in the liquid air, which, as before, was supplied by Professor Dewar, and a temperature of about -190° C. maintained uninterruptedly for seven days. Notwithstanding the enormous mechanical strain to which the organisms must have been subjected, not the slightest structural alteration could be detected, and their vitality and biological characters were unimpaired and unaltered. It is hoped at a future date to undertake experiments with liquid hydrogen.

ISOLATION OF THE BACILLUS TYPHOSUS AND OF THE BACILLUS COLI FROM WATER.—Hankin describes a method for the isolation of the typhoid bacillus from a polluted water, which he states is frequently, but not always, successful. Five tubes are taken, each containing 10 C.c. of neutral bouillon. To four of the tubes one, two, three, and four drops respectively of Parietti's solution are added; to the fifth tube no addition is made, it serves as a control of the bouillon for the growth of micro-organisms. Each tube is infected with a few drops of the water to be tested, is capped and placed in the incubator at 37° C. for twenty-four hours. On the following day a variable number of these tubes will be found to be turbid. The tube containing the highest number of drops of Parietti that is yet turbid should be discarded. Usually the tube next below this in the series should be chosen, unless it has a thick scum, or has growth only in the depth. A tube should be preferred which has a uniform turbidity, without gas-bubbles, and is usually the one containing two or three drops of Parietti. The selected tube is then used to inoculate a second series of Parietti broth tubes, four or five; the first tube has the same addition of Parietti as the selected tube, the second tube one drop more, and so on. For example, if the tube with three drops is the selected one, the first tube of the second series has an addition of three drops of Parietti, the second tube four drops, etc. Two or three drops of the broth of the selected tube are used to inoculate each tube of the second series. They are capped and incubated as before. On the following day a tube is selected from the second series, as from the first series, and a third series of Parietti broth tubes is inoculated and incubated similarly to the second series. Again, from the third series a tube is similarly selected and either used to inoculate a fourth series, from which again a tube is selected for inoculation onto agar, or is used for inoculation onto agar. The tube chosen is now inoculated onto agar-tubes, the agar having a dry surface, so that colonies shall not run together. A loopful, on a glass bristle, is drawn from the bottom to the top of this sloping dry agar in a zig-zag manner, several tubes being so inoculated. These are incubated at 37° C. until the following day, when the colonies are examined. Each colony that is at all suspicious is then sub-cultured on to a fresh litmus-agar tube; this necessitates 5-10 tubes for a comparatively pure water, 10, 20, or more if obviously polluted. The tubes are incubated at 37° C. On the day after inoculation some of the tubes will have turned red, these may be discarded; after another twenty-four hours others may turn red, these may also be discarded. Of the tubes that remain blue, those in which the growth is obviously different from that of the typhoid bacillus may be disregarded. The remaining tubes are

then subjected to a microscopical examination, and those resembling typhoid are sub-cultured into milk, potato, etc., and tested with typhoid serum as to their agglutination. The litmus agar employed is prepared by liquefying a litre of ordinary nutrient agar-agar in the autoclave, grinding up in a little water in a mortar 25 grammes of litmus and 30 grammes of milk sugar, straining through muslin, and adding to the liquefied agar, which is shaken, distributed into test-tubes, and sterilised in the autoclave. (*Centr. f. Bak.*, xxvi., 18/19, p. 554.) Pakes also suggests a method for the isolation of typhoid and of coli, a method which again sometimes fails for typhoid. The medium employed is a glucose formate broth (0.4 per cent. of sodium formate). A measured quantity of the water is added to the broth tubes, which are incubated at 42° C. anaerobically by Buchner's method (alkaline pyrogallol). The high temperature (42° C.) and strictly anaerobic conditions inhibit the growth of most organisms, except typhoid and coli. At the end of eighteen to twenty-four hours the tubes are examined, and any which show signs of growth are further examined by plate cultivations. The other tubes are replaced in the incubator for another twenty-four hours, and if at the end of this time there be still no growth, for a third twenty-four hours. Tubes which show a growth are examined as before, but if there is no growth after seventy-two hours the tubes are discarded. For the examination of water for the *Bacillus coli* the same procedure is adopted, but the water is concentrated by filtration through a Berkefeld filter. (*Public Health*, XII., No. 6, March, 1900, p. 385.)

SIGNIFICANCE OF THE PRESENCE OF THE BACILLUS COLI IN WATER.—In the same paper Pakes draws the following conclusions from the presence of the *Bacillus coli communis* in water. Drinking water from a deep well should contain no *B. coli*; water from other sources which contains the *B. coli* in 20 C.c., or less, should be condemned; that which contains the organism in any quantity between 20 C.c. and 50 C.c. should be regarded as suspicious; between 50 C.c. and 100 C.c. as slightly suspicious; and only in greater quantities than 100 C.c. as probably safe. If no *B. coli* be obtained from two litres, it may be regarded as absolutely safe. Pakes believes that the bacteriological examination of water affords more information as to the kind of contamination than the chemical. Oxidised organic matter, as evidenced by nitrates, for example, would probably be undetectable by the bacteriologist, but in another case where the water originally contained no *B. coli* in 50 C.c., and yielded 0.003 parts of albuminoid ammonia and absorbed 0.01 parts of oxygen per 100,000, after contamination there was one *B. coli* in every 5 C.c.—undoubted evidence of contamination—yet the figures for the chemical examination were only 0.004 albuminoid ammonia and 0.02 oxygen absorbed per 100,000.

INFLUENCE OF FIXING AGENTS UPON STRUCTURE.—It has been stated by Gulland that when salmon enter our estuaries there has begun an extensive desquamative catarrh of the mucous lining of the intestines, which spreads upwards to the stomach. The specimens on which this statement was based were fixed in perchloride of mercury. Barton now shows that if the stomach and intestine of the salmon be placed at once in a mixture of equal parts of spirit and $\frac{1}{2}$ per cent. chromic acid, so far from there being any desquamative catarrh, the mucous membrane reveals the most perfectly natural epithelium. It is most important, in order to obtain the normal appearances, to avoid post-mortem change, and not to fix in perchloride or formalin. (*Journ. of Anat. and Physiol.*, April, 1900.)

PURIFICATION OF LINSEED OIL WITH OZONE.—The oil is heated to a suitable temperature by means of steam and then ozonised air is passed through it. The impurities are destroyed without affecting the characteristic properties of the oil.—*Pharm. Centralh.*, 41, 255.

RECENT WORKS IN BOTANY.

A GLOSSARY OF BOTANIC TERMS. By B. D. JACKSON. Pp. 327. Price 6s. net. London: Duckworth and Co. 1900.

It is now nearly thirty years since a work on botanic terms was published in this country, notwithstanding that the science of botany has made rapid progress, especially in the departments of vegetable physiology and anatomy. The natural result has been a large increase in the number of botanical terms, the whole of which cannot be found in any one text-book, and many not in some of the most recent dictionaries, as witness the recent letters in this Journal on the words "ecology" and "perennate." Mr. Jackson has taken great pains to make the 'Glossary' as complete and up-to-date as possible, and has succeeded in bringing up to 15,000 the number of terms explained in it, or about three times as many as in any previous work in the language.

The difficulty of giving definitions of terms in a concise form can only be fully appreciated by a teacher. Thus the terms used to define colours differ so much in their significance to different people that the author had to make a special study of that department, the results of which he published in the 'Journal of Botany,' xxxviii. (1899), p. 97-105. Perhaps no better illustration of the conciseness of the explanations given could be taken than the definition of the word purple—"a secondary tint, a mixture of red and blue in varying proportions." Another difficulty has naturally been in the matter of pronunciation, and in this Mr. Jackson has wisely endeavoured to follow the best discoverable usage, and has employed English accentuation for words that have become thoroughly Anglicised.

An ingenious plan has been adopted by the author to economise space and reduce the book to a portable and convenient size—viz., the grouping into paragraphs of all terms derived from the same leading word. Thus under the paragraph beginning "micrandre" the terms included number over forty, from micro-aerophilous to micro-zyme. The plan of using a capital initial letter for terms that are nouns and a small initial letter for those that are adjectives is rather confusing, in spite of the fact that the leading term in each paragraph stands out in the margin, since in long paragraphs the slightly heavier type does not sufficiently distinguish the adjectival terms from the text. Indeed, the work might be much improved by the use throughout the text of a heavier and more distinctive type for the botanical terms. Of course, a number of terms have been used only by single writers, and in such cases the inventor's name is given, so that some idea of the general or limited use of a word is thus indicated. The superabundance of terms is sometimes instructively, but necessarily without comment, given; thus, under "Symbiosis, the living together of dissimilar organisms with benefit to one only or both; also styled commensalism, consortism, individualism, mutualism, nutricism, prototrophy, and syntrophism," the superfluity of synonyms is rendered very prominent. The 'Glossary' should be useful not only to the student, but to the coiner of new terms, since the author occasionally indicates the wrong use of terms, thus under macro the frequently erroneous use of the word is pointed out as follows:—"Macro (*μακρὸς*, long) in Greek compounds = long; frequently, but improperly, used for *mega*, or *megalo*, large." There is no doubt that in such words as macrospore and macroscopic the half-word *mega* would lead to less confusion, especially as *macro* is used in the correct sense of long in the words macrophyllous and macranthus. Doubtless for this reason the word megascopic was introduced in Knight's 'Materia Medica,' but too late to find a place in this 'Glossary.' The terms ecological (preferably spelt *œcological*) and perennate with their variations are, however, fully given. The inclusion of the names of chemicals derived from plants seems to the writer rather outside the range of a 'Glossary of Botanical Terms.' The author is here going a little out of his own line, and one must expect perhaps such lapses as *Thein* and *Theobromine*, and to find *Thein* described as the most important alka-

loid in the leaves of *Thea*, the tea-plant, whilst caffeine is described as an alkaloid from coffee berries, *Coffea arabica*, Linn.

The definition of balm ("*βάλσαμον*, balsam), a thick, usually resinous, exudation of reputed medical efficacy; balsam, a similar exudation, generally of resin mixed with volatile oil"; would hardly satisfy the student of materia medica or pharmacognosy. Gamboge, however, has a shadow of a claim to appear, since the name, as a type of a yellow tint, is sometimes applied to flowers. The definition given, however, is "a yellow resinous gum from several species of Guttiferæ," and as such it scarcely comes within the range of botanical terms, and would more likely be looked for in works on economic botany. The author, however, disarms criticism on such points by remarking in the preface "How far it is advisable to include terms from those overlapping sciences which lie on the borderland is a question on which no two people might think alike." It is evident that Mr. Jackson has had no easy task, and he has done his work well and as thoroughly as possible. He has availed himself of the botanical knowledge obtainable from the Royal Gardens at Kew and the British Museum, and from many of our leading botanical professors and officers in botanical establishments, and frankly and freely acknowledges his indebtedness to them. The result of his labours is a work which may be cordially recommended to every student of botanical science as a most valuable book of reference, and we venture to prophesy a ready sale for it and a call for a new edition within a few years. The author may well be congratulated on such an excellent and useful work.

AGRICULTURAL BOTANY: THEORETICAL AND PRACTICAL. By J. PERCIVAL, M.A., F.L.S. Pp. 798. Price, 7s. 6d. net. London: Duckworth and Co. 1900.

This work is an attempt to meet the demand for a botanical text-book suitable for agricultural students and containing information of practical value, in addition to a scientific explanation of known facts. The author has had considerable experience in lecturing to students, as well as to practical farmers and gardeners, being Professor of Botany at the South-Eastern Agricultural College at Wye, in Kent, and the clearness of style and careful explanation of terms used affords internal evidence of the fact. The first three divisions of the book are devoted to General External Morphology, Internal Anatomy, and Physiology, and contain a great deal that would be known to the ordinary student of botany, but many points on which little stress is laid in ordinary text-books, such as leaf buds, are treated here at considerable length, and are used as pegs on which to hang much useful practical information. Thus under this heading are given the means of recognition of trees by the buds on their twigs in winter, the development of spurs or fruit buds on different fruit-trees, the methods and principles of budding and grafting, the artificial development of adventitious buds as a means of propagating begonias, hyacinths, and other bulbs, etc. In other words, these three sections contain ordinary botanical scientific facts with their practical application in horticulture and agriculture in addition. Section iv. is devoted to some of the more important natural orders, with special reference to the plants employed in agriculture. The chapter on grasses should be very useful to veterinary students, from whom a knowledge of fodder plants is generally required, and every farmer who wishes to cultivate fruit-trees or roots or vegetables successfully on scientific methods should not fail to read carefully the chapters devoted to the Chenopodiaceæ, Cruciferae, and Leguminosæ and cereals. Part v. is devoted to the weeds of the farm, and here the ordinary gardener may glean much valuable information, since instructions are given as to the period at which, and the methods by which, they may most successfully be prevented from propagating their kind. Part vi. is given over to farm seeds, and this contains information valuable alike to the seedsman and the farmer and to the analyst who has to test seeds. Part vii. is remarkable for the very lucid treatment it gives to the subject

of fungoid diseases of plants and the methods to be adopted in preventing and curing them. Part viii. refers to the bacteria that affect plants and animals or are concerned in the processes of fermentation, putrefaction, nitrification, etc. The work may be recommended for careful perusal, not only to the agricultural student, but to the florist, market gardener, seedsman, veterinary student, amateur gardener, and, indeed, to anyone who has a garden and takes an interest in the cultivation of plants. All the drawings in the work are stated to be original, a feature by no means common in modern works. As many as 334 paragraphs in smaller type are scattered throughout the book, giving directions to students how to carry out experiments illustrative of the descriptions in the text. These should be a great help to the student preparing for examinations in agriculture. It is one of the text-books that should find a place in every library where technical works form a prominent feature.

PRACTICAL NOTES AND FORMULÆ.

Prevention of Guttering in Candles.

This is prevented by immersion in a solution of magnesium sulphate, 3; dextrin, 3; water, 20. The solution dries rapidly and does not influence the burning.—*Deuts. Am. Apoth. Zeit.* **20**, 131, after *Ph. Rundsch.*

Ointment for Hæmorrhoids.

Lanolin, 120; petrolatum, 75; glycerin, 45; extract of hamamelis, 30; tannic acid, 4; tincture of opium, 4.—*Pharm. Post*, **32**, 721, after *Bull. of Pharm.*

Remedy for Chapped Hands.

The surest preventive is thoroughly to dry the hands after washing, and then to smear them with a fat, free from water, e.g. olive oil or wax ointment. To cure chaps, use (1) Menthol, 1; salol, 2; olive oil, 10; lanolin, 30. To produce a smooth and white skin use zinc oxide, 5, and bismuth oxychloride, 2.5, rubbed down with oil, 12; then add glycerin, 5, and lanolin, 30; finally perfume with rose water, 10. *Lanolin Powder*.—Lanolin is dissolved in ether, and this solution mixed with magnesium carbonate to a stiff mass, and this rubbed down with talc and starch.—*Schweiz. Woeh. für Pharm.*, **38**, 3, after *Pharm. Zeit.*

Pharmacy of Terpin Hydrate.

Elixirs of Terpin Hydrate:—Terpin hydrate, 17.5 Gm., is dissolved in alcohol, 400 C.c.; glycerin, 400 C.c., are added, and the solution is made up to 1,000 C.c. with distilled water. The terpin hydrate remains dissolved at ordinary temperatures; when abnormally cold it crystallises out, but is easily re-dissolved on warming. Terpin hydrate, 2; alcohol (80 per cent), 30; glycerin, 67; tincture of vanilla, 1. *Terpin Hydrate Syrup*:—Terpin hydrate, 2; alcohol (90 per cent.), 30; glycerin, 67; tincture vanilla, 1; simple syrup, 100.—*Pharm. Post*, **23**, 111, and *Oesterr. Zeits. für Pharm.*, **54**, 100.

Removal of Silver Stains.

As substitutes for the poisonous potassium cyanide, Crédé recommends the following methods for removing silver stains. (1) The article to be cleaned is immersed for five minutes in a sublimate-sodium chloride solution and washed twice or thrice with pure water. (2) To a 20 per cent. ammonium chloride solution, tincture of iodine is added until it is tinted from yellow to brown; this solution is allowed to react on the spot for five minutes, and then several crystals of sodium thiosulphate or ammonium chloride are placed on the treated portion, which is finally washed out with water. (3) The silver stains are treated with eau de Javelle, and after five minutes, washed with water containing 0.5 per cent. of hydrochloric acid.—*Pharm. Centralh.*, **41**, 168.

ASSAY OF DRUGS BY THE USE OF LIVING PLANTS.*

BY HENRY KRAEMER.

While I have a certain amount of hesitation in presenting the results recorded in this paper at the present time, it nevertheless seems to me that more would be gained by such a procedure than by withholding them for a longer time in order to accumulate more data, and in support of this position permit me to quote the following from Montesquieu: "When you treat a subject, it is not necessary to exhaust it, it is enough if you cause thought."

The subject of the testing of drugs by means of their effects upon living plants is not an entirely new one, as I supposed and ventured to state in my paper on "The Valuation of Drugs and Foods" a year ago. In fact, methods of this kind have been employed to a considerable extent in Europe and appear to be of fundamental importance in ascertaining the toxic properties and therapeutic value of drugs. No less an authority than Kobert, in his "Lehrbuch der Intoxicationen" (1893), says that, after one has obtained the substance relatively pure and made a neutral solution, "Der Gang der Untersuchung ist nun der, dass man erst den Einfluss auf möglichst niedrige Wesen pflanzlicher und thierischer Natur, dann auf höhere kaltblutige und deren einzelne möglichst isolirte Organe oder Stückchen derselben und zuletzt auf die Warmblüter in aufsteigender Reihe untersucht, so dass von Längern (*sic*) erst Pflanzenfresser, dann Fleischfresser, dann Omnivoren, dann körner- und fleischfressende Vögel und erst dann Menschen als Reagens benutzt werden und zwar zuerst der Experimentator, dann andere gesunde Menschen, dann Patienten. Das Leitmotiv für alle Versuche und namentlich für die Reihenfolge derselben soll das Mitgefühl für die armen gequälten Geschöpfe sein. Man stellte daher Punkte, welche an niederen Wesen untersucht werden können, nicht ohne Noth an höheren fest. Das am wenigsten gequälte Wesen soll natürlich der kranke Mitmensch sein. Es muss daher als ein Act der Bärerei und mangelhafter pharmakologischer Erziehung gebrandmarkt werden, dass sich noch immer Aerzte finden lassen, welche Mittel von schwankender oder unbekannter Zusammensetzung und Wirkung sofort an den Patienten ihrer Praxis auf Gerathewohl hin zu prüfen sich bereit finden lassen."

The following plants or parts of them have been employed in experiments of this kind: Bacteria, Oscillaria, Spirulina, Nostoc, Zygnema, Spirogyra, Chara, Drosera, Tradescantia, yeasts, spores of mucor, Elodea, Lemna, Pistia, Potamogeton, Myriophyllum, Ceratophyllum, grasses, lentils, beans, peas, &c. (See Kobert, *loc. cit.*)

The data herewith presented are the results of experiments which were carried out under my direction by Willard Ohliger in the Botanical Laboratory of the Philadelphia College of Pharmacy. When the work was undertaken it was hoped that a number of drugs could be experimented with and also a number of plants, but up to the present it has been found impossible to extend the experiments further than those which follow. The plants used in these experiments were: Seedlings of *Lupinus albus* and *Pisum sativum*, L. The following are the substances which were used in experimenting upon these plants: Ethyl alcohol, strychnine nitrate, brucine sulphate, tincture of nux vomica, U.S.P., and tincture of nux vomica, free from fat.

Method of Testing.

The seeds of the above-named plants were first soaked in water for twenty-four hours, after which they were placed on moistened

excelsior, arranged in such a manner as to be covered with a bell-jar. This was then placed in a dark room and germination of the seeds allowed to proceed until the radicles acquired a length of from 25 to 30 millimetres. The radicles were then marked with India ink 20 millimetres from their tips and placed in the solutions of the different drugs. The containers used for the solutions were 50 C.c. glass vials, which were perfectly clean. The method found best adapted for supporting the seedlings was as follows: The vials containing the solutions were arranged in a circle on a plate, and a large cork placed over them in such a way as to come partly over the mouth of each vial. To this cork the seedlings were attached by means of small staples or double-pointed tacks, so as to immerse the radicles in the solutions. The vials were then covered with a bell-jar and placed in a dark room. After a period of twenty-four hours the seedlings were removed from the solutions, and the radicles carefully measured to ascertain their length of growth. They were then replaced in the solutions and allowed to stand another twenty-four hours, when measurements were again made.

In cases of death the radicles presented a flabby and transparent appearance, and in a few cases they were shorter than at the beginning of the experiment.

In the first series of experiments alcoholic solutions were employed in order to obtain the constant for that liquid, as it was likely to be employed in the preparation of the solutions of the various drugs to be tested.

The following table gives the strength of alcohol employed, the actual growth of two seedlings of *Pisum sativum* and two of *Lupinus albus* in twenty-four hours and the temperature at which the experiments were performed, this temperature being adopted likewise for the succeeding experiments.

Ethyl Alcohol.

Temperature (16°-21° C.).

First 24 Hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
0.01	9 mm.	Apparently normal	14.5 mm.	Apparently normal
0.1	9 "	Crooked	15 "	"
	10.5 "		16 "	
0.5	11 "	Apparently normal	16.5 "	"
	10 "		15.5 "	
1	10 "	"	15.5 "	"
	8.5 "		13 "	
2	8.5 "	"	14 "	"
	8 "		11.5 "	
3	8 "	"	12.5 "	"
	6 "		9 "	
4	7 "	"	8.5 "	"
	4 "		5 "	
5	4.5 "	"	4.5 "	"
	2 "		2 "	
6	2 "	"	1 "	"
	1 "		No growth		Dead, flabby
7	1 "	"	"	"
	No growth	Dead, flabby	—	—

In the foregoing experiments it is seen that no growth of the root occurred in the solution containing 7 per cent. of alcohol, and that in the solutions containing between 6 per cent. and 0.5 per cent. there was a gradual increase in the length of the root according as the strength of alcohol in the solution was diminished, and that in the solutions containing 0.1 per cent. and 0.5 per cent. there was a slight increase in growth over those contained in weaker solutions. It may be stated here that in distilled water *Pisum sativum* grew 18 millimetres and *Lupinus albus* 19 millimetres in twenty-four hours.

In the following table the lengths of the roots at the end of the second twenty-four hours are given:

* Presented at the Richmond Meeting of the American Pharmaceutical Association, May, 1900.

Ethyl Alcohol.

Temperature (16°-21° C.).

Second 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
0.01	15 mm.	Apparently normal	19.5 mm.	Apparently normal
0.1	15 "	Crooked	20 "	"
	16.5 "		22 "	
0.5	17 "	Apparently normal	21 "	"
	16 "		21 "	
1.	13 "	"	18 "	"
	12.5 "		19 "	
2.	11 "	"	14.5 "	"
	11 "		15.5 "	
3.	8.5 "	"	13 "	"
	9.5 "		13 "	
4.	5 "	"	5.5 "	"
	5 "		5.5 "	
5.	2 "	"	2 "	"
	2 "		1 "	
6.	1 "	Flabby	No growth	Dead
7.	No growth	Dead	—	—

These experiments show that the seedlings growing in the solution containing but 0.01 per cent. alcohol still grew slightly less than those in the solutions containing 0.1 per cent. and 0.5 per cent. alcohol, and that in the solutions containing over 5 per cent. there was no further growth.

In the following experiments aqueous solutions of strychnine nitrate (Merck's) containing the following amounts of the alkaloid to 50 C.c. of distilled water were used: $\frac{1}{30}$ grain, $\frac{1}{20}$ grain, $\frac{1}{15}$ grain, $\frac{1}{12}$ grain, $\frac{1}{10}$ grain, $\frac{1}{8}$ grain, $\frac{2}{8}$ grain, $\frac{3}{8}$ grain, $\frac{4}{8}$ grain, 1 grain.

Strychnine Nitrate.

Temperature (16°-21° C.).

First 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{30}$ gr. or .0022 gm.	10 mm.	Apparently normal	15.5 mm.	Apparently normal
$\frac{1}{20}$ gr. or .0032 gm.	8.2 "	"	15 "	"
	9 "		15 "	
$\frac{1}{15}$ gr. or .0043 gm.	10.5 "	"	16 "	"
	10.5 "		16 "	
$\frac{1}{12}$ gr. or .0054 gm.	6 "	"	10 "	"
	5.5 "		10 "	
$\frac{1}{10}$ gr. or .0065 gm.	5 "	"	8.5 "	"
	5 "		7.5 "	
$\frac{1}{8}$ gr. or .013 gm.	4.5 "	"	6.5 "	"
	4 "		6 "	
$\frac{2}{8}$ gr. or .025 gm.	3 "	"	4.5 "	"
	3 "		4 "	
$\frac{3}{8}$ gr. or .039 gm.	2 "	"	3 "	"
	1.5 "		3 "	
$\frac{4}{8}$ gr. or .052 gm.	1 "	"	2 "	"
	1 "		2 "	
1 gr. or .065 gm.	No growth	Dead, flabby	No growth	Dead, flabby.

It is interesting to note that in the above experiments the maximum growth of both the *Pisum sativum* and *Lupinus albus* occurred in the solution containing $\frac{1}{15}$ grain of the alkaloid, while those in solutions of weaker strength grew slightly less. The solution which proved toxic contained 1 grain of strychnine in 50 C.c. of distilled water.

In the following table the lengths of the roots at the end of the second twenty-four hours are given :—

Strychnine Nitrate.

Temperature (16°-21° C.).

Second 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{30}$ gr. or .0022 gm.	16 mm.	Apparently normal	25 mm.	Apparently normal
$\frac{1}{20}$ gr. or .0032 gm.	16 "	"	25 "	"
	15.5 "		24 "	
$\frac{1}{15}$ gr. or .0043 gm.	15 "	"	24 "	"
	17 "		26 "	
$\frac{1}{12}$ gr. or .0054 gm.	17 "	"	26 "	"
	17 "		26 "	
$\frac{1}{10}$ gr. or .0065 gm.	14 "	"	22 "	"
	13 "		22 "	
$\frac{1}{8}$ gr. or .013 gm.	7 "	"	9 "	"
	7 "		8 "	
$\frac{2}{8}$ gr. or .025 gm.	5.5 "	"	7 "	"
	6 "		6 "	
$\frac{3}{8}$ gr. or .039 gm.	4 "	"	5 "	"
	4 "		5 "	
$\frac{4}{8}$ gr. or .052 gm.	2 "	"	3.5 "	"
	2 "		3 "	
1 gr. or .065 gm.	1.5 "	Transparent	2.5 "	Transparent
	1.5 "		2 "	
1 gr. or .065 gm.	No growth	Dead	No growth	Dead

The above experiments show that the seedlings growing in the $\frac{1}{15}$ grain solution still grew more than those in solutions of $\frac{1}{30}$ and $\frac{1}{20}$ grain, and that in solutions containing between $\frac{1}{15}$ and 1 grain there was a gradual decrease in growth as the amount of strychnine was increased.

The following experiments give the results with solutions of brucine sulphate (Merck's) containing $\frac{1}{30}$ grain, $\frac{1}{20}$ grain, $\frac{1}{15}$ grain, $\frac{1}{12}$ grain, $\frac{1}{10}$ grain, $\frac{1}{8}$ grain, $\frac{2}{8}$ grain, $\frac{3}{8}$ grain, $\frac{4}{8}$ grain, 1 grain, in 50 C.c. of distilled water :—

Brucine Sulphate.

Temperature (16°-21° C.).

First 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{30}$ gr. or .0022 gm.	10.5 mm.	Apparently normal	16 mm.	Apparently normal
$\frac{1}{20}$ gr. or .0032 gm.	10.5 "	"	16.5 "	"
	9 "		15 "	
$\frac{1}{15}$ gr. or .0043 gm.	9.5 "	"	15.5 "	"
	11 "		16.5 "	
$\frac{1}{12}$ gr. or .0054 gm.	12 "	"	17 "	"
	11.5 "		17 "	
$\frac{1}{10}$ gr. or .0065 gm.	13 "	"	17.5 "	"
	7.5 "		10 "	
$\frac{1}{8}$ gr. or .013 gm.	7 "	"	11 "	"
	6 "		9 "	
$\frac{2}{8}$ gr. or .025 gm.	6.5 "	"	9.5 "	"
	5 "		6 "	
$\frac{3}{8}$ gr. or .039 gm.	5 "	"	6 "	"
	3.5 "		4 "	
$\frac{4}{8}$ gr. or .052 gm.	3 "	"	4.5 "	"
	2 "		3 "	
1 gr. or .065 gm.	2 "	"	3 "	"
	2 "		3 "	
1 gr. or .065 gm.	No growth	Dead	2.5 "	"
1 gr. or .065 gm.	—	—	No growth	Dead

Comparing the above experiments with those in which strychnine was employed, we notice that the growth of the seedlings in all cases was slightly more than that in the corresponding strengths of strychnine, and that death occurred in the solution containing $\frac{1}{15}$ grain of the alkaloid, whereas with strychnine the toxic percentage was 1 grain in 50 C.c. of water.

(To be concluded.)

PILL-EXCIPIENTS.*

BY ALFRED I. COHN, PH.G., NEW YORK.

KAOLIN, in conjunction with some mineral fat like petrolatum, is invaluable for massing drugs which are readily oxidisable by organic matter, but which it is desirable to exhibit in pill form. Among the drugs for which it is especially adapted are silver nitrate, the permanganates, and phosphorus. In making pills of silver nitrate or a permanganate it is only necessary to reduce the substance to very fine powder, thoroughly triturate it with the kaolin, and then simply mass with sufficient petrolatum. In place of petrolatum, resin cerate, cacao butter, adeps lanæ, and similar fats have been recommended, but these are all objectionable because of their organic character, in consequence of which the drugs are more or less rapidly decomposed. Many workers have recommended water to be used in conjunction with kaolin in making pills of silver nitrate or a permanganate. Whoever has tried both ways here detailed will never use the "water" method any more. In the first place, it is difficult to gauge the correct quantity of water necessary, and the mass is hence likely to be either too dry or too moist. Then, again, great rapidity and expertness are required in cutting and rolling the mass, as the latter sets quickly, and when once hard cannot be well worked over again. In addition to these drawbacks, the water dissolves the silver nitrate or potassium permanganate, and in either case the operator is reasonably sure of having his fingers disagreeably stained. The use of petrolatum avoids all this; and the pills rapidly disintegrate in the stomach. Kaolin is also of use as a means of exhibiting hygroscopic substances, such as bromides, iodides, chlorides, acetates, etc., in pill form, using petrolatum, adeps lanæ, resin, cerate, etc., as an excipient. Pills so made keep perfectly, and do not show any tendency to become moist.

LIQUORICE EXTRACT.—Powdered extract of liquorice is a favourite excipient with German pharmacists and physicians, and deservedly so. It possesses very great binding power, and it is useful in a large number of cases, water only being necessary to insure a good mass. It is particularly useful in cases where the ingredients ordered are likely to afford a soft mass with other excipients. Care must be taken, however, not to use too much of it, as the pill mass then becomes "rubbery," and difficult to roll, while the pills are prone to become too hard, and difficultly soluble. A great advantage in using it is that it may be added directly to and triturated with the pill ingredients. It is excellently adapted for use in pills which are to be coated with silver, keratin, or salol.

LIQUORICE POWDER.—Powdered liquorice root is used very much like althea powder. It does not, however, swell up so, as the latter does, and is inferior as a filler. It is nevertheless an excellent diluent for drugs which are ordered in small doses in pill form, and with the addition of a little powdered extract of liquorice, it affords an excellent mass with water. The powder is universally used for dusting the dry pills with, and for dusting the mass while rolling. For this purpose only the powdered Russian liquorice root should be used—it is lighter in colour and free from the bitterish taste exhibited by the ordinary powder.

MAGNESIA is chiefly used as a means of massing balsam of copaiva, with which it unites to form a rather stiff mass. It may be used for oleoresins, in general, as well as for oils. In massing copaiva balsam, about one-sixteenth of the weight of the latter in magnesia is sufficient; the solidification may be accelerated by slightly warming the mortar. Magnesia cannot, however, be considered as an ideal substance for the purpose, because pills made by means of it are prone to become very hard in time, and quite insoluble. The hardening may be materially retarded by adding a little adeps lanæ, say about one-twelfth of the entire mass.

SOAP.—Powdered Castile soap with a drop or two of water or alcohol is useful as an excipient for resins, oils, camphor, opium, camphor monobromated, etc. Too much must not be used, how-

ever, otherwise the mass is apt to become too soft. Should this occur, it may be amended by adding a little kaolin.

STARCH is used as an excipient only in the form of a glycerite. The latter preparation is particularly applicable where white pill masses are desired. As generally made, however, it is altogether too soft, and lacks sufficient cohesive power for practical purposes, while the quantity of glycerin it contains tends to result in too soft a pill mass, and, in consequence, of the flattening of the finished pills. The addition of a little powdered tragacanth will largely overcome these defects and render the preparation of greater utility.

Starch in powder form is frequently used for dusting the pill machine when rolling white pill masses, and also dusting the finished pills.

SUGAR.—This, in the form of powder or as a syrup, is a favourite with many pharmacists. It is effective in a large variety of cases, but is inferior to honey, glucose, or tragacanth glycerite. Its proneness to become sour in time on exposure, when in the form of syrup, is an additional disadvantage.

TRAGACANTH.—In the form of a powder, or as a glycerite, tragacanth is one of the most useful of excipients, combining great cohesive powers with ready disintegration unless used in too large a quantity. The powder may be added directly to the substances ordered, and the massing effected by water, honey, glucose, syrup, or glycerin. Water usually suffices, and is to be preferred. Care must be taken not to use too much of the powdered tragacanth, otherwise the mass becomes rather elastic, shows numerous fissures on the surface, and cannot be readily rolled and cut. By the use of the tragacanth glycerite these drawbacks are avoided, but, on the other hand, there is again the danger of having too soft a mass, and considerable labour is required, as the glycerite must be added in very small quantities and each addition thoroughly worked in, in order to avoid getting a mass which will require some filler to stiffen it again. Excellent excipients may be made by combining tragacanth with other substances, such as acacia, glucose, etc. Suitable mixtures are the following:—

1.—Powdered Acacia	1 part.
Powdered Tragacanth	2 parts.
Glucose	10 parts.
Glycerin	10 parts.
2.—Powdered Tragacanth	1 part.
Glycerin	3 parts.
Water	1 part.
Glucose	5 parts.

WATER is only occasionally used by itself as an excipient, and is then only applicable when the substances to be massed contain considerable quantities of powdered or solid extracts, gums, or gum resins.

WAX has been widely advocated as a means of exhibiting oils, when ordered in considerable quantities, in pill form. It can scarcely be considered as an ideal excipient for oils, however, because of its insolubility in the gastric juice, and its high melting-point, characteristics which combine to make pills massed by means of it insoluble, and hence inactive, as they are very likely to pass through the system entire.

Many substances, because of their peculiar characteristics, require special treatment or excipients, in order to properly mass them. The most important of these, and the means that afford suitable masses, are as follows:—

ACID CARBOLIC.—Soap and liquorice (or althea) root; soap, althea and honey; powdered liquorice and powdered extract liquorice; flour, soap, and glycerin; flour and honey (or glucose); althea and starch (or tragacanth) glycerite.

ACID BENZOIC, GALLIC, SALICYLIC, TANNIC, ETC.—Powdered tragacanth and honey (or glucose); extract gentian; powdered extract of liquorice and water (or honey); glycerite of tragacanth.

ALKALOIDS.—Those given in very small doses are triturated with starch, milk sugar, kaolin, sugar, etc., and massed with glucose, honey, syrup, etc.; manna is also serviceable.

* From *Merck's Report*. Concluded from page 598.

ALOES.—Water alone with a warm mortar; soap and water; confection roses; extract gentian; when combined with gum resins, soap and honey (or syrup) is effective.

AMMONIUM CARBONATE.—Tragacanth and glucose; avoid the use of glycerin.

AMMONIUM VALERIANATE.—A little starch (or kaolin) with powdered tragacanth and honey (or glucose); extract gentian; powdered extract liquorice and honey.

BALSAM COPAIVA.—Calcined magnesia (about one-sixteenth of the weight of the balsam) and a very little water; kaolin, powdered tragacanth, and a little water. When magnesia is used, a little adeps lanæ, say about one-twelfth of the entire mass, should also be added in order to counteract the tendency of the pills to become exceedingly hard and insoluble in time.

BROMIDES OF ALKALIES.—Kaolin with petrolatum, or adeps lanæ; althea with honey; powdered starch, powdered tragacanth and honey.

CALOMEL.—Powdered starch, powdered tragacanth and water; bread crumb. Glucose, honey, confection of roses, manna, and other glucose-like substances are best avoided, as these act like reducers on the calomel with the production of black mercury oxide. Tragacanth glycerite, or kaolin and petrolatum, are also serviceable, but acacia and mucilage of acacia must be avoided, because a cement-like compound is formed with the calomel, and the pills become absolutely insoluble.

CAMPHOR.—Soap and powdered starch (or althea), with honey or glucose; extract of gentian; soap and a very little alcohol.

CHLORAL HYDRATE.—Starch, powdered tragacanth, and glucose or honey; althea or powdered liquorice with tragacanth glycerite; powdered liquorice, powdered extract of liquorice and water.

CREOLIN.—Kaolin alone affords a good mass.

CREOSOTE.—Soap (1) and powdered liquorice root (5); powdered liquorice root and fresh egg albumin, flour and a little syrup; kaolin, powdered extract of liquorice and honey; soap, powdered extract of liquorice and powdered liquorice root, balsam of tolu and a little alcohol and magnesia.

CROTON OIL.—Flour and a little water or syrup; bread crumb; kaolin and petrolatum or adeps lanæ; powdered liquorice root, powdered tragacanth, and honey or glucose.

DELIQUESCENT SALTS.—Canada balsam; soluble cream of tartar; kaolin and petrolatum.

EUCALYPTOL.—Like creosote.

ERGOTIN.—Kaloïn, sufficient to mass. Althea is not eligible, as it makes the mass too bulky and elastic; powdered liquorice is not sufficiently absorbent, and the pills become too large.

EXTRACT MALE FERN.—Powdered male fern, powdered tragacanth, and water.

GUAIACOL.—Like creosote.

IODIDES.—Like bromides.

ODOFORM.—Powdered gentian and extract of gentian; powdered liquorice root and powdered extract of liquorice with water.

LEAD ACETATE.—Like iodoform.

METHYLENE BLUE.—Triturate with a little petrolatum and then add kaolin to mass. This process will prevent the distribution of the finely-powdered blue and the consequent staining of the linen and objects near at hand upon which the dust may settle.

OILS.—Like creosote.

OLEORESINS.—Kaolin; flour and a little water; kaolin, powdered tragacanth and honey.

OPIUM POWDER.—Soap and a very little water; powdered liquorice, powdered extract of liquorice and water.

OX GALL, INSPISSATED.—Heat in a warm mortar, triturate with a very little warm water, and add kaolin to mass.

PEPSIN.—Extract of malt; extract of gentian; powdered liquorice, powdered extract of liquorice and a little water.

PERMANGANATES.—On account of their ready reducibility, all contact with organic matter must be avoided, hence the best ex-

ipient is kaolin with sufficient petrolatum; kaolin and water. Roll pills in talcum.

PHOSPHORUS.—Dissolve in carbon bisulphide or chloroform, add a little petrolatum and triturate until the solvent has been dissipated, then add sufficient kaolin to mass; phosphorised oil, adeps lanæ, and althea.

POTASSIUM ACETATE.—Like deliquescent salts.

PRYKTANIN.—Like methylene blue.

QUININE.—Mixture of tragacanth 6, glycerin 50, and water 75, gives good results; powdered tragacanth and glucose or honey; glycerite of starch; tartaric acid with a little water, or, better, glycerin and water. Pills made with tartaric acid are quite small, but are apt to become very hard in time. Avoid the use of syrup or of acacia, as the surface of the mass or pills is prone to harden and crack, many fissures will be formed, and slightly pills cannot be obtained.

SCALE SALTS OF IRON.—A very little powdered tragacanth and sufficient glucose or honey.

SILVER NITRATE.—Like permanganates.

TAR.—Powdered althea and magnesia; kaolin.

TERPIN HYDRATE.—Starch, powdered tragacanth, and honey or glucose; powdered liquorice root, althea with extract of gentian.

TERPINEOL.—Like creosote.

VALERIANATES.—Extract of gentian or taraxacum; powdered liquorice, powdered extract of liquorice and water; glucose or honey alone.

ZINC OXIDE.—Extract of gentian.

“AN EVENING WITH ‘PUNCH.’”

It would be useless to recommend this work to our readers for purchase, since it is already out of print, and is not to be republished. Those who wish to have in their possession the best things that appeared in *Punch* during the first fifty years of its existence must buy the complete collection of the volumes from 1848 to 1898. All opportunity of acquiring the well-made selection issued under the title of “An Evening with *Punch*” is now at an end. It is a volume much to be prized; more—much more—for its pictures than for its letter-press; every picture published in *Punch* being complete in itself whereas its most famous literary contributions have appeared in the form of serials, from which, as a matter of course, only extracts can be given.

The contributions of Mark Lemon, first sole editor of *Punch* (he was preceded for a brief period by a triumvirate), are, to say the least, deplorable. Fancy the editor of the first comic paper in Europe writing and causing to be printed such idiocy as the following:—

“‘You’re very hot’—as the roast beef said to the horse-radish.”

“‘Mind your eye’—as the thread said to the needle.”

It is well known, however, that Mark Lemon wrote very little—indeed, scarcely at all—for the paper which he edited with such marked ability. On one celebrated occasion he certainly gave proof of literary taste and discernment. Hood had sent in to *Punch* his immortal “Song of the Shirt,” with a letter expressing some doubt as to whether so sad a poem would be found suitable to the columns of so lively a periodical. Mark Lemon read the poem at the *Punch* dinner; when a majority of the contributors pronounced against it. In the strange language of the writer who edits the “Evening with *Punch*,” they considered it “praiseworthy,” but too painful for *Punch*. The epithet “praiseworthy” might have been applied to Hood by Lord Verisopht, who declared Shakespeare to be “clever.” Mark Lemon, however, saw that the “Song of the Shirt” was an inspiration and a masterpiece and, regardless of the views of the majority of his contributors—a farcical lot in those days—did himself the honour of publishing Hood’s poem, and, at the same time, tripled the circulation of his paper. Against the judgment of Mark Lemon as

editor may here be cited his notorious rejection of one of the very best of the Bab Ballads. Mr. W. S. Gilbert tells us in the preface to his volume that the ballad of the "Nancy Bell" was offered to *Punch*, and that Mark Lemon returned it to him, saying that it was "too cannibalistic" for the taste of his readers.

The editor of the "Evening with *Punch*" has done his work exceedingly well. But he is surely wrong when, speaking of the comparative merit of a few of the most famous contributions to *Punch*, he places the Snob papers above the "Song of the Shirt." Such an estimate would never—modesty apart—have been accepted by Thackeray himself. Why does he declare, moreover—as though there was nothing to be ashamed of in the fact—that the author of 'Pelham,' 'Night and Morning,' 'The Caxtons,' and 'The Parisians,' of the 'Lady of Lyons' and 'Money' is an object of "aversion" to *Punch*? Why, moreover, does he not gently reprove Mr. Ruskin, instead of appearing to agree with him, when the admirable critic, whose judgment is so unerring on almost all artistic and literary matters, says nevertheless of Du Maurier's delightful children that "the charm of Du Maurier's extremely intelligent and often exquisitely pretty children is dependent, for the greater part, on the dressing of their back hair and the fitting of their boots." Du Maurier—suggests the editor—might have retorted that "the care with which a mother dresses her child is, in its way, a very charming exhibition of the maternal instinct." Had he cared to defend himself against an accusation so amiably so flatteringly put, Du Maurier might have pointed out that his children, as described by Ruskin himself, are "extremely intelligent, and often exquisitely pretty," and that intelligence and beauty cannot be dependent on mere externals. Du Maurier is well represented in the "Evening with *Punch*," not only by his graceful pictures of women and children, but also by his laughter-moving caricatures of æsthetes, and by his ludicrous drawing of the larky but innocent minded page, who, to amuse that solemn justice of the peace, his master, gives him at his breakfast, on the First of April, an empty egg-shell instead of a full egg.

What an eloquent answer to Ruskin's criticism is furnished by the "Whispered appeal," in which a charming little girl, with the most tender expression of sympathy in her face, says to her mother, in reference to her young brother, who has just been put in the corner, "Mamma, mamma! Don't scold him any more—it makes the room so dark."

If Du Maurier did not absolutely invent the æsthete—thus giving the æsthetically inclined something definite to "live up to"—he observed the earliest specimens of the genus and pinned them with pen and pencil to paper. It was not until after Du Maurier had created the type that Mr. W. S. Gilbert did such wonders with it in the satirical opera of "Patience." Teapot worship and the contemplation of a lily in lieu of dinner formed the subject of two of Du Maurier's happiest designs in connection with the æsthetic craze—both reproduced in the volume before us.

Leech cultivated, for the most part, one style, the comic; and in this he had no equal, though Charles Keene sometimes ran him hard. Charles Keene, however, had a style of his own. The "Bang went saxpence" picture was Charles Keene's; but the joke was Sir John Gilbert's. He, that is to say, heard the actual words spoken at a Glasgow railway station, saw that they were good, repeated them to Birkett Foster, who also saw that they were good, until at last they got to the ears of Charles Keene, who saw that they were excellent, and presented them to the world in a picture made to suit them. The joke about the Curaçao at the tenants' dinner, when old Turniptops told the footman who was handing round the liqueurs that he would "tak zum o' that in a moog" was given to Leech by Dean Hole of Rochester. But it was Leech who drew the head of old Turniptops. Leech was celebrated for his pretty women. But in their antiquated ringlets and their old-fashioned bands they look

pretty no longer. Du Maurier's are of more recent date. But, apart from that, they are so full of grace that something of their present charm must remain always with them. On rare occasions Leech became serious; and he was terribly serious when he represented the Emperor Nicholas struck down by the icy figure of that "General Janvier," with whose terrors he had threatened the allied armies in the Crimea.

The most powerful pictures in the collection are, of course, from the pencil of the veteran Tenniel—now in his eighty-second year and still vigorous. Doyle's sea-serpent—the sea-serpent of revolution upsetting in its irresistible course the cockboats of royalty—ought to have been included in the volume as an example of the sort of work done by Tenniel's predecessor. Doyle, however, in his lighter moods has not been forgotten. The famous picture of Bismarck as the dismissed pilot has its place in the "Evening with *Punch*," and no finer specimen of Tenniel's genius could be desired; though several of almost equal value are presented.

What places *Punch* far above all other periodicals of the same character is the fact that it has succeeded in securing the services, from the beginning until now, of the best artists and also of the best writers. The Paris *Charivari* numbered among its artists Gavarni, Daumier, and "Cham"—Anglicè, "Ham"—as the second son of the Count of Noah used facetiously to call himself. But it never at any time published articles or poems by writers who could be compared to Tennyson and Hood, to Thackeray and Jerrold. *La Vie Parisienne* has depended for its literature on such writers as Edmond About, Alphonse Daudet, Gustave Droz, and "Gyp." But the style of its tales, articles, and dialogues, while rendering it indispensable to all London clubs, renders it inadmissible into most English houses. No illustrated comic paper, in fact, at all comparable to *Punch* had ever existed until *Punch* was started, nor, in spite of many imitations, has *Punch* ever been approached since its first establishment.

Among the celebrated jokes published by *Punch* the most celebrated is certainly the one which first saw the light in the Almanac for 1845:—"To persons about to marry. Don't!" This was the jest of Henry Mayhew. Paid by the line it must have brought him in very little money.

An equally brilliant witticism in quite another style was the one, word dispatch in which Sir Charles Napier was said to have announced his conquest of Scinde—"Peccavi!" There are persons, however, so ignorant as not to know that the English of "Peccavi" is, "have sinned"; whereas Henry Mayhew's pleasantry about marriage—that fertile subject of jocularity—is intelligible even to the meanest capacity. The author of the "Peccavi" witticism is unknown to us. *Punch's* metaphysical definitions—"What is mind? No matter! What is matter? Never mind!"—have been attributed to Charles Kenney; also to Edward Draper. The first half of the amusing conceit belongs in any case to Byron, who writes in "Don Juan":—

"When Bishop Berkeley said there was no matter, it was no matter what he said."

In addition to contributors who only wrote for the paper and contributors who only drew for it *Punch* has had a good many who supplied it both with articles and with drawings. The most eminent of these was Thackeray, who intended in his early days to become a painter, but who showed, again and again, by his unfortunate attempts at drawing that he never could have succeeded in the art he so much loved. The picture of the homely "Fanny," the momentary occupant of Thackeray's "Cane-bottomed Chair," is enough to suggest that that curious ballad—too good for a parody, too bad for anything else—was never intended as a serious poem. It was evidently written as a burlesque of Eliza Cook's popular, but common-place ballad, beginning—

"I love it, I love it, and who shall dare
To chide me for loving that old arm-chair?"

Punch's "Family Trees" show numerous cases of intermarriage between contributors and the relations of other contributors, and of the descent of modern contributors from ancient ones; James Hannay married a niece of Kenny Meadows. Mr. R. C. Lehmann and Mr. Barry Pain are relations or connections of Mr. W. H. Wills. Henry Mayhew was the son-in-law of Douglas Jerrold. Mr. Clement Scott's first wife was the sister of Du Maurier. After the death of Shirley Brooks, second editor of *Punch*, his son, Reginald, became a contributor to the paper. The first husband of Mrs. Jopling Rowe was brother-in-law to Mark Lemon. Alfred Chantrey Corbould was a nephew of Charles Keene. Both Gilbert à Beckett's sons became contributors to *Punch*; and one of them, Mr. Arthur à Beckett, is now its sub-editor. A relative through marriage of Mark Lemon became the wife of Robert Brough. Every name given in this paragraph is that of a contributor to *Punch*.

Robert Brough, by the way, and William Brough were brothers; and Frank Talfourd used to distinguish between them by calling them respectively "Clean Brough" and "Clever Brough." Both were clever and both were clean. But the distinction between them, all the same, was easily seized.

Punch has now been fifty-nine years in existence; and Sir John Tenniel is probably the only contributor to the paper who remembers the publication of the first number. It has never been better than under the direction of its present editor, Mr. F. C. Burnand, and never so good as in its latest development—with its admirable literary supplement.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Weak Spot in Our Defences.

On surveying the pharmaceutical situation I am led to the irresistible conclusion that, if our defences were absolutely sound otherwise, they must prove weak in one important respect which lays us open to the constantly reiterated charge of attempting to establish a trade monopoly. Free trade may be regarded by some as a fetish, but it is, nevertheless, a principle which appeals with considerable force to individuals—and there are many in our own ranks—who are anxious that the purchasing power of their money shall not be limited unreasonably by artificial means. The establishment of close corporations among professional men has been accepted by the British public as a necessary evil, but where trade is concerned a different state of opinion prevails, anything in the nature of a trade monopoly being strongly resented as a rule. The business conducted by pharmacists, unfortunately, has been kept on the border-line between a profession and a trade, with the result that any legal limitation of the pharmacist's business has tended to partake of the nature of a restriction of trade as well as regulation of the manner in which certain professional functions are performed. In fact, so far as Great Britain is concerned, the interference with trade has preponderated to such an extent that regulation of the practice of pharmacy has virtually been lost sight of. And that is the weak spot in our defences.

How to Strengthen the Weak Spot.

It seems to me that, to strengthen the weak spot effectually, we must get rid of all appearance of seeking to gain advantage from a trading point of view when we invoke the aid of the Legislature to advance our professional interests. We need no trade monopoly, we should ask for no restriction of the sale of medicinal substances; but we are fully justified in demanding that our professional titles should be secured to us, and we shall not be unreasonable if we ask also that duly qualified persons alone shall be

entitled to dispense medicines. What the qualified pharmacist has the right to expect is that he alone shall be in a position to describe himself and to practise as such; it is hopeless for him to anticipate that, in this country, he will ever have a monopoly of the sale of substances that may be used for medicinal purposes. The founders of the Pharmaceutical Society did not even ask for a monopoly of the sale of scheduled poisons; that was forced upon them as the outcome of the labours of the United Society of Chemists and Druggists, fostered by a trade journal which has since openly rejoiced at the trade protection thus afforded to chemists and druggists. But that protection has proved a source of weakness to us in the past. Moreover, such protection is as unnecessary to the development of pharmacy as to that of any other profession, and it must be dispensed with if we are to make our defences as strong all round as they ought to be. To put the matter briefly, trade protection of any kind or in any degree is inimical to the welfare of pharmacy as a profession, and must therefore be avoided.

Direct Amendment of the Pharmacy Acts Needed.

How, then, are we to provide for development on professional lines? To my mind, we must first give up all hope of securing any amendment of existing conditions through the medium of a Companies Bill. The Companies Acts are intended to serve two distinct purposes and two only—first, to protect the public as against associations which trade with limited liability and, secondly, to protect the interests of shareholders in those concerns. It is, I think, quite foreign to the purpose of those measures to regulate the practice of any profession, and any such regulation effected by means of a Companies Bill can be, at best, but a makeshift arrangement. Such, at least, is my view of the matter, and I quite fail to see how medicine, dentistry, or pharmacy can be permanently benefited by anything that can be done in connection with a Companies Bill to bring corporate bodies within the scope of pre-existing Medical, Dental, or Pharmacy Acts. If those Acts are insufficient for their purpose, let them be amended in a direct manner, rather than leave the regulation of the practice of medicine, dentistry, or pharmacy—even to the most limited extent—under the control of the Board of Trade or any authority other than those which now conduct the affairs of the professions concerned. What I advocate, therefore, is the most strenuous opposition to Clause 2 of the Companies Bill, 1900, if that measure should be proceeded with further—a most unlikely contingency—on the ground that the amendment of the law proposed by the Lord Chancellor is insufficient and generally unsatisfactory.

What a Pharmacy Bill Should Include.

Accepting that view of the matter, I see nothing for it but direct amendment of the Pharmacy Acts and, to that end, I think a Pharmacy Bill should be drafted with as little delay as possible, so that everything may be in readiness to begin our struggle for professional recognition at the opening of the new Parliament which is soon likely to be called into being. With regard to the provisions of such a Bill, there should be general agreement among pharmacists upon the necessity of avoiding any suggestion of seeking to establish or perpetuate a trade monopoly, whilst there should be equal unanimity as to the necessity for making registration under the Pharmacy Acts cover a distinctly professional qualification. I should propose, therefore, that we boldly advocate abolition of the existing restriction of the sale of poisons to registered chemists, and recommend, in lieu thereof, that the business of all vendors of drugs and poisons should be legally regulated. But, over and above that, I would seek to restrict the dispensing of medicines and the use of titles implying registration under the Pharmacy Acts to legally qualified individuals. The keeping of open shop for the compounding, dispensing, or retailing of poisons should no longer be an offence in the eye of the law, but the act of compounding or dispensing

medicines by any but duly qualified individuals should be so. To establish their right to such professional protection as is here suggested pharmacists must, of course, be prepared to offer something in return. And that ought to be the establishment of an educational curriculum comparable with those which are compulsory in the medical and legal professions. Pharmaceutical students should be compelled to register as such at the outset of their professional career, and not less than three years before being entitled to present themselves for the qualifying examination. Division of the qualifying examination might then be effected without risk, as candidates could present themselves for the different parts of the examination at definite intervals during the period of training, and thus would be provided an efficient check to evasion of study at the proper time. Here then is the rough outline of a Pharmacy Bill which ought to meet with the approval of all pharmacists, afford a minimum of ground for opposition by limited companies, and commend itself to the Government as an honest and unselfish attempt to remedy the existing unsatisfactory state of affairs without interfering in any degree with existing freedom of trade.

LETTERS TO THE EDITOR.

The Council Election, 1900.

The recent surfeit of election literature has produced mental obfuscation in some of our brightest intellects, and therefore I can excuse "An Ordinary Pharmacist" for his mixed misinterpretation of my recent remarks on the *Invertebrata pharmaceutica*. On broad principles every chemist on the Register is interested in the actions of the Pharmaceutical Society. I have always maintained this axiom (of which there is ample proof), and had I prefixed it to the paragraph criticised it would have been obvious, not merely as an assumption, but as a relentless fact, that two-thirds of those who are interested in and derive benefit from the legal and educational work of the Council are pitifully invertebrate.

Batley, June 2, 1900.

R. BROADHEAD.

Standardisation of Cinchona Preparations.

In my letter of May 15 (see *ante*, p. 541) *re* the above, the statement that the solvent was ether-chloroform (1:9) was a clerical error. It ought to have been ether-chloroform (9:1). I should much like if Mr. Dewhirst would publish the figures showing amount of alkaloid lost in following the process recommended by me, as also those obtained in assaying the same preparations according to his method.

Edinburgh, June 2, 1900.

J. STENHOUSE.

The Presidency of the Society.

Most decidedly there is nothing revolutionary in the idea of a member of the Society who happens to reside outside the metropolitan area being elected to the presidential chair. One member of the Society is surely as good as any other member, so far as mere membership goes, and though I do not live in London I see no reason why I should not look forward to occupying the position of President if ever I should happen to be elected on the Council. Whether or not there is any such thing as a "Bloomsbury clique," it appears to me extremely desirable that no subterranean organisation of the kind should be allowed, or even supposed, to govern all the Society's internal arrangements. But I am sceptical about the existence of any such clique, and if the election of Mr. Newsholme or any other non-Londoner as President will help to disabuse the minds of members generally on that point no one will rejoice more than

June 5, 1900.

"A COUNTRY MEMBER" (34/51).

ANSWERS TO QUERIES.

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

NAME OF PLANT (E. B.—43/6).—*Salix cinerea*.

NAME OF PLANT (H. S. A.—43/1).—It is the frog orchis, *Habenaria viridis*.

FLY GUM (T. W.—42/32).—You will find formulæ for fly gum in the *P.J.* for July 29 last, at page 86.

GERMAN PRESCRIPTION (T. J. W.—42/8).—If you could send the original prescription we might be able to assist you, but it is difficult to determine from the copies received what is intended.

FRUITS AND SEED (J. A.—42/34).—The fruits are myrobalans, the rounded ones being from *Terminabis bellerica* (Combretaceæ), and the oval ones from *T. chebula*. The seed is that of *Entada scandens* (Leguminosæ).

GOLD-BLOCKING POWDER (G. R. T.—42/29).—Very finely powdered sandarac is largely used for the purpose, but practical bookbinder informs us that powdered copal resin is the best thing. In MacEwan's 'Pharmaceutical Formulas' the following recipe is given:—Powdered resin, 9; powdered sandarac, 1. Mix. You can obtain a suitable powder from Messrs. Barry and Roberts, Bride Street, London, E.C.

SOLUBLE ESSENCE OF GINGER (R. H. S.—42/33).—Strong tincture of ginger, 30; soluble essence of lemon, 2; glycerin, 4; distilled water, 12. First add the water to the tincture, then add the essence and glycerin. After standing 24 hours, add powdered pumice, 1, with burnt sugar, *q.s.*, shake well and set aside until required, then filter. A little capsicin added to the tincture will make a more pungent product.

FORMULÆ (H. E. D.—42/30).—The St. John's Hospital formula for Unguentum Petrolati Compositum is:—Solution of coal tar, $\frac{1}{2}$ drachm; ammoniated mercury, 10 grains; soft paraffin, to 1 ounce. The formula for Mistura Ferri Arsenicalis is:—Diluted phosphoric acid, 10 minims; tincture of perchloride of iron, 10 minims; hydrochloric solution of arsenic, 6 minims; glycerin, $\frac{1}{2}$ drachm; water, to $\frac{1}{2}$ ounce.

HOME PORTRAITURE (C. R. P.—42/31).—Write to Messrs. Dawbarn and Ward, 6, Farringdon Avenue, London, E.C., for their latest list of books on the subject. Their "Photo-Miniature Series" contains two useful works—'Photography Outdoors' and 'Photography at Home,' published at 6d. each. Other excellent books in their list are Penlake's 'Home Portraiture,' price 2s. 6d., and Mills' 'Exterior and Interior Photography,' price 3s.

EVAPORATING SUGAR IN VACUO (D. W.—42/28).—You would not obtain the same consistence by evaporating the sugar *in vacuo* as by evaporating in the open at 310° F., since it does not depend merely upon the loss of water, but is partly due to a molecular change in the sugar itself by which it loses its power of crystallising. If you heat the sugar *in vacuo* you will merely drive off the water. It is precisely for this reason that sugar boilers employ vacuum plant for evaporating, so as to avoid the production of this non-crystalline sugar.

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LONDON: SATURDAY, JUNE 9, 1900.

SOME DEFECTS OF THE PHARMACY ACT, 1868.

DESIRE for the amendment of this Act has been so long expressed in various quarters that an inference may safely be drawn as to its failure to accomplish some of the objects that were contemplated by its promoters and by the Legislature. That there should have been such failure, in some respects, will not be matter for surprise when the conditions existing before 1868 are considered. When due allowance is made for the great difficulties which had then to be overcome, before application of the principle of the Pharmaceutical Society's Charter and of the Act establishing a pharmaceutical qualification, could be extended, with the sanction of the Legislature, to all persons who could then claim to be carrying on the business of chemists and druggists, there is not much reason for disappointment. Nor, for the same reason will the satisfaction that was given by the passing of the 1868 Act appear greater than was reasonable at that time, or at all inconsistent with the fact that experience of the operation of the Act has revealed the existence of some serious defects which require its amendment. That the Act has been beneficial, in regard to its main object of protecting the public against danger from poison, may reasonably be taken for granted and probably its effect, in that way, has not been sufficiently appreciated. But there is some reason for regret that the particular provision adopted for the safety of the public should have been of such a nature as to be capable of being regarded, even incorrectly, as constituting a trade monopoly. Unfortunately the restriction of the sale of poisons to persons qualified under the Act, as well as the prohibition of keeping open shop for that purpose by any but qualified persons, have been so regarded, and unfounded prejudice has thus been created.

At the time the Act was passed public feeling was so strongly impressed with the necessity of protection against poison that probably no other means than absolute restriction of the sale of such poisons as were most commonly used for criminal or suicidal purposes would then have been satisfactory. That was, indeed, shown by the adoption of a measure apparently opposed to the free trade views which were at that time so much in favour, and in spite of considerable opposition on that account. But there is reason for thinking that if qualification under the Act had conferred no other privilege than exclusive use of the title chemist and druggist, as in the case of the superior qualification under the Act of 1852, much subsequent trouble would have been avoided. Chemists might at present have been in a better position than they have been since the decision that

besides persons qualified in conformity with the provisions of the Act, there are other persons (*i.e.*, companies) who, though they cannot possibly be qualified as the Act provides, may, nevertheless, keep open shop for the sale of poisons and carry on the business of chemist and druggist without being compelled to observe any provision of the Pharmacy Act. Exclusive right to use the title denoting qualification would probably have been even more effectual as protection to the public than the restriction as to keeping open shop, while at the same time, more advantageous to qualified persons, in giving them reasonable protection and in being free from objection on the ground of creating trade monopoly. If that view of the matter be correct, the provision of the Act relating to keeping open shop must be regarded as a serious defect; one which requires amendment in order to secure the object of placing qualified persons in a position analogous to that occupied by other persons engaged in professional occupations for the exercise of which special qualification is requisite. That was undoubtedly as much the object of the Pharmacy Act, 1868, as provision for public safety by securing the corresponding advantage of a body of persons specially educated for the performance of certain duties. But owing in great measure to the defect above mentioned, that object has not been fully attained.

Another very important feature of the Pharmacy Act is its recognition of the claims of special education in regard to the practice of pharmacy. In that respect experience has shown that the necessity of passing an examination, in order to qualify, does not sufficiently provide for such systematic education as is desirable for all persons seeking to obtain the advantage of registration as being capable to perform the duties of pharmacy. That is probably the most serious defect of the Act, because it affects the fundamental principle underlying all its provisions. The number of candidates presenting themselves for examination sufficiently shows that a value is attached to the title of chemist and druggist, but the very large proportion of those who fail to pass must be taken as evidence that they have not had that systematic education which would enable them to pass with credit. Evidently the compulsory provisions of the Act require to be applied to a period earlier than that at which legal qualification to carry on the business of a chemist and druggist is sought for. The conditions of apprenticeship are probably in some instances better adapted to supply the educational wants of the apprentice now than they were before the passing of the Act; but there is no reason for supposing that the average apprentice is made to recognise what he ought to do in the way of study, nor is there any likelihood that he will do it, except under compulsion to go through a specified course of study. The objection that the business of a chemist and druggist is sometimes of a nature that would not repay the cost of scientific education is as poor as that urged on the ground that the country chemist and druggist has no pharmaceutical duties to perform. In either case the necessity of qualification under the Act would not exist, nor would there be in connection with such business any occasion for using the title of chemist and druggist. Unless that title indicates the person using it to be a competent pharmacist it would be a mere deception, and the entire significance of the Pharmacy Act would be destroyed.

ANNOTATIONS.

THE GENERAL MEDICAL COUNCIL decided last week that, from and after January 1, 1902, no person shall be registered as a medical or dental student who has not attained the age of sixteen years; also that, for the purpose of ensuring the observance of the new regulation, every applicant for registration in the 'Students' Registers' shall be required to produce satisfactory evidence that the specified age has been attained. A step has thus been taken by the General Medical Council, the importance of which cannot be over-estimated, and it is the more noteworthy inasmuch as it immediately followed the reception of a report by the Education Committee on raising the standard of preliminary examinations recognised by the Council. In that report it is stated to be impracticable in the existing conditions to require of all intending medical and dental students the standard of general attainments represented by the so-called senior and higher grade examinations. It is thought, however, that a substantial advance on the present requirements can be made by insisting on improvements in the character and stringency of those junior examinations which can be directly influenced by the Council and, in the case of others, by requiring that candidates offering the corresponding certificates have obtained a higher standard than that of a simple pass. Detailed suggestions were offered with the object of bringing about the desired advance and, on the motion of Sir John Batty Tuke, the Council authorised the Education Committee to take all needful steps to give effect to the recommendations and suggestions of the expert advisers for the improvement of the preliminary examinations.

THE RECOMMENDATIONS OF THE EXPERTS have been made with the immediate object of securing the gradual raising of the standard of the lower junior examinations to the level of those which rank highest. In the first place it is suggested that for a pass in any subject a minimum of 40 to 45 per cent. be required. Then, it is thought that a fair number of riders should be made obligatory for a pass in Euclid; also questions involving general principles in algebra, and questions involving some thought and the application of more than one of the ordinary rules in arithmetic. The principal tests proposed in classical and modern languages are fairly long passages from unprescribed books for translation into English, and an easy passage of continuous prose for translation from English into Latin and modern languages. Finally, it is suggested that in English an essay and a passage for paraphrasing should form essential parts of the examination. "In paraphrasing more weight should be given to the candidates' understanding of the meaning of the passage paraphrased than to the language used. The subjects chosen should not include such abstract subjects as 'ambition,' 'instinct,' etc., or such hackneyed subjects as the 'Life of Nelson' or 'school games,' but should set out some question requiring a definite answer to be obtained by reasoning." No list is published of the junior examinations which are supposed to require improvement by having their standard raised, as much of the information upon which the experts base their classification is of a confidential character and, in addition, it is felt that public criticism of particular examinations might alienate some of those examining bodies upon whose cordial co-operation the General Medical Council must depend in bringing about a genuine reform.

THE TAKING OF SAMPLES by inspectors for the purpose of analysis in accordance with the provisions of the Sale of Food and Drugs Act, 1875, has been under consideration by Justices Darling and Bucknill, in connection with a camphorated oil case. It is customary for small shopkeepers to purchase the oil from wholesale dealers in small bottles, which are retailed at 1d. or 2d. each, and, as a single bottle does not contain sufficient oil for the necessary subdivision and analysis, inspectors have experienced

some difficulty in complying with the requirements of the Act. In a recent case, in which a conviction was obtained (see *P.J.*, ante, p. 584), the inspector had purchased three small bottles, mixed the contents in the shop, then subdivided the oil in the usual way. In the present instance (see p. 630) the inspector purchased six small bottles and put two into each of three paper bags which were afterwards duly sealed and one handed to the purchaser, whilst another was sent to the analyst. On analysis the contents of the two bottles were found to be lacking in camphor, but the justices who heard the case were of opinion that the division of the bottles as described was not in compliance with Section 14 of the Sale of Food and Drugs Act, and they were also not satisfied that the contents of the two bottles analysed were identical with those of the other two lots of bottles. The case was therefore dismissed, and on appeal the decision of the justices has been upheld. Mr. Justice Darling, with whom Mr. Justice Bucknill concurred, said that what the inspector did was to buy six articles and then to divide those six articles into three. In his opinion each of the bottles purchased was an article within the meaning of Section 14, for it did not matter for the purposes of the Act how small the article was. But as the appellant did not divide any one of the bottles into three parts, he did not comply with the provisions of the Statute.

THE USE OF IRON AS A TONIC may be overdone, according to a writer in *Food and Sanitation*, who has been studying the results of investigations by German physiologists, and commences a note on the subject with the assertion that the quantity of iron annually administered to patients would, if it could be collected, stock a wholesale hardware establishment or instal a fair-sized furnace. It is alleged that the German investigators have found that the quantity of artificially prepared iron actually absorbed and assimilated in the system is quite infinitesimal. Moreover, the human organism is said to need and contain only the merest trace of the metal, whilst even that may be accidental and extraneous rather than a necessary constituent of the body. In any case, the quantity found is asserted to be entirely derived from animal or vegetable food, in which the iron exists in a much more readily assimilable form than in the medicinal preparations usually administered. The sole medicinal value of iron, we are told, is as an oxygen carrier, pure oxygen having been declared to be the only true muscle tonic, any iron present probably merely facilitating a greater absorption of oxygen. Hence its mission in anæmia and all debilitated states. If exhibited in excess it becomes an irritant and ends in inflammation. From overdoing it many have lost faith in it as a remedy and neglect it entirely, but used with discrimination, in connection with other needed elements, it undoubtedly performs an important function.

THE SALE OF SCHEDULED POISONS, contained in preparations used for technical and trade purposes, has been found an unprofitable business by certain seedsmen, etc., who have been fined under Section 15 of the Pharmacy Act, 1868, for indulging in that luxury. The matter was commented on by the *Gardeners' Chronicle* some months ago (see *P.J.*, ante, p. 159), and the latest issue of that publication contains a letter on the subject by the secretary of a trade protection society with a very long name—The Traders in Poisons and Poisonous Compounds for Technical and Trade Purposes Protection Society. He contends that the Pharmacy Act, 1868, was merely intended to prevent unqualified persons acting as pharmacists, or to sell or keep open shop for retailing, dispensing, or compounding poisons, "either for the preparation of medicine or for medicinal use." He brings forward no evidence in support of that contention, but alleges that the trade in poisonous weed-killers, etc., has been chiefly carried on by tradesmen who are not registered chemists, and denies that the safety of the public is better cared for when a sealed packet of a pro-

prietary article containing poison is sold by a registered chemist than it is when the sale is conducted by a seedsman. He is also of opinion that no amount of legislation, or of "proper and well-defined restrictions"—which can be as well complied with by a respectable nurseryman as by a trading chemist—will ever prevent the "designedly wicked" obtaining and making improper use of poison. He argues, therefore, that it is utterly useless, as well as unreasonable, to hamper unnecessarily a large, important, and thoroughly experienced body of commercial experts in favour of a small section of the trading community—*i.e.*, registered chemists—"who are undoubtedly specialists in their own particular line, but who have little or no practical acquaintance with an old-established industry of which they now claim an unauthorised monopoly." Mr. T. G. Dobbs, who writes thus, again omits, at this point, to adduce evidence in support of his statement, and we imagine that he would find it difficult to prove that chemists have ever claimed any such monopoly. At the same time, the law must be respected, even by the members of societies with very long names.

THE INDIAN AND COLONIAL ADDENDUM is specially reported on by Dr. Attfield, who states that from the seventy British colonies and provinces beyond the shores of the United Kingdom there have come requests for the official recognition, in the projected Indian and Colonial Addendum to the British Pharmacopœia of 1898, of something like forty or fifty medicinal plants and about as many pharmaceutical preparations of those plants, though the number of the preparations may be extended. Those plants and preparations may be grouped under four sections—the articles in the Indian section to be officially recognised for use in India, those in the Australasian section for use in the respective Australasian colonies, those in the Eastern section for use in the respective Eastern colonies, those in the Canadian section for use in the North American colonies. It is suggested that in the Addendum the bibliographical treatment of the articles might be that of the Pharmacopœia. Not one of the medical and pharmaceutical incorporated authorities consulted has expressed opinions adverse to the expansion of the British Pharmacopœia into an Imperial British Pharmacopœia (*a*) by the removal of former (1885) restrictions as to medicinal plants grown in Britain; (*b*) by the adoption in the current Pharmacopœia of most of the large number of "suggestions" received from Indian and Colonial authorities, as printed in the Indian and Colonial Report of May 29, 1895: and (*c*) by the publication of the projected Indian and Colonial Addendum to the British Pharmacopœia of 1898.

THE MANCHESTER AND WEST RIDING OPTICAL SOCIETIES send a copy of their memorandum of affiliation, which embodies an agreement between the two Societies, for the purpose of securing to the members thereof mutual co-operation and benefit. It is provided that each Society shall retain its own individuality and independence of government, but it is intended to secure the exchange of books, novelties, and ideas generally, also of such papers, lectures, and demonstrations as may prove of interest at the Societies' meetings, and to mutually assist each other in all educational matters; as well as to have and effectively work a common policy in all desirable matters of trade interest. Every member of either Society will be a member by courtesy of the other Society in all respects, except that there will be no financial liability of any kind arising from such membership, nor any voting power in that Society. This is a feature of the new arrangement which should commend itself to local pharmaceutical associations. All ordinary Society meetings are, of course, to be open to all members of the affiliated Society, as well as all the various conversaciones, exhibitions, etc., that may from time to time be arranged. Finally, in the event of the removal of a member of one Society into the area of the other Society, voting membership in the latter is to follow immediately if applied for, and all the usual formal preliminaries will be waived.

THE ERGOTINS OF COMMERCE.

Merck in his 'Annual Report,' for 1899, pp. 65-67, gives a comparison of the various brands of ergotin met with in commerce.

ERGOTINUM BONJEAN.—This is an aqueous, reddish-brown extract purified by the addition of alcohol. One part corresponds to 5 to 6 parts of ergot. The dose is 10 to 30 centigrammes in pills or hypodermically.

ERGOTINUM BONJEAN DEPURATUM PRO INJECTIONE.—This is a further purified preparation of the former, 1.5 part corresponds to 1 part of ergotin Bonjean. Dose, 50 to 60 centigrammes subcutaneously for uterine or internal hæmorrhage.

ERGOTINUM BONJEAN SICCCUM CUM DEXTRINO is ergotin Bonjean mixed with an equal weight of dextrin. It is a brown powder and used similarly to ergotin Bonjean, but in twice the dose.

ERGOTINUM BONJEAN SICCCUM CUM SACCHARO LACTIS contains equal parts ergotin Bonjean and milk sugar. It is a brown hygroscopic powder soluble in water. Use and dose same as above.

ERGOTINUM BOMBELON FLUID (*Cornutine ergotas*).—This is a dark brown fluid which is employed subcutaneously or internally in labour. The dose for internal use is 2 Gm., to be repeated in ten minutes. For subcutaneous injection, 0.2 to 0.5 C.c. of the preparation is aspirated into a 1 C.c. syringe, which is then filled with water, shaken up, and the freshly prepared mixture injected.

ERGOTINUM BOMBELON SPISSUM.—This is a solid extract for internal use exclusively, in the form of pills. Ergotin solutions in distilled water soon develop fungoid growths, so that they should either be freshly prepared or have alcohol added. A solution which keeps very well is obtained as follows:—Ergotin Bombelon spiss., 10; Aq. Laurocerasi, 7.5; Alcohol (90 per cent.), 2.5. 4 to 15 drops for a dose according to requirements.

ERGOTINUM DENZEL (FLUIDUM).—A purified extract of ergot which has the same dosage as that of the German Pharmacopœia. The following formula are recommended for its administration:—

(*a*) *Internal*. Ergotin Denzel, 2; Cinnamon water, 180. Two or three tablespoonfuls to be taken daily.

(*b*) *Subcutaneous*. Ergotin Denzel, 2.5; Borax, 0.25; Distilled water, 7.25. 0.5 to 1 C.c. to be injected.

ERGOTINUM KOHLMANN FLUIDUM.—This is a dark brown fluid miscible with water, 16 drops (1 Gm.) of this preparation corresponds to 1 Gm. ergot, the effect is the same as that of fresh ergot. Single dose for uterine atony 4 to 5 Gm. For hæmorrhage the same dose is given in portions in twenty-four hours. For inducing labour, at first 8-12 drops hourly may be given, the dose increased gradually, as required, to 20 or 30 drops.

ERGOTINUM PURUM DIALYSATUM SPISSUM WERNICH is a dialysed aqueous extract of ergot which has previously been treated with alcohol and ether, and is, therefore, specially suitable for subcutaneous injection. This preparation is very rich in salts and is given in relatively large doses (2 Gm. and over).

ERGOTINUM PURUM DIALYSATUM LIQUIDUM WERNICH.—About 2 parts of this preparation corresponds to 1 part of the last mentioned; the dose is proportional.

ERGOTINUM PURUM DIALYSATUM WERNICH SICCCUM.—The active constituents of 1 Gm. of ergotin Wernich spissum are contained in 0.7 part of this preparation, so that the dose is 1.4 Gm.

ERGOTINUM PURUM SICCCUM WIGGERS is a dried alcoholic extract of ergot, partly deprived of oil, which, according to Kobert, consists chiefly of sphacelinic acid. It forms a brownish red powder which dissolves in warm alcohol; the solution may be diluted with water without precipitation. Dose from 2 to 5 up to 10 centigrammes for each injection. Maximum dose in twenty-four hours 50 centigrammes.

ERGOTINUM YVON.—A dark brown fluid extract which contains cherry laurel water, prepared by extracting fat-free ergot with solution of tartaric acid; 1 C.c. of ergotin Yvon contains the equivalent of 1 Gm. of ergot. Dose for internal use 10 to 20 drops, subcutaneously 1 C.c. each day, the injection to be repeated every second or third day.

ENGLISH NEWS.

PROCEDURE UNDER THE SALE OF FOOD AND DRUGS ACT.—On May 31 the case of *Mason v. Cowdary* came on for argument before Mr. Justice Darling and Mr. Justice Bucknill, sitting as a Divisional Court in the Queen's Bench Division. Mr. Bonsey appeared for the appellant, and Mr. R.D. Muir for the respondent. This was a special case stated by the Justices of Bedford. It stated that at a Petty Sessions held at Luton, January 8, 1900, an information was preferred by Geo. Mason, under Section 6 of the Sale of Foods and Drugs Act, 1875, against Ellen Cowdary, that she on November 16 did unlawfully sell to the prejudice of the appellant camphorated oil which was not of the nature, substance and quality demanded (see *ante*, 107). The respondent kept a small shop in the village of Leagrave, Beds., and the appellant purchased from her six 2d. bottles of camphorated oil. The oil was exposed for sale in bottles which were not apparently prepared by respondent, but each of them bore a label with the name of a chemist in the neighbouring town of Luton. There was no evidence whether or not the bottles were identical in character or appearance, or whether or not the labels all bore the name of the same chemist, but the six bottles were all purchased at the same time. At the time of the purchase the appellant intimated to the respondent his intention to have the oil analysed, and he divided the six bottles into three lots of two bottles, each of which he sealed up, handing one lot to the respondent, keeping one lot, and sending the other lot to be analysed. Appellant did not open any one of the bottles of oil or mix or divide the contents, but the two handed to the respondent were in the same condition as when purchased. The appellant received from the public analyst a certificate of the analysis of the contents of the two bottles submitted to him, and the analysis was put in evidence. It showed that the camphorated oil in the bottles analysed contained only 17.5 per cent. of camphor, whereas proper camphorated oil should contain 20 per cent. of camphor. For the part of the appellant it was contended that the requirements of Section 14 of the Sale of Foods and Drugs Act had been complied with by him, inasmuch as he had divided the article into three parts, each of which were marked and sealed, but the justices were of opinion that the appellant had not complied with the requirements of Section 14; and, further, that they were not satisfied that the two bottles analysed by the analyst were identical in nature and substance with the other two sets of bottles in the hands of the seller and the appellant respectively. They accordingly dismissed the summons.—Mr. Bonsey said the appeal had been made because the appellant wished the point decided whether or not it was necessary to divide up each bottle in order to comply with Section 14.—Without calling on the other side, their lordships held this was a purchase of six separate articles, and therefore each required dividing and analysing. The appeal was therefore dismissed with costs.

MINERAL CAMPHORATED OIL.—On Thursday, May 31, at Lambeth Police Court, Frederick High, oilman, East Dulwich Road, S.E., was summoned for selling camphorated oil containing 96.5 per cent. of mineral oil.—Defendant pleaded that he did not sell the oil as camphorated oil, but as "campholeum," which was indicated by the label on the bottles.—Fined 10s. and costs.

SALE OF MAGNESIA.—At the County Petty Sessions, Trimdon, on Saturday, May 26, Thomas Ellis, grocer, was ordered to pay the costs of a case in which he was summoned for selling magnesia not of the strength prescribed by the B. P. 1898, it being certified to contain 57.10 per cent. of carbonic acid and combined water.

SPIRIT OF NITROUS ETHER CASE.—At Sheerness (Kent) Police Court, on Thursday, Mr. D. Sturdy, chemist and druggist, was summoned for selling deficient spirit of

nitrous ether. For the defence it was stated that the sample submitted to the analyst had been placed in a defective bottle, and that seeing that it was not analysed for eleven days after its purchase the wonder was that it had any of its active properties. It was pointed out that eleven other samples taken at Mr. Sturdy's premises on other occasions turned out to be correct.—The Stipendiary Magistrate dismissed the summons, stating that he was not satisfied that the sample was in the same condition when analysed as it was when purchased.

DEFICIENT SPIRIT OF NITRE.—William Price, grocer, Newbridge, was summoned at Abercarn, on May 24, for selling sweet spirit of nitre which was not of the nature, quality, and substance demanded.—The prosecution did not suggest intentional fraud, as it was thought that the article might have deteriorated through a defective cork.—The county analyst, however, stated that it was not possible for deterioration to have taken place, because the alcoholic strength of the liquid had not deteriorated, whereas the sample was only about half strength.—Defendant was ordered to pay the costs.

ALLEGED FALSE PRETENCES.—At Clerkenwell Police Court on Thursday, May 31, William Bishop (30), described as a chemist, of 164, Millfield Road, Lower Clapton, was charged on a warrant, before Mr. Chapman, with obtaining twenty-four boxes of pills, value £2 7s., the property of James Crispe, manufacturing chemist. It appeared from the evidence that the prisoner had been employed by Messrs. Blackham and Co., and, after being discharged from their employ, he presented to Mr. Crispe's representative several orders for "Dr. Williams's Pills." Believing the orders to have been written with the authority of Messrs. Blackham, the representative supplied the pills. Subsequently it was discovered that the orders were not sent out with Messrs. Blackham's authority. The prisoner, in reply to the charge, said, "Yes, it is quite true. I sold the pills to a chemist." Remanded.

CARBOLIC ACID FOR GINGER-BEER.—On Tuesday, May 29, George Buckley (33), a fitter, living at 4, Gorsebrook Terrace, Stafford Road, Bushbury, went into the pantry, at his house, shortly after 11 p.m. to get a drink of "pop." There were several bottles of ginger-beer on the shelf, and amongst them their happened to be a stout bottle nearly full of liquid carbolic acid. As frequently occurs in such cases, the man took the wrong bottle in the dark, and drank part of the contents before he realised that it was carbolic acid. He was taken into a doctor's surgery, and the usual remedies were applied, but the man died while in the surgery.—At a subsequent inquest the jury returned a verdict of "Accidental death."

THE MANCHESTER CORONER AND A CHEMIST.—At the adjourned inquest before the Manchester City Coroner (Mr. Sidney Smelt) on the 31st ult., touching the death of George Sennett, an impecunious actor, three empty laudanum bottles were produced, two of which bore the label of "Edmund Holt, medical chemist, 268, Deansgate, Manchester," and the other "Boot's, Cash Chemists, Limited." These bottles had been found on the table in the bedroom of the deceased. They were all empty.—Joseph Oakey, chemist and druggist, was called as a witness.—Coroner: What are you?—Chemist and druggist, and manager of the Deansgate shop of the executors of the late Ed. Holt.—Where do you live?—At Weaste.—Coroner (taking up a register): How long have you been the manager of this shop?—Two years.—Why have you not registered?—I am registered by the Pharmaceutical Society. They send me a journal every week.—Your address is registered as at 157, Liverpool Road, Cadishead. Did you not send them notice that you have removed?—No.—You ought to have done, and let them know. We are bound by these addresses. What is the No. in Deansgate?—268.—Do you manage this shop for the executors of the late Mr. Edmund Holt?

—Yes.—There is no Holt?—No.—How is it your name is not on these labels; the Act says that the name and address of the chemist who supplies the stuff has to be put on the label—not the name of a dead person? Is that not so?—Yes, these labels have the name of Holt upon them.—He is dead—he can't be the seller.—The executors are the firm.—The executors are not members of the Pharmaceutical Society?—No answer.—You have to supply these bottles?—Yes.—They ought to be labelled with the name and address of the seller; not the name of a dead person, who cannot be the seller.—Boots, Limited, name is on their poison bottles, and they are not all qualified men.—I have nothing to do with that, Edmund Holt is not the name of the seller?—No.—It is not a matter for me to deal with. It is a question for the Home Office. You manage this shop?—Yes.—Do you remember serving a man answering to the description of the deceased on May 18 with laudanum?—Yes.—Did you serve him in a bottle like this?—Yes, I served him with twopennyworth on Friday, and with threepennyworth on Saturday. I asked him what he wanted it for, and he said it was for his wife for outward application.—Did he tell you that on both occasions?—Yes, each time.—How was it that you gave him twopennyworth on the Friday, and another threepennyworth on the Saturday?—He said he wanted it for outward application.—Did you doubt him?—No.—Had you any reason to doubt him?—No; he passed a remark about the weather.—Did he not look like a man who drank heavily?—He was not drunk then.—Had he the appearance of a heavy drinker?—He might have been.—If a man came for laudanum on a Friday, and then again on the Saturday, would you not think it suspicious?—No, not from what he said.—A man is not likely to tell you what he really wants it for if he is going to kill himself. I have never heard of a man going to a chemist and saying "I want some laudanum with which to poison myself." He says he wants it for toothache or for outward application, and when a man like the deceased came to your shop on succeeding days I should have thought it would have put you on your guard, but it didn't, and you let him have it?—Yes.—No doubt a great quantity of laudanum is used, and there is no sale restriction. You have used the label of a person who has no existence. I don't know what is meant by "medical chemist." It is an absurdity.—A Juror: It is to distinguish him from an analytical chemist.—Coroner: An analytical chemist is a medical chemist. I can understand you (witness) serving the deceased on Friday; but I cannot understand you letting him have the second lot on Saturday.—Twopennyworth is not a large quantity for fomentation.—If he had asked for a pint would you have given it him?—No, I should say that would be too much.—But, if people used laudanum for fomentations every day, wouldn't a pint soon go?—Yes.—Would you think 8oz. out of the way?—I never supplied an 8oz. bottle.—Would it not be as well to exercise a little control over these poisons when you see a man of his appearance come for poison?—He wasn't drunk.—No, but he might have been.—I should not have served him the second time if he had come again on the first day.—If you make it difficult for these people to get poisons you may preserve life. That will do.—The inquiry resulted in a verdict of "Suicide while insane."

SCENE IN A CHEMIST'S SHOP.—At Gravesend (Kent) Police Court on May 31, Clarence Morrison, chemist and druggist, was charged with being drunk and disorderly on the previous Saturday. Accused had acted as manager to Mr. J. C. Mitchell, chemist, West Street, Gravesend, and his notice to leave expired on May 26. During the evening Mr. Mitchell's assistant at Grays, William Dalton, was sent to the West Street pharmacy to take charge of the keys and lock up the shop. He found Morrison drunk, and on asking for the keys defendant struck him in the face twice. As defendant declined to deliver up the keys,

Mr. Mitchell and the police were sent for, and as he used bad language and refused to go away he was arrested.—Defendant stated that earlier in the day Mr. Mitchell permitted him to take charge of the shop until 11 o'clock at night, the usual closing time. He asserted that the assistant was impudent, and that when he refused to deliver up the keys until he received orders from Mr. Mitchell, he was thrown down and illused by the police.—Defendant was fined 5s., in default seven days' hard labour.

POISONING BY PRUSSIC ACID.—The coroner for Central Warwickshire held an inquest at Leamington, on Friday, June 1, concerning the death of Edwin James Bloomfield, chemist and druggist, of the Parade, who committed suicide the previous day by taking a dose of prussic acid. The evidence showed that deceased was depressed through illness, and had confided to his medical attendant that he had got into difficulties through betting.—A verdict of "Suicide whilst temporarily insane" was returned.

THE STORAGE OF CALCIUM CARBIDE.—At Bristol Police Court on May 16, four summonses under the Petroleum Act (1871) were heard against Matthew W. Dunscombe, 5, St. Augustine's Parade, two for keeping on his premises a quantity of calcium carbide on May 1 and May 2 without certain labels being affixed to the tins, and two for keeping on the same days 44 lb. of calcium carbide without having a licence from the local authority.—It was stated for the prosecution that calcium carbide now comes under the provisions of the Petroleum Act of 1871, the regulations providing that the substance must bear a label to the effect that it must be kept in a dry place, and that it was dangerous if it became damp. On the days in question two vessels, one containing 35 lbs. and one 9 lbs. were found on Mr. Dunscombe's premises. The maximum quantity that might be kept without a licence was 5 lbs., and it must be kept in separate 1 lb. vessels. Neither of the two vessels bore a label in accordance with the Act.—For the defendant it was stated that about three years ago when he noticed in the newspapers that it was necessary to have a licence he sent his son to the police-station to make inquiries. He was there referred to the Council House, and at the Council House he was referred to the police. They appeared to know nothing about the licences at the Council House. He had no desire to evade the law, and if the police had told him that it was necessary to have a licence he would have taken out one at once.—Fined £4 and costs.

FOREIGN NEWS.

SUNDAY CLOSING IN GERMANY.—A petition to the German House of Deputies in favour of enabling small apothecaries' shops in country districts to close on Sundays has been rejected on account of a technical informality.

VITRIOL OUTRAGE.—In the early hours of Monday morning a man called at the surgery of Dr. Coustols, 3, Rue Gosselin, Ivry, in the suburbs of Paris, and summoned him to a critical case. The doctor dressed himself hurriedly, and was about to accompany his caller to the patient's abode, when he received, without warning, the contents of a wide-mouthed bottle of vitriol full in the face. The poor doctor was badly burned. Not having been on bad terms with anyone to the best of his knowledge, he is at a loss to assign a motive for this dastardly outrage upon his person. The police are actively bestirring themselves to trace the aggressor, but as yet have found no clue.

THE LATE DR. EVANS' HOUSE.—By virtue of the fact that he was personally instrumental in assisting the Empress Eugénie to escape to England after the war in 1870, the late Dr. Evans, formerly dentist in the Rue de la Paix, gained for himself no small measure of notoriety. His house—a palatial residence in the Avenue du Bois de Boulogne, has recently been inspected by the

President of the Republic with the view of utilising it as a residence for personages of Royal or Imperial rank who may visit Paris during the Exposition. Monsieur Loubet expressed satisfaction at the manner in which the mansion had been decorated and furnished. It is generally supposed that King Oscar of Sweden will be the first distinguished guest to reside therein.

THE LAST YEAR OF THE CENTURY has been particularly and unfortunately notable by the number of deaths of scientific men which have been recorded. We regret to announce the death of Monsieur Hippolyte Stupuy, Keeper of the Artistic Collections of the City of Paris, and formerly Councillor-General of the Seine Department. He was seventy years of age, being born at Paris in 1830, and was a nephew of the Academician Youy. At an early age he devoted himself to literature. He was collaborator of Littré in "Philosophie positive," and some years since published a remarkable work on the celebrated mathematician Sophie Germain. He had held the appointment of Keeper of the Artistic Collections of the City of Paris since 1894. Monsieur Ravaisson-Mollieu, senior member of the Académie des Inscriptions and Belles Lettres, also died rather suddenly the other day. He was a man of great intellectual culture and deep learning, and added a considerable lustre to French metaphysics. He was also a member of the Académie des Sciences Morales et Politiques and Grand Officer of the Legion of Honour. Military honours were therefore rendered at his funeral, which took place at the church of St. Thomas d'Aquin.

THE ESTABLISHMENT OF DR. ACCOLAS, 6, Rue du Château, Neuilly, where about thirty patients were under treatment for nervous disorders, has been completely destroyed by fire. All the patients were, however, rescued and temporarily lodged in neighbouring houses. The outbreak is attributed to an electric circuit. The damage wrought by the fire is estimated at 50,000 francs (£2,000).

AMERICAN NEWS.

THE FORTY-EIGHTH ANNUAL MEETING of the American Pharmaceutical Association was held at Richmond, Va., during the week commencing on May 7, and was presided over by Professor A. B. Prescott, Ph.D., M.D. The Association having been welcomed to the city by Governor Tyler and Mayor Taylor, the President delivered his annual address, in which he reviewed the more important work of the nineteenth century in the various departments of pharmacy and chemistry. The meeting is reported to have "maintained the high standard of preceding meetings, though resulting in no very notable contribution to the sum of our pharmaceutical knowledge." Many of the papers were of a practical character appealing directly to the ordinary pharmacist, others were more or less scientific.

THE PROMINENT FEATURE of the meeting was the yearning after a better and more uniform system of pharmaceutical education. To aid in bringing about a more satisfactory condition of affairs in connection with American pharmacy, the Section on Education and Legislation has caused to be drafted a "Model Pharmacy Law" which was prepared and presented by Professor J. H. Beal and formally adopted by the Association. It is intended to serve as a model or basis for pharmaceutical legislation in States where it may be proposed to amend the existing law in regard to pharmacy. The chief object of the draft law appears to be to bring about a greater degree of uniformity in the education of rising pharmacists. It provides that the apprentice must possess a good preliminary education and that before taking out his licence to practise pharmacy he shall not only first serve as an assistant, but he is also required to go through a systematic course of instruction in a college of pharmacy, in order that he may be better able to meet the conditions laid upon him by the progress of scientific pharmacy. In other words, a compulsory curriculum is considered to be necessary.

THAT THE COMING PHARMACIST must be a better educated man than even the best of those now in business seemed to be generally recognised, the *Pharmaceutical Era* states, by those present at the annual meeting of the A.P.A. There was no dissent to the proposition that hereafter no one should be admitted to examination by a board of pharmacy unless he holds the diploma of a recognised college of pharmacy. It was also realised that pharmacists should be better business men, and it was suggested that the only means, under the circumstances, for affording them a business education is to establish in the colleges of pharmacy a course in commercial training designed and arranged for the especial use of pharmacists. Such a course, which has recently been instituted in one of the colleges, was described and commented on in the meeting, being warmly approved.

COMPANY PHARMACY would be affected to some extent should the provisions of the draft law ever become universally adopted in the United States, inasmuch as it requires the owner of a drug store to be himself a licensed pharmacist. The much discussed "suggestions" of the Pharmaceutical Society of Great Britain would appear to have been noted, and the "suggestion" which received perhaps the most attention from adverse critics—being by them described as "absurd" and "ridiculous"—has apparently been adopted by their American confrères; for by the proposed law the sale of medicinal agents, quack nostrums, etc., by unqualified persons is absolutely prohibited.

THE REPORT OF THE SPECIAL COMMITTEE OF RESEARCH of the A.P.A., which was read by Mr. A. B. Lyons at the second session of the Scientific Section, consisted principally of suggestions regarding the possibilities of usefulness in the future of the committee. The object that was sought in the original appointment of the committee was to secure concerted action on the part of those desiring to advance the interests of pharmacy by research work. The committee, under the able leadership of Dr. Prescott, has already accomplished valuable results in giving direction to effort by keeping prominently in view a single important object—the standardisation of crude drugs and galenical preparations. A suggestion was made at the previous meeting of the Association that an effort be made to secure, through the committee, a co-operation of the professions of medicine and pharmacy, but since then no meeting of the American Medical Association has been held, so the matter is held in abeyance.

TO GIVE TO THE COMMITTEE OF RESEARCH the standing that it ought to have, it is thought desirable that it should be able to point to its laboratory facilities for the carrying out of details of investigation; to have a laboratory of its own, under the directorship of a competent man, who should be able to give his whole time to it. At the same time, the committee point out that though it does not possess a laboratory, it does command the laboratory facilities of all the schools of pharmacy in the United States. It also points out that the medical schools of the country have laboratory facilities, and it is suggested that the work of those laboratories be reported year by year by a committee of medical men appointed for that purpose, and the reports of each committee made accessible to pharmacologists in both professions.

THE "COMMITTEE ON PHARMACOLOGICAL RESEARCH" is the suggested title for the combined committee, the scope of its work to be a critical study of the therapeutic agents in common use with reference to their fitness to do the therapeutic work the physician expects from them. This would involve for the more active crude drugs a thorough study of assay methods, not so much from the chemical as from the therapeutic standpoint; physiological experiment to verify claims made for remedies newly introduced, as well as to confirm conclusions reached by chemical analysis. In the division of labour between the pharmacist and physician, the larger

share of the purely chemical work would be done by the former and the physiological by the latter.

THE COMMITTEE ON ARRANGEMENTS AND ENTERTAINMENT had provided an excellent programme, somewhat on the lines of the entertainment usually provided for members of the British Pharmaceutical Conference, including President's reception and a reception by the Governor of the city, concerts, carriage drives, excursions, visits to local manufactories, lectures, etc. Altogether, a very pleasant and enjoyable time was spent, the world-famed "Southern hospitality" fully keeping up its reputation.

AN AMERICAN CONFERENCE OF PHARMACEUTICAL FACULTIES was inaugurated on May 8 at Jefferson Hotel, Richmond, Va. Advantage being taken of the annual gathering of the A.P.A., a call was issued by the Secretary of the Maryland College of Pharmacy, Mr. H. P. Hynson, to the faculties of the leading pharmaceutical colleges of the United States, with the object of forming an organisation. Representatives from the various colleges responded to the call, and temporary organisation was effected with Mr. H. P. Hynson, of Baltimore, Chairman, and Professor W. J. Jackson, of San Francisco, Secretary. Committees were then appointed, and at a subsequent meeting they reported, and on their reports it was decided, as already intimated, to form an American Conference of Pharmaceutical Faculties, the officers for the ensuing year being:—President, A. B. Prescott; Vice-President, J. P. Remington; Secretary and Treasurer, W. H. Bradbury; Executive Committee, Professors J. H. Beal, W. Simon, Ed. Kremers, J. M. Good and Geo. C. Dickman. The constitution states its object to be "the promotion of the interests of pharmaceutical education," and it provides for annual meetings coincident with the meetings of the American Pharmaceutical Association.

THE KING'S COUNTY PHARMACEUTICAL SOCIETY has, according to the *Pharmaceutical Era*, obtained an expression of opinion from its attorneys, Messrs. Perkins and Butler, with regard to the new law relating to the manufacture of explosives or combustible materials (see *ante*, 608). Put briefly, their opinion is that upon the face of the law, and for the reason that the making of soda water involves the manufacture of carbonic acid gas, it is unlawful to manufacture soda water "in a cellar, room or apartment of a tenement or dwelling-house or any building occupied in whole or in part by persons or families for living purposes." They point out, however, that, so far as they are aware, the manufacture of carbonic acid gas and the making of soda water have never been regarded as dangerous; but if carbonic acid gas can be shown to be dangerous in its manufacture or use, to the general public, then the law must be obeyed. If, on the other hand, carbonic acid gas in its manufacture and use is harmless, then the attorneys are of opinion that the courts will not sustain the law, on the ground that it is unconstitutional.

AUSTRALASIAN NEWS.

THE REGISTERED PHARMACISTS' SOCIETY OF NEW SOUTH WALES held its first annual meeting on March 13, when the President was able to say, in reference to the report and balance-sheet, that from the time when the preliminary meeting was called progress had been steady, sure, and satisfactory, and now, "with no back bills to meet, and cash in hand for future requirements," the outlook was very promising. Suitable premises had been secured and furnished, a series of popular lectures had been inaugurated, and a number of dances had been held during the winter months, which had proved very enjoyable to members and their friends. The President indicated that among other subjects which would command attention

during the ensuing year would be included a Benevolent Fund and a register for chemists out of employment. A scheme to regulate the prices of patent medicines—that is, to bring chemists into agreement as regards a minimum selling price—is also suggested. Mr. J. R. Willows has been elected President, Mr. Newman Vice-President, and Mr. Wells Treasurer, for the ensuing year.

THE EARLY CLOSING ACT.—Mr. R. T. Bellemey, Hon. Sec. of the R.P.S., and Mr. C. E. Newman, another well-known pharmacist, have raised an important question with regard to the operation of the Early Closing Act (N.S.W.) in connection with chemists' shops. Both of the gentlemen named were recently charged on summons at the Central Police Court, Sydney, with having their shop doors open after 9 p.m. on certain dates. In their defence it was argued that what was meant by the word "close" in the Act was "closed for the purposes of trade." At nine o'clock they put up a card informing the public that they were so closed, and it was urged that in the event of a pharmacist living on the premises it would convert his dwelling into an unhealthy prison if the door was not permitted to be left open for purposes of ventilation and convenience. The magistrate dismissed both cases, and counsel for the prosecution mournfully remarked that this decision meant that in order to secure a conviction it would be necessary to prove that a sale had actually been made after closing hours.

THE PHARMACY BOARD OF NEW ZEALAND, at a recent meeting, received the following report of a Committee appointed to consider the reciprocity question:—"Your Committee is of opinion that the only basis on which reciprocity can become an accomplished fact is that founded on the interchange of certificates obtained by examination. It is hoped that within a reasonable time one system of pharmaceutical education and examination may prevail throughout the Australasian Colonies, administered from a central position. When this is arrived at no objection can be entertained as to reciprocity." It was then resolved that the above report should be forwarded to the Pharmacy Boards of New South Wales and Queensland as an expression of opinion from the New Zealand Board.

THE NEW ZEALAND BOARD has arrived at the conclusion that it would be impossible for it to carry out its duties with the fees prescribed by the Pharmacy Act, and it has decided to ask the Governor in Council to raise them to the same standard as that existing under the old Act, and in addition to grant the Board permission to levy a fee of 10s. 6d. per annum upon all members of the Society, in order to raise the necessary working expenses of the Board. The Colonial Secretary having been interviewed, expressed himself as being entirely in accord with the wishes of the Board, and promised to do all in his power to assist in their being carried out when the new regulations adopted by the Board came up for approval.

THE OFFENSIVE PUBLICATIONS ACT.—A Wellington (N.Z.) chemist, Mr. D. T. Orr, who sold a packet of Clark's B 41 pills to a local detective, was recently charged under the provisions of the Offensive Publications Act, 1892, with having "offered certain printed matter of an indecent nature." Inside the packet were found wrappers having on them printed matter relating to certain diseases, while outside was another wrapper, placed there by Mr. Orr, referring to pills manufactured by himself. Although Orr admitted that he had been selling the pills for twenty-five years, he denied that he had until now been aware of the contents of the package. The magistrate decided that Mr. Orr's own leaflet was intended to relate to the diseases referred to in the Statute, and when taken in conjunction with the printed matter in the packet, there seemed to be no doubt that a breach of the Act had been committed.—A fine of 20s. and costs was inflicted.

CAPE PHARMACEUTICAL SOCIETY.

A complimentary dinner in honour of Mr. William Martindale, President of the Pharmaceutical Society of Great Britain, was given by the Cape Pharmaceutical Society in the Oak Room, Dix's Café, on May 15, and the following report is taken from the *Cape Times* of the following day. Mr. L. JONES presided, the vice-chair being occupied by Mr. A. J. Radcliffe.

A capital meal having been partaken of, the CHAIRMAN proposed the toast of

THE QUEEN,

observing incidentally that in that country loyalty was not a mere sentiment, but was a thing one could catch hold of, and they had to hold on to it, while the loyalty of the colonies recently manifested had been an object lesson to the world.

The toast was heartily pledged, and a verse of the National Anthem sung.

The VICE-CHAIRMAN submitted the toast of

HIS EXCELLENCY THE GOVERNOR,

remarking that in the troublous times through which they had gone Sir Alfred Milner had been an example to all men, while he also commanded the honour and respect of everyone.

The toast was warmly drunk.

The CHAIRMAN then gave the toast of

OUR GUEST.

He did not think he need introduce Mr. Martindale to them, for he believed they had all heard his name before; in fact, he was afraid they uttered it rather familiarly sometimes. He did not think there was a single doctor, chemist, or apprentice who did not know the name of Martindale. When he heard that Mr. Martindale was coming out on a visit to South Africa he thought there was a chance for that gentleman, as the country was full of medicinal herbs whose properties were as yet unknown. He hoped Mr. Martindale on his return to England would take the greetings of probably the youngest Pharmaceutical Society in the world to that of the oldest—the parent Society. The Cape Pharmaceutical Society was quite a young one, and they had a lot to learn; for the last two years they had been engaged almost solely in legal matters and deputations to the Premier. He hoped that when Mr. Martindale went back he would do his best to help them. The next thing they had to pay attention to was the question of education; the apprentices there had nowhere to go to be taught, and he did not wonder at the number of failures in the examinations.

The toast having been drunk with musical honours,

Mr. MARTINDALE, in acknowledging the toast, referred at the outset to the troubles through which South Africa was passing, and to the great field for enterprise offered by the country, especially agricultural enterprise. The Imperial Yeomanry at present in South Africa included some of the picked agriculturists of Great Britain, and these were the men to make the best of the two colonies. He trusted that the war would soon be concluded, and that a number of the Yeomanry would remain behind, but if they did not stay there they would carry back such glowing accounts of the possibilities for agricultural work there that they would send out a number of the men who would be the making of the colonies agriculturally. Proceeding, Mr. Martindale said he was glad to know that they had a Board of Pharmacy, which examined the credentials of those wishing to follow the calling of pharmacy, and that they were instituting examinations which would at all events prevent ignoramuses starting. They must have to start with a fairly good primary education, and afterwards they required a secondary education, especially in the two sciences of chemistry and botany. He hoped they would be able to establish courses of instruction, either independently or in connection with the S.A. College, that would give the youths apprenticed in the colony a training in chemistry, botany, and physics.

so that they would be able to pass the examinations creditably. He was told that to get good assistants they had to import them, but the Colonial youth should have the chance of becoming good applied pharmacists, who would be a credit to them. In some of the Australian colonies they had established schools or classes in connection with the colleges, so that they could train their own apprentices to become fairly accomplished pharmacists. There should not only be lectures, but demonstrations, and a practical laboratory class, working under a well-trained chemist. Mr. Martindale concluded by referring to the South African flora, which he said was a surprise to him; some of the plants were quite new to him.

OTHER TOASTS.

The other toasts were: "The Ladies," proposed by Mr. BARLOW, and responded to by Mr. SAINSBURY; "The Press," by Mr. DANCK; "The Land We Live In," by Mr. FRENCH, acknowledged by Mr. FICK.

Dr. MABERLEY, as representing the medical profession, paid a tribute to the guest of the evening, and went on to refer to the medicinal properties of South African drugs.

The speeches were interspersed with songs and recitations.

The arrangements were admirably carried out by the following committee: Messrs. J. Jones, J. S. North, A. H. Mathews, A. J. Radcliffe, and W. Fick (Hon. Secretary). It was close upon midnight before the gathering separated.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.

The quarterly meeting of the above Association was held on Wednesday, May 30, at the Rooms, Wimpole Street. Mr. F. MAITLAND (President) occupied the chair, a large number being present.

The minutes having been read, the position of the Association financially was thoroughly discussed and a committee appointed with a view to securing new rooms at a less expensive rental.

ANNUAL SUMMER OUTING.

It was decided to hold the annual outing at Totnes on Wednesday, July 11, meeting the Exeter chemists at that town, and also to invite all chemists of the surrounding district to join them.

PRESENTATION TO MR. C. J. PARK.

The CHAIRMAN said he had a very pleasing duty to perform. On hearing of the approaching marriage of Mr. C. J. Park, many of the members thought it a good opportunity to show their appreciation of the very many services which he had rendered the Association and pharmacy generally, both as President on more than one occasion, and also as a member of the Committee ever since it had been formed. He had given valuable assistance, and a great deal of the present prosperity of the Association was due to Mr. Park's energy. As a member of the Pharmaceutical Council, he had spared neither time nor expense in representing chemists in the West of England generally. The idea of a wedding gift had only to be mentioned and it was taken up most heartily. He (the speaker) had very great pleasure in asking Mr. Park's acceptance of a tea and coffee service as a small token of their high appreciation, hoping it would remind him of the very many pleasant hours spent amongst members of the Association.

Several members added their congratulations and good wishes, all testifying to the great help Mr. Park had been to the local Association.

Mr. PARK, in responding, said he could only very inadequately return very sincere thanks for the very handsome present and, what he valued equally, or even more, the very kind remarks of members present had been good enough to make in reference to his services on behalf of the Association in endeavouring to bind the members together in bonds of mutual commercial interest, re-

spect, and good fellowship. He should always look back to that evening with the greatest of pleasure, and the handsome gift would remind him of the great indebtedness he owed to the members for the honour and confidence which they had placed in him by electing him on three occasions to be their President. He trusted it would prove as an incentive, if one should be required in the future, to fresh efforts to make the Association useful to its own individual members and to the whole of the craft in the country. In conclusion, he again thanked the numerous gentlemen who had subscribed towards this token of esteem, and he valued more than he could express the knowledge that he had won a place in their hearts and esteem.

LINNEAN SOCIETY OF LONDON.

The anniversary meeting was held on Thursday, May 24, Dr. A. GÜNTHER, F.R.S., President, in the chair. The minutes of the last meeting having been read and confirmed, the Secretary reported the deaths, withdrawals, and elections during the past year, and the obituary notices of deceased Fellows were laid before the meeting.

REPORTS AND ACCOUNTS.

The Librarian's report having been read announcing the additions to the Library by donation and purchase, the Auditors' accounts were presented by Mr. Henry Groves. The Treasurer thereupon made his annual financial statement, and having pointed out the great inconvenience caused by the non-payment of subscriptions, and the unreasonable conduct of those who withhold payment for three or four years and pay no heed to the repeated applications from the Treasurer, it was moved by Mr. ALFRED O. WALKER, seconded by Mr. F. G. SMART, and carried:—

That the Council be requested to frame such an alteration of the by-laws as may compel defaulting Fellows to pay their subscriptions, and to submit the same to the Society at their next general meeting.

On the motion of Mr. WILFRED H. HUDLESTON, seconded by Mr. THOMAS CHRISTY, a vote of thanks for their valuable services were accorded to the Treasurer and to the Auditors.

ELECTION OF OFFICERS.

The PRESIDENT then opened the chief business of the day, when the Fellows present proceeded to ballot for the President, Officers, and Council for the ensuing year. Scrutineers having been appointed, and the votes counted, the result was declared to be as follows:—The following members were removed from the Council:—Mr. F. Darwin, Mr. H. W. Monckton, Mr. G. R. M. Murray, Mr. H. Saunders, and Mr. W. P. Sladen, and the following were elected into the Council to replace them:—Mr. Clement Reid, Dr. D. H. Scott, Rev. T. R. R. Stebbing, Prof. S. H. Vines, and Mr. A. Smith Woodward; and as President, Prof. Sydney Howard Vines, F.R.S.; Treasurer, Mr. Frank Crisp; Secretaries, Mr. B. Daydon Jackson, and Prof. G. B. Howes, F.R.S.

ANNUAL ADDRESS.

The retiring President then delivered his annual address, choosing for his subject "The unpublished Correspondence of William Swainson with contemporary Naturalists (1806-1840)," lately acquired by the Society. On the motion of Mr. F. D. GODMAN, seconded by Mr. HOWARD SAUNDERS, it was resolved that this address should be printed and circulated.

PRESENTATION OF GOLD MEDAL.

The Gold Medal of the Society was then presented to Prof. Alfred Newton, M.A., F.R.S., in recognition of his important contributions to zoological science. Prof. NEWTON having suitably acknowledged the presentation, and expressed his indebtedness to the Council for having selected him this year as the recipient of the highest honour which it is in the power of the Society to bestow, the proceedings terminated.

ROYAL INSTITUTION.

The Friday evening lecture that was announced to be given by Sir Henry Roscoe, F.R.S., was read by Sir WILLIAM CROOKES, F.R.S., in the absence of the author through illness. The subject was the same as that recently dealt with by Sir Henry Roscoe before the Chemical Society, viz.:—

BUNSEN.

Some few points connected with this eminent scientist that were not touched on in the former lecture are worthy of note. Bunsen, who was born at Göttingen in 1811, may be said to have laid the foundations of many branches of chemical science; in pure chemistry, in chemistry applied to the arts and industries, in physical chemistry and in chemical geology, his researches, said the lecturer, have long ranked as classics, and would remain so for many years to come.

The research that stamped him as a first-rate experimentalist was his investigation of the cacodyl compounds. This research, the only one of importance carried out by him in the domain of organic chemistry, was destined to exert so great an influence on the later developments of that branch of science that he might with truth be regarded as one of the pioneers of organic chemistry. This difficult research occupied him closely for six years, and was so fraught with danger that in 1846 he was nearly poisoned, but it gave an impulse to workers who have since gained distinction in organic chemistry, notably the late Sir Edward Frankland and Kekulé.

The burner which bears his name was invented for use in his laboratories. He was dissatisfied with the kind then in use, an argand burner with a wire-gauze cap and a copper chimney, because it gave an unsteady flame. His inventive genius soon found a remedy in the Bunsen burner so familiar all over the world.

Among the metals that he was able to produce electrolytically were magnesium, calcium, strontium, cerium, lanthanum, and didymium.

The lecturer referred to a story that is told of the late Emperor Frederick who, on being shown the grease spot photometer, said: "For the first time in my life I now know the value of a spot of grease."

Bunsen's visit to Iceland in 1846 was next referred to. Hecla had been in eruption the previous year, and he spent three and a-half months on the island procuring specimens of gases and substances of various kinds that enabled him to investigate many volcanic and pseudo-volcanic phenomena. This research laid the foundation of modern petrology.

Just as it has been said that Davy's greatest discovery was Faraday, so it may be said of Bunsen in regard to Kirchhoff. It was mentioned of Bunsen that with 17 grammes of caesium chloride which he obtained from 40 tons of material he was able to determine all the constants of that element.

The last of Bunsen's researches that the lecturer mentioned was the measurement of the chemical action of light, in which he himself had the good fortune to be associated.

Passing to the more personal side of Bunsen's life the lecturer said that he was always a believer in holiday travelling, but before the long summer vacation was over he would be back again steadily working in his laboratory at some research that demanded closer attention than he could give to it during term-time. It was his custom, after delivering his daily lecture on general chemistry at eight o'clock, to go into the laboratory and visit his students, and of these even the most elementary was not neglected by the great master. In this way he unconsciously endeared himself to all. He generally had about twenty advanced students working out researches under his direction, and the task of supervising these, added to his other duties, gives cause for wonderment as to how he found time for his own researches. This may be partly explained by the fact that he was an early riser.

ANALYTICAL NOTES.

• **SELENIUM IN SULPHURIC ACID.**—Schlagdenhauffen and Pagel have recently found selenium to be present in many samples of so-called pure sulphuric acid. To detect it, they apply the well-known Dragendorff test with codeine. A few drops of the acid are placed in contact with a particle of codeine, when a green or bluish green tint will be produced in a few minutes if selenium be present, on warming the mixture gently on the water bath.—*Journ. de Pharm.* [6], **11**, 261.

NEW REACTIONS FOR SESAME OIL.—F. Breinl finds that sesame oil gives marked colour reactions in the presence of hydrochloric acid with many aldehydes of the aromatic series, from an orange colour with benzoic aldehyde to a red violet tint with vanillin, piperonal, and orthoxy-benzoic aldehyde. 10 C.c. of the oil are shaken for half a minute with 0.1 C.c. of the aldehyde solution and 10 C.c. of concentrated hydrochloric acid: even a 0.5 per cent. solution of sesame oil gives with the three last-mentioned aldehydes a distinct reaction. The colour does not develop at once, but in a few minutes becomes more intense than that given, under similar conditions, with furfural. The author, therefore, considers these aldehydes preferable to furfural as employed in Baudoin's test for sesame oil, since not only is the bluish tint developed by them less likely to be masked than the reddish colour of the original test with furfural, but these bodies are very stable in alcoholic solution, so that the reagent will keep for months.—*Mon. Scient.* [4], **14**, 250.

DISTINCTIONS BETWEEN ARTIFICIAL AND NATURAL SILKS.—In the course of an interesting *résumé* of the history of the production of artificial silk substitutes K. Hassack gives the following distinctive characters of natural silk and the manufactured articles as at present made. The size of the threads alone, as shown by the micrometer, is sufficient to distinguish them, the smallest natural silks having a diameter of 9 to 15, never exceeding 20 micro-Mm., whereas that of the smallest fictitious silk is 40 to 50 micro-Mm., the largest being as much as 132 micro-Mm. All artificial silks, except that made from gelatin, are birefringent. They do not give the peculiar unpleasant odour on burning that is evolved by natural silk. Heated to 200° C. in sulphuric acid they char and fall to powder, while natural silk is not sensibly attacked. Those that are made from nitrocellulose are not always completely denitrated, as may be shown by the reaction with a solution of diphenylamine in concentrated sulphuric acid. According to Herzog, nitrocellulose silk may be quantitatively separated from natural silk by means of an alkaline solution of copper and glycerin. True silk is dissolved in this menstruum, but not the artificial fibres. A saturated solution of zinc chloride dissolves natural silk at 100° to 110° C., but not nitrocellulose silk until the temperature reaches 120°, while the "wild" Tussah silk requires a still higher temperature, approaching 140° C., for its solution. Aqueous iodine solution stains artificial silks brown; natural silks yellow. The latter is coloured brown by the action of sulphuric acid and iodine, while cellulose silks are coloured blue by the same reagent.—*Mon. Scient.* [4], **14**, 259, after *Oesterr. Chem. Zeit.*

DETECTION OF FORMALIN IN MILK.—Leys points out that as formalin very quickly forms an albuminoid compound with casein, it should be tested for in milk within ten to sixteen hours of the possible addition, and that only very sensitive reagents should be employed. He recommends testing the distillate with Gayon's reagent: Fuchsin solution (1:1,000), 1,000 C.c.; bisulphite solution, sp. g. 1.264, 10 C.c.; pure hydrochloric acid, 10 C.c. This serves to detect the presence of 1:100,000 parts of formalin in milk. On account of frothing, 100 C.c. of the milk should be distilled in a 4-litre flask till 20 C.c. come over. As confirmatory tests, the author recommends the phloroglucin reaction, in which to 25 C.c. of milk

10 C.c. of phloroglucin solution (1:1,000) are added, and then 5-10 C.c. of solution of potash, and the colour developed compared with that obtained from pure milk with the same reagent. He also applies the Gayon reagent direct to the milk; pure milk gives a red coloration, due to the action of the casein, but this disappears on the addition of several drops of strong hydrochloric acid, while milk containing formalin gives a blue colour, lasting from eight to twelve hours.—*Pharm. Centralh.*, **41**, 133.

DETECTION OF SALICYLIC AND BENZOIC ACIDS IN MILK.—G. Breustedt gives the following process which obviates the difficulty due to emulsification: 10 C.c. of the milk is heated with 10 C.c. fuming hydrochloric acid, until it develops a red colour. After cooling, the acid liquid is shaken out with 20 C.c. of ether, and the solvent evaporated off. The residual fat is immediately shaken with 5 C.c. of hot water, filtered, and a few drops of a 1 per cent. solution of ferric chloride added to the filtrate. A distinct reaction will be obtained with 0.0005 Gm. of salicylic acid in 10 C.c. of milk. To test for benzoic acid (and at the same time salicylic acid) 25 C.c. of milk is mixed with 25 C.c. of water and 10 C.c. of Fehling's cupric sulphate solution, then about 2.5 C.c. of normal caustic potash solution is added, leaving the solution with an acid reaction. The mixture heated for a short time on the water bath and the copper caseinate which will contain the fat is separated. The clear serum is treated with several drops of dilute hydrochloric acid, and shaken out with ether. The residue after evaporation of the ether may be tested as above for salicylic acid, or for benzoic acid by dissolving in a little water and heating the solution for several minutes with a 10 per cent. solution of ferric chloride when, if benzoic acid be present, a brown flocculent precipitate of iron benzoate will be thrown down.—*Pharm. Zeit.*, **44**, 396, after *Archiv. d. Pharm.*, 1899, 3.

QUANTITATIVE SEPARATION OF FATTY ACIDS.—K. Farnsteiner proposes the following method for the determination of the unsaturated fatty acids, based on the solubility of the lead salts of the solid acids in warm benzol and their relative insolubility in cold. 0.6 to 1 Gm. of the fat is saponified in Erlenmeyer's flask with excess of alcoholic potash and titrated back with acetic acid (phenol-phthalein indicator). The alcohol is evaporated off as far as possible, the soap is then dissolved in 100 C.c. of boiling water, and precipitated with 30 C.c. of boiling lead acetate solution, containing about 1 Gm. of the salt; the mixture is cooled, filtered, and washed. The lead soap is now replaced in the flask and heated with water until it aggregates into a compact mass. This is allowed to cool, the water poured away, and the soap dried. It is then dissolved in 50 C.c. moderately warm benzol, allowed to stand for fifteen minutes at an ordinary temperature, and finally for two hours at 8° to 12° C. Filtration is then conducted through a syphon tube packed with cotton wool. The precipitate is washed with 10 C.c. benzol at 10° C., and this drawn off in the same manner. It is then dissolved twice in succession in 25 C.c. benzol, this being filtered off in a similar manner, after cooling for one hour at 8-12° C. For the separation of the fluid acids, the benzol solution is shaken with an equal volume of 10 per cent. hydrochloric acid, washed with water, filtered through cotton wool, and the benzol distilled off in a current of steam. To prevent loss through oxidation, the fatty acids should not stand long in contact with the benzol. If the iodine number of the acids is required, the benzol solution is divided into three parts of 25 C.c. In two of these the iodine number is determined, and the fatty acids determined by distilling off the third portion. Farnsteiner has further found that the barium salts of the oleic acids dissolve in warm benzol containing 5 per cent. of alcohol, and separate out again on cooling, while the unsaturated fatty acids remain dissolved, but this process is not absolutely quantitative.—*Pharm. Cent.*, **40**, 198, after *Zeit. f. Untersuch. d. Nahr. und Genussmittel.*

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Gelsemii Radix.

GELSEMIUM ROOT is obtained from the yellow or Carolina jasmine, *Gelsemium nitidum*, Michaux (N.O. Loganiaceæ), a climbing plant indigenous to the southern United States, which ascends lofty trees and forms festoons from one to another. The smooth, shining, twining stem bears perennial dark green leaves, and deep yellow fragrant flowers in axillary clusters. The plant grows in rich, moist soils along the sea coast from Virginia to the south of Florida, and its flowers are said to be poisonous. The drug consists of the dried rhizome of the plant with the larger roots attached, but sometimes smaller roots and portions of slender aerial stems are also present. The drug is collected in the autumn; it possesses antispasmodic and analgesic properties, and is used in the preparation of *Tinctura Gelsemii*.

CHARACTERS. — *Gelsemium* rhizome usually occurs in nearly straight and cylindrical pieces, about 15 Cm. or more in length, and from 6 to 18 Mm. in thickness, brown or dark brownish-violet in colour, or marked with a network of purplish lines with yellowish-brown intervening spaces. The difference in colour is due to the outer cork cells being filled with a dark reddish-brown substance, whilst the inner ones contain a yellowish deposit; as growth proceeds the outer dark layer of the rhizome becomes fissured and the pale inner layer is thus partly disclosed. The roots are fibrous and somewhat smaller, on the average, than the rhizome; they are of a uniform yellowish-brown colour, finely wrinkled on the surface, and somewhat tortuous or sinuous in shape. The drug is hard and woody, breaking with an irregular splintery fracture, and the rhizome frequently exhibits silky fibres in the bast, similar to the more conspicuous ones found in the aerial stems. A transverse section of rhizome or root exhibits a distinctly radiate appearance, the thin cortex or bark enclosing a large pale yellowish-white wood, which consists of narrow bundles with small pores, alternating with straight whitish medullary rays. In the case of the rhizome a small pith—frequently divided into four nearly equal parts—is also present, particularly in smaller and younger pieces; the silky fibres in the bast are isolated or occur in groups of two or three and form an interrupted ring, whereas in the aerial stem they are grouped in bundles. The bitter taste of the drug is due to the alkaloids, which occur chiefly in the bark; the slight aromatic odour is communicated by the volatile oil present.

NOTES.—The distinctive characters of *gelsemium* are the purplish colour of the rhizome, the yellowish colour and tortuous appearance of the roots, the splintery fracture, and the radiate structure of a transverse section. The active principles of *gelsemium* are present only in small quantities, if at all, in the stem. The chief constituent of the drug is the intensely bitter and poisonous amorphous alkaloid *gelseminine*, which forms amorphous salts. A second alkaloid, *gelsemine*, is crystalline, probably non-toxic, and forms crystalline salts. The resinoid known as "*gelsemin*" is a mixture of substances obtained by evaporating a tincture of *gelsemium* to dryness. *Gelsemic* or *gelseminic* acid is a crystalline substance found in *gelsemium* bark, which exhibits an intense bluish-green fluorescence in alkaline solutions; it appears to be identical with the β -methyl-*æsculetin* or *chrysotropic* acid found in *belladonna* root. *Gelsemium* preparations sometimes produce toxic symptoms, and in such cases artificial respiration should be kept up very steadily for at least three hours. Suitable antidotes are an emetic of mustard and water, atropine, morphine, aromatic spirit of ammonia, brandy, and digitalis.



GELSEMIUM ROOT.—a, Rhizome with rootlets; b, root; c, transverse section of root, d, ditto of rhizome e, piece of rhizome with aerial stem, attached Allnatural size.

Gentianæ Radix.

GENTIAN ROOT is obtained from the yellow gentian, *Gentiana lutea*, Linn. (N.O. Gentianaceæ), a perennial herb which is indigenous to Central Europe and collected in the mountainous

districts of Germany, Switzerland, France and Spain, that imported from France being preferred. The plant has a long, thick, branching perennial root, from which an erect round stem rises to the height of three or four feet, bearing opposite bright green leaves and large beautiful yellow flowers. The drug consists of the erect rhizome or root stock and large fleshy roots of the plant, collected in the autumn and dried, the pieces being occasionally sliced longitudinally. When fresh the pieces are whitish internally and almost odourless, but the colour darkens and a distinctive odour develops during the drying process, the fresh root being sometimes made into heaps and allowed to heat and ferment in order to facilitate those changes. The drug possesses bitter tonic properties; it is used in the preparation of *Extractum Gentianæ*, *Infusum Gentianæ Compositum* and *Tinctura Gentianæ Composita*.



GENTIAN ROOT.—A and B, pieces of root; C, root-stock with bud, showing point of attachment with the root B; D, transverse section of root; E, ditto of rhizome. All natural size.

CHARACTERS.—Gentian usually occurs in nearly cylindrical yellowish-brown pieces about 15 to 20 Cm. long, and seldom exceeding 2.5 Cm. in thickness. Occasionally the pieces are longitudinally split and they may also be obtained in thin transverse slices. The roots are much shrivelled and longitudinally wrinkled; the rhizome is often longer and thicker, without conspicuous longitudinal wrinkles, but marked by close transverse annulations, caused by leaf scars, and frequently terminated by a large bud protected by dry scaly leaves. Pieces of the drug are tough and flexible when slightly moist, but brittle when dried, the fractured surface being of a nearly uniform reddish-yellow colour. A transverse section shows a dark cambium ring separating the rather thick bark from the soft wood, the latter consisting almost entirely of parenchymatous tissue and exhibiting no radiate structure. Roots

which have been longitudinally sliced before drying frequently exhibit transverse instead of longitudinal wrinkles, and are paler than usual internally. The characteristic odour of gentian is probably due to some fermentation product formed during the operation of drying; it is more prominent when the drug is moistened. The sweetness noted when gentian is first tasted is due to the sugar present; the bitter after-taste is caused by gentiopicrotin.



GENTIAN ROOT.—D, transverse section of root; E, ditto of rhizome. Both enlarged.

TEST.—Gentian root contains no starch, and should not, therefore, yield any definite reactions with the tests for that body. Calcium oxalate and tannin are also absent, the reaction with ferric chloride, which has been supposed to indicate the presence of tannin, being more probably caused by oxysalicylic acid.

NOTES.—The distinctive characters of gentian are the uniform yellowish-brown colour of the drug, the longitudinal wrinkles on the root, the encircling leaf-scars on the rhizome, the absence of any evident structure in the transverse sections, and the absence of starch. The roots of other species of *Gentian*—*G. purpurea*, Linn., *G. pannonica*, Scop., *G. punctata*, Linn., etc.—are collected and dried in Switzerland and Austria; they are smaller, as a rule, than the roots of *G. lutea*, but all of them appear to possess similar properties. The most important constituent of gentian is gentiopicrotin, a neutral crystalline bitter substance, which is soluble in water or in diluted alcohol, insoluble in ether, and yields amorphous bitter gentiogenin and glucose when decomposed with a dilute mineral acid. Another constituent of the drug is a pale yellow crystalline substance named gentianin or gentisin, which forms intensely yellow crystallisable compounds with alkalies, and yields straw-coloured crystals of gentisein on boiling with hydriodic acid. An uncrystallisable sugar—gentianose, pectin, and fixed oil are also present in the drug. The dark olive-green coloration produced when ferric chloride is added to gentian preparations is believed to be caused by oxysalicylic acid (gentianic, gentisic, or gentisinic acid), a decomposition product, which can be formed by treating gentianin with caustic potash, phloroglucin being produced at the same time.

Obituary.

BLOOMFIELD.—On May 31, Edwin James Bloomfield, Chemist and Druggist, Leamington. Aged 40.

Publications Received.

A CENTURY OF AMERICAN PHARMACEUTICAL LITERATURE AND JOURNALISM. By FREDERICK HOFFMANN, Ph.D. Pp. 15. Reprinted from the Century issue of the *American Druggist and Pharmaceutical Record*. March 25, 1900. From the Author.

PROSPECTUS, 1900, LEEDS COLLEGE OF PHARMACY, SPRINGFIELD PLACE. Principal, F. Pilkington Sargeant, Ph.C. Pp. 14. From the Principal.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

JABORANDI BASES.

The publication of a brief abstract of a paper by Dr. Jowett on "Pilocarpine and the Alkaloids of Jaborandi Leaves" (see *ante*, p. 297), has called forth a communication from A. Pinner and E. Kohlhammer, stating that they had been engaged in the investigation of pilocarpine during the past year and giving the results of their observations. In the main, they agree with Dr. Jowett in regarding the statements of Hardy and Calmels as to the constitution and alleged synthesis of pilocarpine as incorrect. They also throw some doubt on the statement of Petit and Polonowski—already questioned by Merck—as to pilocarpine being convertible into an isomeric base when heated with sodium alcohol, while Dr. Jowett finds that such a change does take place, but that the isomeric base so formed—isopilocarpine—is like pilocarpine, a viscid oil, instead of being crystalline as described by Petit and Polonowski under the name of pilocarpidine. The remainder of the paper by Pinner and Kohlhammer relates to the attempt to solve the question as to the constitution of pilocarpine by the investigation of bromine derivatives.—*Berichte*, **33**, 1424.

WALLFLOWER ALKALOIDS.

Reeb points out that cheiranthine acts solely on the heart; that the paralysis of the nervous system, which is occasioned by cheiranthus extract, is due to the presence of another alkaloid, obtained by him in a crystalline condition, and named cheirinine. This alkaloid is extracted by ether from neutral or faintly alkaline aqueous solutions. It crystallises from water in small colourless needles, insoluble in cold water and in petroleum ether; soluble in warm water, in alcohol, in ether, in chloroform, and in acetic ether; it melts to a transparent colourless mass at 73° to 74° C. The aqueous solution is neutral, and gives a voluminous precipitate with most alkaloidal reagents. Analysis points to the formula $C_{18}H_{35}N_3O_{17}$. The author has also established the presence of choline in the seeds of the wallflower.—*Chem. Zeit. Repert.*, **23**, 293, after *Arch. experiment. Pathol.*

SEPTICIDIN.

This is a serum preparation employed in veterinary practice for swine fever or chicken cholera. It is prepared from the blood of highly immunised animals. It remains active for six months, if kept cool, but not if frozen. The serum is injected under the skin of the loose tissue, in swine best behind the ear or behind the knee joint, and under the wing or on the neck of a bird. For swine which are suffering from contagious diseases or from fever, septicidin "A" should be employed; if the animal weighs less than 50 kgm. 10 C.c. is injected; if heavier, 20 C.c. is given. If after three to five days no improvement has occurred, a second injection is necessary. To immunise small healthy birds from cholera, 0.5 C.c. is sufficient; for large birds, 1 C.c.; for birds already attacked, 2-3 C.c. is injected, and repeated in twenty-four hours if necessary. To immunise swine septicidin "B" is employed.—*Pharm. Zeit.*, **45**, 27.

ALBUMINOID FROM SNAILS.

A constituent of *Helix pomatia*, the Roman snail, which arrests the circulation of the blood, has been experimented on by Paderi. The glycerin maceration of this mollusc contains a substance which when injected into the jugular vein of a dog stops the circulation, and in a short time kills the animal. This substance, which is to be investigated further, contains sulphur and phosphorus, and differs from the peptones in its behaviour towards precipitants.—*Chem. Zeit. Repert.*, **23**, 294.

ESTER-FORMING BACTERIA.

According to A. Maassen, several species of bacteria—notably *Bacillus esterificans* and *B. præpollens*—produce, under certain conditions, an agreeable odour, resembling that of fruit-ether. *B. esterificans* is a spore-forming species, which on certain media develops a strong ethereal odour closely resembling that of fresh apples. *B. præpollens* has strong peptonising properties, which enable it to dissolve and decompose coagulated albumen. It produces ester strongly in all media. It attacks albumen and carbohydrates simultaneously, and produces such a quantity of ammonia from the albumen that the acid formed from the carbohydrates is neutralised. It splits up urea, and decomposes nitrites with production of free nitrogen. It imparts a very agreeable aroma to milk.—*Arbeiten aus der k. Gesund-Anst.*, Berlin, 1899, 500.

OIL IN DIATOMS.

G. Kramer and A. Spilker suggest a very important practical result from the oil which is always secreted in the protoplasm of diatoms, viz.:—that it is one of the most important sources of petroleum-beds. From the oily secretion of diatoms a wax can be obtained resembling ozokerite in appearance, chemical composition, and properties. The decay of the diatoms probably gives rise to ammonium carbonate which hydrolyses the wax. From the resulting acids, carbon dioxide and monoxide and water are eliminated, and ozokerite formed. Further pressure again converts this ozokerite into petroleum.—*Ber. Deutsch. Chem. Gesell.*, **32**, 2,940.

CRYSTALS IN DATURA STRAMONIUM.

The form and arrangement of the crystals of calcium oxalate differ somewhat in this species, according to H. Kraemer, from those in other Solanaceæ. The crypto-crystalline crystals which are formed in such abundance in the parenchyma of the root and stem are replaced in part, in the petioles and veins of the leaf, by prisms, pyramids, and rosette aggregates, while in the lamina the prisms and pyramids are combined to form rosette-shaped aggregates only. All the crystals belong probably to the monoclinic system.—*Bull. Torrey Bot. Club*, 1900, 37.

ALKALINE EARTHS AS PLANT POISONS.

According to M. H. Coupin, the alkaline earths are poisonous in their influence on plants in proportion to the atomic weight of the metal, viz., in the order calcium, strontium, barium. Most of the salts of barium and strontium are poisonous, barium chlorate especially so, as also are the chlorates of sodium and potassium.—*Comptes rendus*, **130**, 791.

FUNGI IN DWELLINGS.

The injurious fungi found in human dwellings belong, according to G. Marpmann, to three categories: they are either themselves pathogenous, or they produce poisonous products of decomposition which are given off into the air; or they produce poisonous products from certain special substances which they decompose, especially compounds of sulphur and arsenic. By far the largest number of these fungi are to be found on or in wall-paper; a list of twenty-four such species is given.—*Zeitschr. f. angewandte Mikroskopie*, 1900, 297.

FUNCTION OF SOLANINE.

According to G. Albo this alkaloid is present in all the organs, but especially in the seed, of several species of Solanaceæ. It decreases in amount during germination, and again increases as the plant approaches maturity. It appears to be not a migratory form of proteinaceous substances, nor a mere excretory product, but a true reserve substance which the plant utilises during early periods of growth.—*Ann. Agron.*, **25**, 621.

PRACTICAL NOTES.

BY F. H. ALCOCK.

Remarks on a Prescription.

The following prescription presents some peculiarities which are worthy of record:—

℞ Bismuthi Subnitrat̄is, grana triginta
Pulveris Tragacanth̄æ, quantum sufficiat
Tinctur̄æ Nucis Vomicāe, minima triginta
Potassii Iodidi, grana triginta
Spiritus Chloroformi, minima quadraginta
Aquæ pluviatilis ad f. uncias tres.

M. f. m.

When first prepared no apparent change is observed, but after standing some time the sediment assumes a bright scarlet red colour. By experiment it was found that chemical change took place between the bismuth salt and the potassium iodide, the acidity of the former being the cause. The usually suggested alternative use of bismuth sub-carbonate in such cases was adopted, and then the red colour was not developed, although some colour did appear which was never more yellow than pale straw colour, and this was found to be dependent upon the variable amount of the nitric radical present in the sub-carbonate of commerce. Indeed, it could be utilised as a test for this impurity.

Whether the tincture of nux vomica is affected was not inquired into, but it is very likely that its alkaloids would be found in the sediment.

[The Separation of Antimony and Arsenic.]

The solutions left from experiments made early in this year, and described in *P.J.*, page 362, were used as analytical exercises for students, and during their examination it was found that the antimony was wholly precipitated from them by means of hydrogen sulphide, even before previous addition of hydrogen chloride. For convenience it may be stated that the solutions were tartar emetic, antimony chloride, and the antimony oxide made into aqueous solution with cream of tartar, to each of which were added much Rochelle salt and a large excess of sodium bicarbonate. As this result seemed to be unusual, experiments were made having for their object to ascertain whether under similar conditions arsenic was precipitated. It was not. Mixtures of the two were made in various proportions, and it was found that the antimony sulphide was precipitated and did not contain arsenic in any appreciable quantity, and that the filtrate contained all the arsenic and no antimony, and from this the arsenic was precipitated by the addition of hydrochloric acid in excess.

BAMBOO MANNA.

BY DAVID HOOPER, F.C.S.

The recent occurrence of a sweet secretion on the stems of bamboos growing in the Central Provinces is a most interesting fact to students of antiquarian medicine. Bamboo manna derives its name from the Sanskrit words—*Tvak-kshira*, "bark milk"; *Vansa-sarkara*, "bamboo sugar"; and *Vansa-karpura*, "bamboo camphor." *Vansa-lochana* is the name by which it is known by Indian physicians at the present day. These terms would signify a manna-like substance exuding from the stem of the tree, but what is known and used as *Vansa-lochana* all over India is quite a different article.

That bamboo manna is not a sugar, but a white, gritty body, now called *Tabáshir* by Europeans, is gathered from the account of Dioscorides, and from the fact that no kind of sugar prepared from the sugar cane answering to this description was known in India in his time. Dioscorides writes: "What is called *σάκχαρον* is a kind of concrete honey, found in reeds in India and Arabia Felix, in consistence like salt, and brittle between the teeth like salt." *Tabáshir*, or bamboo manna, was known to the early Arab travellers in the East, and the port of Thana, on the western coast of

India, was famous for this product in the twelfth century. *Tabáshir* is employed as a medicine for its cooling, tonic, aphrodisiac, and pectoral properties. In its crude state, when taken from the inside of the bamboo stems, it is mixed with insect remains, and has a blackish appearance; but on gently calcining it becomes quite white, with a pearly lustre. It consists of about 80 per cent. of pure silica, with variable proportions of alkalis, water, and organic matter. The history and properties of *tabáshir* have been very fully discussed by Sir David Brewster (*Philos. Trans.*, 1819; *Edin. Journ. Science*, vol. viii., p. 286); Sir George Birdwood (*Bombay Products*, pp. 95-96); Dr. F. A. Flückiger (*Zeit. des Allg. Osterr. Apoth. Ver.*, 1887, No. 14), and by Sir D. Brandis (*Indian Forester*, March, 1887).

The only modern work which alludes to a sugar in the bamboo is the 'System of Botany,' by La Maout and Decaisne. The authors remark:—"The young shoots of these two trees (*Bambusa arundinacea* and *B. verticellata*) contain a sugary pith, which the Indians seek eagerly; when they have acquired more solidity a liquid flows spontaneously from their nodes, and is converted by the action of the sun into drops of true sugar. The internodes of the stem often contain silicious concretions of an opaline nature, named *tabáshir*." Here a distinction is made between the manna forming on the outside of the stem and the *tabáshir* found inside, but no reference is made to any record where the first-named exudation was observed or examined. Dr. Watt, when writing the article on *Bambusa* for his 'Dictionary of Economic Products of India,' sums up the general experience with regard to this point, and says:—"Nor has the spontaneous excretion of sugar on the outside of the stem ever been recorded by Indian travellers."

The strange appearance of manna on the stems of the bamboo was reported last March by the Divisional Forest Officer, Chanda, Central Provinces, and notices of this phenomenon have been published in the local papers. The bamboo forests of Chanda consist of *Dendrocalamus strictus*, the male bamboo, a bushy plant from 20 to 30 feet in height, and affecting the cooler northerly and westerly slopes of Central and Southern India. This is said to be the first time in the history of these forests that a sweet and gummy substance has been known to exude from the trees. The gum has been exuding in some abundance, and it has been found very palatable to the natives in the neighbourhood, who have been consuming it as a food. The occurrence of the manna at this season is all the more remarkable, since the greatest famine India has known is this year visiting the country, and the districts where the scarcity is most keenly felt are in the Central Provinces.

An authentic specimen of this bamboo manna was sent to Dr. Watt, Reporter on Economic Products, Calcutta, and was subsequently handed to me for examination. It occurred in short stalactiform rods about an inch long, white or light brown in colour, more or less cylindrical in shape, but flattened or grooved on one side, where the tear had adhered to the stem. It was pleasantly sweet, without the peculiar mawkish taste of Sicilian manna (*Fraxinus rotundifolia*). It was soluble in less than its own weight of water, and the solution, when allowed to repose, deposited white, transparent crystals of sugar. The manna contained 2.66 per cent. of moisture, 0.96 per cent. of ash, 0.75 per cent. of a substance reducing Fehling solution, and a small quantity of nitrogenous matter. The remainder consisted of a sugar which became inverted in twenty minutes when boiled with dilute hydrochloric acid (1 per cent.), and from its solubility, melting-point, and crystalline nature, appeared to be a saccharose, related to, if not identical with, cane sugar. It contained no mannite, the saccharine principle peculiar to true manna.

The bamboos and sugar canes belong to the same natural order of grasses, and perhaps it is not unnatural to expect them to yield a similar sweet substance which can be used as a food; but it is a coincidence that the culms of the bamboo, hitherto regarded as dry and barren, should in a time of great scarcity afford sustenance for a famine-stricken people.—*Nature*.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Invertebrate Two-Thirds.

I must apologise to Mr. Broadhead for misinterpreting his reference to the pharmaceutical invertebrates; but, in view of the fact that the Council election was the subject under consideration at the time, the confusion was excusable. For, although it is a truism that all whose names appear in the Register of Chemists and Druggists are interested in and derive benefit from the legal and educational work carried on by the Council, only those who are members of the Pharmaceutical Society are immediately concerned in the Council election. Of the latter, one-third failed in their obvious duty by not recording their votes last month; but, after all, a much more serious matter is the inability of those who are not connected with the Society to see that their chief interests are bound up in the prosperity of the only body which can effectively represent them. Whilst every chemist on the Register is undoubtedly interested in the work of the Society, it is painfully evident that something like two-thirds of the total number will not recognise that fact in a practical manner. They are willing to take advantage of anything the Society may do to improve their position, but they are not disposed to pay the piper, though many of them are quite ready to call the tune and always prepared, at a moment's notice, to grumble at what is done or not done by the legally constituted authorities.

Irrelevant Complaining.

Some complain that the preliminary examination is an unreasonable test, because they attribute to its existence any difficulty they may experience in obtaining cheap labour. Whilst prepared to pay an errand boy six or seven shillings a week, or even more, they think they ought to be able to get apprentices to do similar work to errand boys or porters at a merely nominal wage, if even they do not demand a premium for allowing youths to discover how little proper pharmaceutical training is to be had in their pharmacies. Then, again, objection is taken to the standard of the qualifying examination, because assistants cannot be engaged at such absurdly low salaries as commend themselves to the would-be hirers of cheap labour. The existence of poison regulations is another grievance, whilst excise regulations and restrictions imposed by various Acts of Parliament are equally abhorrent to those who refuse to support the Pharmaceutical Society, and yet blame that body for all the inconveniences they experience in attempting to evade, rather than comply with, statutory requirements. It cannot be too clearly recognised that the Society is to blame for none of the ordinary pharmacist's worries, but it is hard to persuade a large number in our ranks that they are infinitely better off than they would be if the representative body did not exist. And, unfortunately, it is quite out of the question to convince them that their worries would be appreciably lessened if they all came into the fold. No, they prefer to remain outside, and rave in a meaningless fashion against the institutions to which they are most indebted for their present comparatively advantageous position.

Cash-box versus Reputation.

I realise, of course, that individuals with no thought for anything beyond the trade aspect of their business cannot be expected to see things in the same light as those whose constant endeavour is to improve their general position rather than keep their souls locked up in the till and the cash-box. And a very large proportion of the nine or ten thousand registered chemists outside the Pharmaceutical Society put the main chance before everything else, keeping it prominent both in season and out of season. It is of greater importance, from their limited point of view, to induce

the proprietors of certain widely sold articles to do what is possible to prevent the cutting of prices, than it is to secure any recognition on the part of the authorities of London University or of the General Medical Council. So long as their net profits can be maintained at twenty-five rather than twenty or fifteen per cent. they care not in the remotest degree whether the business of a pharmacist shall be of greater repute ten years hence than it is to-day. And we are bound to recognise that this is a source of very great weakness.

Unreasonableness Rampant.

It seems to me that if only we could persuade all the unreasonably selfish individuals in the ranks of pharmacy to remain quiescent for a moderate length of time much might be effected in the way of reform, and none would be more surprised than the chronic grumblers at the ultimate benefit that would accrue to all of us. But so long as some prefer to depend upon apprentices to do the work of errand boys, packers, and even of qualified assistants; so long as the branch shop scandal and others of an equally objectionable nature persist among us; and so long as every attempt to put matters pharmaceutical upon a proper footing is bitterly opposed from within, it appears hopeless to look for any very decided amelioration in the existing state of affairs. Let every legally qualified person stick to his last, and not pretend that he is able to do things equally well by deputy or in two places at once, and the public will soon become accustomed to the idea that the pharmacist really is a professional man. But the qualification must be inseparable from the individual, not capable of being hired by unqualified persons or used to cover unqualified assistants. The ideal of the professional position is that a duly qualified individual shall neither delegate to others the functions for which his qualification is strictly required, nor make use of his qualification to cloak the illegal or extra-legal acts of those who are not privileged as he himself is. More than that, he should not incur the odium of appearing to seek a monopoly, by attempting to make his qualification a legal necessity for doing what can be equally well and satisfactorily done by an unqualified person.

Justifiable Selfishness.

And that brings me back to the point where I left off last week. By an accident, which some may choose to consider lucky, the sale of certain dangerous articles is nowadays restricted to registered chemists, though the persons responsible for drafting and passing the Pharmacy Act, 1868, never anticipated anything of the kind. Now, I do not propose that we should throw away what I prefer to regard as a more or less valuable asset, but I certainly think we should act wisely if we offered to exchange that asset for something of greater pharmaceutical importance. The sale of poisons adds but little to the average chemist's profits during the year, much less than he would derive from the dispensing of a few more prescriptions than he is now favoured with. I am strongly of opinion, therefore, that we should be making an excellent bargain if, in exchange for a certain modification of the existing restrictions on the sale of poisons, we could obtain the sole right to compound or dispense medicines. It appears that there is already an external movement in the former direction, the seedsmen and florists having decided to organise themselves and endeavour to secure a partial repeal of the Pharmacy Act, so that they may be able to sell sealed packets containing poisonous compounds for horticultural and agricultural purposes. With the regulations proposed, such a change in the prevailing conditions would not be to the public detriment, but it involves the partial loss of our asset and, before we acquiesce in the proposal, I think we ought to make sure of receiving something substantial in return. That is selfish, no doubt, but it is justifiably so. What was forced upon us thirty odd years ago has proved to possess a certain limited value, and I see no reason why, if we are to part with it, something of at least equal value should not be received in exchange.

PHARMACEUTICAL SOCIETY.

MEETING OF THE COUNCIL.

WEDNESDAY, JUNE 13, 1900.

Present:—

Messrs. Allen, Atkins, Carteighe, Cooper, Corder, Cross, Glyn-Jones, Harrington, Harrison, Hills, Johnston, Martindale, Newsholme, Savory, Storrar, Symes, Taylor, Wootton, and Young.

The chair was taken by Mr. Martindale.

The minutes of the previous Council meeting on May 2 and of the special meeting on May 16 were read and confirmed.

The CHAIRMAN said he was sorry not to have been able to be present at the last two meetings of Council, but he felt very much unstrung after the April meeting, and found it necessary to adopt the course which he had found beneficial on previous occasions and take a voyage. He was very glad, in his travels in South Africa, to find the high esteem in which the Society was held. On his landing in Durban he found a deputation of the Natal Pharmaceutical Society, which had come to meet him, and Mr. Champion, the President of the Society, and the Secretary were both exceedingly kind to him during his stay. On leaving Cape Town again he was entertained at a festival, given by what was claimed to be the youngest English-speaking Pharmaceutical Society in the world, in honour of the oldest. He was glad to see that pharmacy was recognised both by the colonies and by the pharmacists themselves, in a way which would, he hoped, advance its interests in both those colonies.

Letters of Thanks.

The CHAIRMAN said letters had been received from the Registrar of the Pharmaceutical Society of Ireland, Miss Bird, the family of M. Planchon, Mr. Fred. Reynolds, and the families of Sir Douglas Maclagan, Mr. Hugill, and Mr. Watt, thanking the Council for the resolutions of sympathy passed last month. Messrs. Peck and Pinches had also written accepting the duty of conducting the examination for the Bell Scholarship.

Election of President.

The ballot having been taken in the usual way, Mr. G. T. W. Newsholme was elected President, and took the chair accordingly. The PRESIDENT said he was exceedingly obliged to the Council for the great honour conferred upon him. It was an innovation, because for many years—practically since the formation of the Society, no provincial chemist had been President; but one recognised that circumstances had changed, and it was much more easy now for provincial men to attend meetings in London than it was in early days. He did not think for one moment that he possessed greater ability than some of his predecessors in office as Vice-President, but owing to the unfortunate illness of the late President he had perforce to step into his shoes and conduct the business at the last Council and the annual meeting, and, having his hand in, he supposed it was thought that he might be called upon to follow Mr. Martindale. It was the duty of every man to fulfil as far as he could the duties of any office he was called to, but had any other man been selected, he should have felt it a privilege to serve under him, and to recognise, as he did, that every member of the Council was qualified to act as President, though they were not all able to spare the requisite time. He again thanked the members for the honour conferred upon him.

Election of Vice-President.

A ballot having been taken, Mr. C. B. Allen was elected Vice-President.

The VICE-PRESIDENT said he had had a fairly long experience of the work of the Council, and had attained to a sufficient faith in the wisdom of the majority of the Council to believe that they would do what was right. He was proud also to feel that they believed in his ability to fill this office, though when he remembered those who had occupied it before he felt that in his person the

office would lose something. He would, however, do everything he could to further the interests of the Society to the best of his ability. He should like, before sitting down, to congratulate the President on his appointment.

Election of Treasurer.

On a ballot being taken, Mr. Atkins was re-elected Treasurer.

Mr. ATKINS, in returning thanks for this renewed mark of confidence, said the finances were in a sound condition, and were progressing favourably, which was very satisfactory. He would also join with the Vice-President in congratulating the President.

Thanks to the Retiring President.

The PRESIDENT moved that the Council express its thanks to Mr. Martindale for the zealous manner in which during the past twelve months he had filled the office of President of the Society, and desires to express its regret that the condition of his health should have broken the continuity of his services in the chair. They were much indebted to Mr. Martindale for the zealous manner in which he had performed his duties, and regretted that his health had for a time given way. They would all hope that the rest and change had fully restored him, and that they might have his assistance in the work of the Society in the coming year. He knew how valuable that help was, and should depend upon him and on the other past-Presidents to assist him in his duties.

The VICE-PRESIDENT, in seconding the motion, said he much regretted that Mr. Martindale had not felt himself equal to continuing in office another year. He was much encouraged in taking office himself by knowing that he should have Mr. Martindale at hand to advise him, and also the other gentlemen who had passed the chair.

Mr. HILLS, in supporting the motion, as Mr. Martindale's immediate predecessor, said they were all much indebted to him for the conscientious manner in which he had endeavoured to carry out the duties of his office; indeed, the very fact of his having done so had unfortunately led to his temporary breakdown in health.

The motion having been carried unanimously,

Mr. MARTINDALE thanked the Council for their kind expressions of sympathy. He was sorry not to have been able to continue his duties to the end, but he would endeavour to help the President as far as he could, and he knew how well qualified he was for the work he had undertaken. He had often been in communication with him during the year, and had always had valuable advice from him, as well as from both the past-Presidents. He had worked for the Society for many years, both as Examiner and Councillor, and hoped he might still be able to be of some service.

Standing Orders.

The Standing Orders of the Council were re-enacted for the ensuing year.

Reappointment of Officers.

Mr. Richard Bremridge was reappointed Secretary and Registrar for the ensuing year; Dr. B. H. Paul was reappointed Editor, and Mr. John Humphrey Sub-Editor, of the Journal; Mr. E. M. Holmes was reappointed Curator of the Society's Museum, and Mr. J. Rutherford Hill was reappointed Assistant Secretary in Scotland.

Election of Members.

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

Axe, William John; Liverpool	Gilchrist, John; Airdrie
Bean, Percy; Blackburn	Grimditch, William Jas.; Tower Froyle
Bennett, Oswald, E.; Peckham	Hawkins, Philip; Hull
Bryce, James; Falkirk	Hill, John Stableford; South Shields
Cheyne, Charles August; Montrose	Horton, Wm. John; Woburn Sands
Cooper, John; Sawston	Hunt, Fredk. Ed.; Wellington, Salop
Dawson, Frederic William; Perth	John, Benjamin; Bath
Dowell, James; Stirling	Kilvert, Bertrand Walter, Crewe
Downing, Alfred; Stonehouse	Latham, Frank; London
Duncanson, James; Stirling	Marshall, John George; Mansfield
George, Henry Attwood; Pentre	Moorhouse, George Henry; Burnley

Northen, Charles; Brockley
Perry, John; Congleton
Pollard, William; Wakefield
Pratt, Edward J.; Chatteris
Robinson, Alfred Ernest; Norwich
Smith, Percy Lewis; London
Westlake, William

Spicer, Malcolm; London
Strother, Alfred E.; Newcastle-on-Tyne
Taylor, Samnel; Southport
Tillott, John Booty; London
Toon, Arthur; Hinckley
Venn, Samuel Ernest Markey; Ford
Smalley; Sutton

Election of Student-Associates.

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

Baker, E. H. S.; Newcastle-on-Tyne
Bell, Sydney; Brigg
Brennan, Dorothea Wigzell; Derby
Brown, Richard Robinson; Padiham
Burt, May; Croydon
Camplin, Harold Ralfs; Southampton
Cathcart, Percival James A.; Buxton
Chapman, Charles Neville; Grimsby
Cockroft, Wilfred C.; Manchester
Cope, Arthur George; Congleton
De Faye, George Kinsey; Jersey
Dietzsch, Theodor; London
Edis, Sarah Winifred; Liverpool
Edwards, Herbert; Hastings
Evans, Percy; Carnarvon
Evans, Robert Arthur; Denbigh
Francis, Herbert Stanley; London
Francis, Reginald J.; Leamington Spa
Fullalove, William Arthur; Lincoln
Gadsby, James; Nottingham
Gardner, Albert Ernest; Lancaster
Gibbons, Charles; Liscard
Grange, Henry; Northwood
Grant, Alfred Ernest; Frome
Gray, James Qswald W.; Strichen
Hamer, Thomas; Heywood
Hardwicke, Eva E.; Bury St. Edmunds

Hicking, Joseph Edgar; Barnstaple
Johnson, Herbert; Abergavenny
King, Katherine M.; London
Lewis, Susan Frances; London
Lewis, Thomas Edward B.; Grimsby
Logan, John; Beith
Loxley, Frederick Lionel K.; Oxford
MacGregor, Jessie B.; Charlestown
Meyler, Llewellyn J.; Cardiff
Mildred, Hilda Gertrude; London
Newill, Ethel C.; Birmingham
Newman, Edward Charles; Southsea
Norris, George; Long Sutton
Pellow, Howard James; Exeter
Philpot, Philip Howard; Walsall
Rogers, Henry Josiah; Christchurch
Sampson, Howard Alfred C.; Barnet
Spreckley, Alfred Ernest; Leicester
Stiles, Henry W.; Doncaster
Thompson, Etheldreda; Rhyl
Tickell, Reginald Thomas S.; Bodmin
Warren, Margaret G.; Catford
Waterhouse, Harry; Dewsbury
West, Harry Dawson; Keighley
Widgery, Alfred Ernest; Tamworth
Williams, Walter David; Penarth
Yates, John; Blackburn

Restorations to the Register.

The names of the following persons, who have severally made the required declarations and paid a fine of one guinea, were restored to the Register of Chemists and Druggists:—

John Wm. Andrews, 49, West Avenue Road, Walthamstow.

Alfred Sarjeant, 219, High Street, Watford.

Albert Jas. Watson, 20, High Street, Oldham.

Several persons were restored to membership upon payment of the current year's subscription.

Appointment of Committees.

The Council went into Committee to consider the arrangement of the different Committees, as the result of which the following arrangements were made:—

General Purposes Committee.—The whole Council to meet on the evening before the meeting of the Council, and at such other times as may be necessary.

Finance Committee.—The President (Mr. G. T. W. Newsholme), Vice-President (Mr. Allen), Messrs. Carteighe, Glyn-Jones, Harrington, Hills, Martindale, Park, Savory, Storrar, and Wootton.

Benevolent Fund Committee.—The President (Mr. G. T. W. Newsholme), Vice-President (Mr. Allen), and Messrs. Atkins, Cooper, Corder, Cross, Harrison, Johnston, Southall, Symes, Taylor, and Young.

Library, Museum, School and House Committee.—The President (Mr. G. T. W. Newsholme), Vice-President (Mr. Allen), and Messrs. Atkins, Carteighe, Glyn-Jones, Harrington, Harrison, Hills, Martindale, and Savory.

Mr. YOUNG suggested that the meetings of this Committee should be held either the day before or the day after the Council meeting, which he suggested would be more convenient to the provincial members, as it would save the necessity of a second journey to town in the middle of the month.

The PRESIDENT, in reply, said it would be almost impossible to change the day, as it would be very difficult for the office to make the necessary arrangements.

Law and Parliamentary Committee.—The whole Council to meet as occasion may require.

Standing Committee to Watch Parliamentary Business and take action thereon in the interests of Registered Chemists.—The President (Mr. Newsholme), Vice-President (Mr. Allen), Treasurer (Mr. Atkins), and the London members of Council.

Research Committee.—The President (Mr. Newsholme), Vice-President (Mr. Allen), and the members of the Library, Museum, School and House Committee.

Evening Meetings.

It was resolved that the Editor and the staff of the Society's School be asked to assist in making arrangements for holding the Evening Meetings.

Finance Committee.

The SECRETARY read the report of this Committee, which recommended certain payments to be made. Mr. MARTINDALE, in moving the adoption of the report, referred to the late Mr. Hugill's legacy of 100 guineas, which had been received on behalf of the Benevolent Fund. During the month a considerable amount of subscriptions had been received, and the account showed an increased balance of £1,000 over the beginning of May, which was very satisfactory.

The report was adopted unanimously.

Benevolent Fund Committee.

The report of this Committee included a recommendation of grants to the amount of £69 in the following cases:—

Widow of a P.C. Member (71). Has had a previous grant. (Holywell.)

Widow of an Associate who had grants previous to his death (56). Has had previous grants. (Upper Bangor.)

Widow of a registered C. and D. (52). (Grimsby.)

Widow of a registered C. and D. (70). (Newbury.)

Widow of a registered C. and D. (63). (Liverpool.)

One case was not entertained.

The PRESIDENT moved the adoption of the report, and that was carried unanimously.

Library, Museum, School, and House Committee.

The report of this Committee stated that reports had been received from the staff of the School, and that various administrative matters had been dealt with.

The Committee had sat as a Research Committee and received reports respecting the work in connection with the Pharmacopœia standards now in progress. Also, in conference with Professor Collie, the Committee considered an application for the Burroughs Scholarship, and recommended that it be awarded to Mr. W. H. Lenton.

The PRESIDENT moved the adoption of the report and recommendations, which was at once agreed to.

The PRESIDENT then moved that the Burroughs Scholarship be awarded to Mr. W. H. Lenton. The Committee had every confidence in recommending him, as the work he had done under Professor Collie thoroughly warranted the Committee in recommending him for this appointment, feeling satisfied he would do good work.

The resolution was passed unanimously.

The Society's Investments.

Mr. CARTEIGHE moved "That the corporate seal of the Society be affixed to the lease of the Strawberry Hill property granted to Mr. Cooper, and to the agreement with Mrs. Bone, whose house adjoins the Society's property at Twickenham, acknowledging and reserving certain rights of the freeholders." He pointed out that the agreement with Mrs. Bone had been entered into for the purpose of preserving the Society's rights to ancient lights.

Mr. MARTINDALE said he had been through the agreement entered into with Mrs. Bone, and in his opinion it was a necessary agreement to enter into.

The resolution passed unanimously.

Appointment of Freehold Investments Committee.

Mr. CARTEIGHE moved "That the President, Vice-President, and Treasurer, and Messrs. Carteighe, Hills, and Martindale, together with Mr. E. N. Butt, be appointed a Freehold Investments Committee, with power to take all necessary steps to purchase suitable ground rents when opportunity occurs, with the amount standing to the credit of the Benevolent Fund."

The resolution passed unanimously.

Mr. CARTEIGHE moved "That the seal of the Society be affixed to a power of attorney for the sale of stock not exceeding £6,000 Consols on the Benevolent Fund Account." This resolution (Mr. CARTEIGHE explained) was in view of a contemplated purchase of ground rents, a portion of the purchase money of which would have to be paid before the Council met again.

The resolution passed unanimously.

Mr. CARTEIGHE moved "That the Treasurer be authorised to pay the purchase money, together with solicitors' and surveyors' charges, of any property purchased by the Freehold Investments Committee."

The resolution passed unanimously.

The British Pharmaceutical Conference.

The PRESIDENT moved that the following be appointed delegates to the forthcoming meeting of the British Pharmaceutical Conference in London: The President, Vice-President, Messrs. Harrington, Young, Glyn-Jones, Harrison, Cross, Atkins, Cooper, Johnston, Wootton, Symes, Carteighe, Hills, and Martindale.

Correspondence.

The SECRETARY reported the receipt of a resolution passed at the annual meeting of the Nottingham and Notts Chemists' Association on June 8: "That this meeting—whilst giving its support to the Pharmaceutical Council in opposing Clause 2 of the Companies Bill,—regrets that the Council has not seen well to endeavour to procure some amendment to the Bill whereby titles would be secured to registered persons only."

This communication was referred to the Law and Parliamentary Committee.

The SECRETARY also read a resolution sent up from the Forfarshire and District Chemists' Association as having been passed at a meeting held at Montrose on May 23: "That in the opinion of this meeting the time has now arrived when the method of conducting the Qualifying Examination should be altered."

This resolution was referred to the General Purposes Committee.

The SECRETARY also read a resolution passed unanimously at a meeting of the Liverpool Chemists' Association, approving the action of the Pharmaceutical Council in opposing Clause 2 of the Companies Bill.

General Purposes Committee.

The report of this Committee stated that the sub-committee appointed to consider the question of rearranging the districts of local secretaries had held two meetings, and presented a draft scheme which, after consideration, had been deferred to another meeting. The sub-committee appointed to consider the alterations and additions desirable in the bye-laws had presented a report, which the Committee had considered, and after making some further alterations, presented an amended code of bye-laws for the approval of the Council.

Mr. CARTEIGHE said it had been suggested by Dr. Symes that it might be well to alter one word, "Minor," as applied to the examinations, and substitute the word "Qualifying." Mr. Wootton also had a suggestion to make with regard to the word "Major," and he thought on the whole the better plan would be to refer the bye-laws back to the sub-committee, plus the new Vice-President, and let them come up again for approval at the next meeting of the General Purposes Committee. He would point out that the bye-laws must be verbatim correct when read the first time by the Council; they could not be altered afterwards in any way. He was not prepared off-hand to say whether the suggested alteration could be made, though he hoped it could, and it would be possible to call a special meeting, if necessary, to read the bye-laws a third time so as to allow of their being passed in August.

Dr. SYMES said the bye-laws were gone through very carefully, and the only alteration he suggested was to substitute the word "Qualifying" for "Minor" wherever it occurred.

The PRESIDENT thought it would perhaps be better that the whole matter should go back to the Committee.

Mr. CROSS supported the suggestion that it should go back.

Mr. GLYN-JONES hoped the Committee would reconsider the question of allowing voting papers to have distinguishing marks.

Mr. CARTEIGHE said no doubt the Committee would have power to reconsider any point which was brought before it.

The bye-laws were accordingly referred back to the Committee.

The Company Trading Question.

Mr. WALTER HILLS, pursuant to notice, then moved:—

That the Law and Parliamentary Committee be requested to take into immediate consideration the present position of the Companies Bill, and to report as to the line of policy which appears most expedient to adopt in reference to Clauses 2 and 3 of that Bill in the present Parliamentary session, or in the next session should these clauses be again introduced into this or any similar Bill. Also to consider the position of pharmacy in respect to company trading and to suggest such action in reference thereto as may be deemed expedient.

He said the conditions at this present moment were such that it was advisable for the matter to be re-considered by the Law and Parliamentary Committee. The question of company trading was always before them. He was inclined to think that it was one of the things that had knocked up their past-President, and, judging by the editorial comments in the official Journal, one would think there was hardly anything else to be considered. But the question of company trading was their *bête noir*, and, if Parliament did not deal with it in the present or next session of Parliament, they would have to deal with it themselves. Personally, he wanted a curriculum, and he was quite ready to consider the question of dividing the qualifying examination when they had a system of training. If they did not deal with the question of company trading the Government would in any Pharmacy Bill that might be brought forward. He hoped to have the unanimous support of his colleagues, as he only asked them to send the whole question back to the Committee to deal with it under the present conditions. The end of the Parliamentary session was approaching, and it was thought likely that the Bill would be dropped, and if he was sure of this he would eliminate the word "immediate" from his motion, as he did not wish to hurry the matter. They were told that Mr. Ritchie would accept no amendment, but even Ministers were amenable to a little pressure, and if they would impress the point on which they were unanimous—viz., the restriction of titles to qualified individuals—on the members of the House of Commons, they would be able to carry the point. In his opinion the question would have to be settled in a practical way sooner or later, and no advance would be made in pharmaceutical legislation so long as the question remained as it was. He believed that company trading was increasing every year, and, therefore, he was not content to lie low. Like many others, he should like to revert back to the time before the House of Lords' decision was given, but that was impossible. He would ask, was it a satisfactory state of things for them to meet month after month in the General Purposes Committee and take action against the various employés, who were more sinned against than sinning? Had the policy of doing nothing been satisfactory? He thought not. He was anxious that the matter should be considered in all its bearings, immediately if need be, but at all events during the next six months.

Mr. HARRISON seconded the motion. He considered that the present time was an opportune one to re-open the question. Company trading was increasing, and in a large number of instances was, in the way in which it was carried on, a direct scandal to the country. Only last night they had an instance before them of a man who had several times failed to pass the qualifying examination, but who got over his difficulties by taking advantage of the Companies Act.

Mr. STORRAR supported the motion, which he hoped would be passed unanimously. On a previous occasion the Council resolved to confine itself simply to opposing Clause 2, because that was the only thing on which the Council were unanimous, for though they all agreed there should be some amendment, directly they came to details they were divided. If they had resolved on endeavouring to amend the clause the only amendment which would

have been accepted by one-half of the Council would have been entire prohibition of company trading, whilst the other half were in favour of regulation. To-day they were in a different position. The result of the late election had shown that there was a feeling on the part of the Society that regulation was the only possible course for the future. For that reason he hoped the question would be recommitted to the Law and Parliamentary Committee, but that should not be done simply for the reasons given by Mr. Hills, who seemed to assume that the only possible opposition to the Bill would take the form of amending it. He knew, however, that a large number of members agreed with him that the only proper way of dealing with the company question was through an amendment of the Pharmacy Act.

Mr. HILLS pointed out that he had specially referred to an amended Pharmacy Bill.

The PRESIDENT said he thought all would agree to the motion.

Mr. WOOTTON said he could not very well give a silent vote on this question. Apparently there was to be no opposition now, but he hoped it would be understood that this was a reversal of the decision arrived at in March last.

The PRESIDENT said they could not tie the hands of the Committee.

Mr. WOOTTON said the vote at the late election was, in his opinion, distinctly a mandate to the Council to reverse its decision.

Mr. STORRAR did not want to interrupt, but if Mr. Wootton pursued this line he should claim the right to explain what he considered was meant by opposition to the Companies Bill.

Dr. SYMES said if they were going to discuss the matter in detail now, there was no object in sending it to the Committee.

The PRESIDENT said the motion if carried would refer the matter to the Committee, where it would be considered under the widest possible aspect.

Mr. WOOTTON said he wished the Council to be definitely committed to something, and he thought the motion ought to say that the Committee should report to the next meeting of the Council. This was a most urgent matter, and he, as an outsider, had been surprised to see that the Council had not so considered it during several years past. It was a matter of extreme difficulty, but that was no reason for neglecting it. The great difficulty which was almost insuperable some few years ago was to get the subject discussed in Parliament at all, but when the Lord Chancellor by his own motion, three times repeated in different Bills, had opened the door, it seemed extraordinary that the Pharmaceutical Council should have refused the opportunity of discussing it. They all thought that they had such a strong case, that if they only had the opportunity they could convince members of Parliament of the justice of it. If it was thought better to discuss the matter in Committee rather than in open Council, he would not pursue it further, though there were several things he wanted to say.

The PRESIDENT said when the Committee brought up its report it could be discussed in open Council; it was not a secret matter in any sense.

Mr. WOOTTON said Mr. Hills had referred to the possibility of the Companies Bill being withdrawn or of Parliament being dissolved, but it was just as urgent in either case that they should take an opportunity of securing, if possible, an interview with the Lord Chancellor and discussing the matter with him. His clause did not meet with the approval of any pharmacist that he knew of, but it went some way towards it, and he had strong hopes that if the Council were unanimous and determined they could bring a good deal of pressure to bear. He presumed the Lord Chancellor was amenable to reason.

Mr. TAYLOR said he should vote for this motion, but he took quite an opposite view to that stated by Mr. Wootton, that it implied a reversal of the last resolution of the Council. It was precisely because it did not imply such a reversal that he was

ready to vote for it. It might lead to a reversal; circumstances might arise under which he might vote for a reversal, but until the matter was gone into it would be very unwise to regard it as closed, either for the life of the present Parliament or in any other way. Had they considered how far—if company pharmacy were regulated either by a Pharmacy Act or by a clause in the Companies Bill—the regulation and legal recognition of company pharmacy would affect the status of the Society itself, not merely that of individual traders, in meeting competition—legal and illegal—inside or outside their own ranks? If company pharmacy were legally recognised, they would have to face an entirely new state of affairs; the Society would find itself in the position of a teaching, examining, and registering body for the purposes of limited companies.

Mr. GLYN-JONES said he would have been glad if Mr. Hills had suggested that the matter should be brought up before the next meeting of Council. It had been said by some that the present Government was dying, but still the Lord Chancellor was determined to deal with the question, therefore it was surely wise that the Council should come to some decision on the matter, and that they should see the Lord Chancellor with the view of educating him upon their side of the question.

Mr. ATKINS did not object to the matter going back to the Committee, but he was not prepared to admit that there would be any reversal of its decision. If by the introduction of the new light into the Council a solution of the difficulty could be arrived at, by all means let them take advantage of it; but he did feel strongly that if they put their fiat of approval by regulation on the company principle for all time and for ever, it seemed to him the question was gone.

Mr. HILLS, in replying, said he took credit to himself for the clever way in which he had worded his motion, as all his opponents seemed to be coming to his way of thinking. He would ask the President that a meeting of the Law and Parliamentary Committee might be held next week, when, if they could not come to any decision the subject might be brought before the next Council.

The motion was then put and carried unanimously.

Mr. GLYN-JONES then moved that the Committee be asked to report to the Council on this question. Last year the matter was with the Law and Parliamentary Committee for several months, and no report was brought up before the Council, and he did not wish that to occur again.

Mr. WOOTTON seconded the motion.

Dr. SYMES said there could be no object in insisting on a report at the next meeting of the Council. If there had not been such a hurry to report to the Council, when the matter was originally dealt with, he believed it would have been dealt with more satisfactorily.

The PRESIDENT ruled that the motion was out of order.

Carbolic Acid.

Mr. MARTINDALE said he thought this matter was being delayed unnecessarily. Both Mr. Carteighe and he had been in communication with the Privy Council on the subject of the inclusion of carbolic acid in the schedule, and they were told that the matter was awaiting the deliberations of the Agricultural Department, to whom it had been referred. He thought the Privy Council should be further communicated with on the subject.

The PRESIDENT did not think any useful purpose would be served by this, as the Privy Council were fully alive to all the circumstances, and were quite as anxious as they were to deal with the matter.

Dr. SYMES questioned the statement that the Privy Council were fully alive to the matter. He did not see what the Board of Agriculture had to do with it; they were only brought into the question by the misrepresentations that had been made as to the effect of including carbolic acid in the schedule. He thought a personal interview by the President would do much to clear away the many misrepresentations that had been made on the subject.

Mr. GLYN-JONES said the Society and the Council had been made to appear in a false light. In the House of Commons the Government were asked why carbolic acid was not scheduled, and the answer given was that the Government were in communication with the Board of Agriculture and the Pharmaceutical Society, which implied that the latter body shared in causing the delay which was taking place. In his opinion, the Pharmaceutical Society had clearly done its duty in the matter.

The PRESIDENT suggested that if no action was taken during the ensuing month some member of the Council should give notice of motion for the next meeting. It would be out of order to move a resolution on the subject now.

Legal Business.

The Council then went into committee to consider the legal portion of the report of the General Purposes Committee.

On resuming, the report and recommendations of the Committee were adopted, with the exception of the paragraph approving the draft bye-laws, which were referred back to the Special Committee.

The usual resolution authorising the Registrar to take proceedings against certain named persons was also passed.

PRACTICAL NOTES AND FORMULÆ.

Acetylene Generation and Purification on a Small Scale.

A very useful and practical communication from the Havemeyer Laboratories, Columbia University, upon this subject, appears in the *Journal of the American Chemical Society*. It starts by pointing out that for most purposes the purification is unnecessary, providing that the gas has been generated in a proper manner, the chief factor being that the action upon the carbide is not allowed to produce heating. This cannot be done by the slow drip of water which often causes frosting and ejection of solid particles into the reservoir of gas. The carbide, preferably contained in a wide bucket or a wide-mouthed bottle, is covered with 95 per cent alcohol. Slow generation at once begins, and enough gas is produced to expel all air present. Water now being added drop by drop, a gradual generation of acetylene occurs without material rise in temperature. Where economy is desirable, the alcohol can be distilled off and collected again. As to purification, the account states that no single one of the many published methods is sufficient, and a combination of some of them is recommended. The gas produced as above is passed through an aqueous solution of 15.6 per cent. cupric sulphite, to which has been added 5 per cent. of 20 per cent. volume sulphuric acid, the mixture absorbing the alcohol, ammonia, and hydrogen sulphide and phosphide. The gas may be further passed through one or two columns of pumice stone, saturated with an acetic or sulphuric acid solution of chromic acid. A small amount of these purifying minerals serves for a large quantity of gas. When properly carried out the product is dry powder, and in lieu of the well-known nauseous odour possesses a faint and agreeable smell.—*Brit. Journ. Phot.*

Record Ink.

The specifications for an official Standard Record Ink in Massachusetts are that it must be a gallate and gallotanate of iron ink, not inferior in any essential quality to one properly prepared after the following formula:—Tannic acid, pure dry, 23.4 parts; gallic acid, 7.7 parts; ferrous sulphate, 30.0 parts; acacia, 10.0 parts; diluted hydrochloric acid, 25.0 parts; carbolic acid, 1.0 part; water sufficient to make up the mixture at the temperature of 60° F. to the volume of 1,000 parts by weight of water. The ink writes very pale at first but turns jet black on standing. But a pale writing ink is not popular, and something must be added to give an immediate coloration. Indigo, carmine or indigotin is the

best for this purpose. Some two years ago Mr. J. A. S. Woodrow, Ph.G., tried about thirty different formulas and modifications of record inks, and found the following formula to give the best results:—Tannic acid, 80 grs.; gallic acid, 14 grs.; salicylic acid, 1 gr.; purified sulphate of iron, 102 grs.; indigotin, 90 grs.; water, 1 pint. Dissolve the acids in 8 ozs. of water, the iron and indigotin each in 4 ozs. of water and mix the solutions.—*Spatula*.

Percentage Solutions.

As the fluid ounce of distilled water contains 437.5 grains, assuming we require, say, two fluid ounces of a 1 in 40 solution of phenol in water, the simplest method of procedure is as follows:—Two fluid ounces of distilled water equals 875 grains, hence

$$\begin{array}{r} 40 : 875 :: 1 \\ 875 \times 1 \\ \hline 40 = 21.8 \text{ grains} \end{array}$$

of phenol, and if this be made to measure two fluid ounces by the addition of distilled water we have that which is required.—*American Druggist*.

Manufacture of Laundry Soda.

The constituents of commercial laundry soda vary considerably. Various manufacturers prepare it by mixing sodium silicate, 2.5; with calcined soda, 1; and powdering the resulting hard mass. Another form is composed of calcined soda, 34; sodium silicate, 25; borax, 3; soap powder, 5; starch powder, 3; water, 30. Another usual formula is crystal soda, 4; sodium silicate, 1; though very often it only consists of powdered soda crystals.—*Pharm. Zeit.*, 45, 88, after *Seifenfabr.*

Application of Ink to Relieve Pain.

Leistikow recommends the use of a 10 per cent. solution of tannin, mixed with a 2 to 5 per cent. solution of ferrous sulphate, to relieve the inflammation of various skin diseases. These solutions should be mixed immediately before use.—*Pharm. eit.*, 45, 88, after *Monatsch. f. prakt. Derm.*

Therapeutic Value of Validol.

Goldmann characterises this body as a very useful, perfectly innocuous remedy for the treatment of various neurasthenic symptoms, as well as flatulence; its value is not impaired by continued use. It has also given good results as an anodyne.—*Pharm. eit.*, 45, 88, after *Klin. therap. Wschr.*

Remedy for Baldness.

Gessner gives the following recipe, which he states has yielded good results in the treatment of premature baldness. Resorcin, 2.5, chloral hydrate, tannic acid, of each 5, tincture of benzoin, 1.5, castor oil, 4, alcohol (90 per cent.) to 250. For the treatment of alopecia syphilitica, Gaucher gives the following method of treatment. The hair is kept short and the scalp is washed, and treated daily with the following hairwash and ointment. (1) Corrosive sublimate, 0.2, chloral hydrate, 4, resorcin, 2, castor oil, 1, alcohol (90 per cent.) to 200. The hair wash. (2) Calomel, 2.5, salicylic acid, 0.5, vaseline, to 50, to make an ointment. For simultaneous seborrhœa and pityriasis of the scalp the author recommends precipitated sulphur, 1.5, vaseline to 30, make into an ointment.—*Pharm. Zeit.*, 45, 87, after *Mitth. Med. Woch.*

Thickened Collodium Cantharidium.

If this preparation has gelatinised and is insoluble in alcohol and ether, rub up with oleum betulæ to a soft paste and then with alcohol and ether. When thus treated, the preparation is quite as active as when first made.—*Oesterr. Zeits. für Pharm.*, 54, 183, *Giorn. di Farmacia*.

PROPOSED PHARMACY ACT AMENDMENT.

A draft Bill has been prepared by an association called "The Traders in Poisons and Poisonous Compounds for Technical and Trade Purposes Protection Society," for the purpose of amending the Pharmacy Act in reference to the sale of poisons, and with the object of allowing persons not registered under the Pharmacy Act, 1868, to retail poisons for "agricultural, horticultural, trade and technical purposes." It does not apply to poisons sold for medicinal purposes.

It is stipulated in the measure that the poisonous preparations shall only be sold in closed packets, as sent out by the manufacturers; also that such packets shall be labelled with the name of the poisonous ingredient, with the word "Poison," and with the name and address of the manufacturer and retailer respectively. In addition, it is proposed that each sale shall be registered by the seller, stating the name and quantity of the poisonous compound sold, and the purpose for which it is required, the name and address of the purchaser being also duly recorded.

The qualification of the retailer of the poisonous compounds referred to is to be the holding of an Excise licence, for which an annual fee will be payable. Such a licence is to be granted to any person whose fitness is vouched for by a justice of the peace or the local police authorities. The penalty suggested for selling without a licence or for any breach of the regulations as to labelling, registration of sales, etc., is five pounds.

The Secretary of the Society which is promoting the Bill is Mr. T. G. Dobbs, 5 and 6, Clement's Inn, Strand, London, W.C., and the Hon. Treasurer is Mr. G. H. Richards, 128, Southwark Street, London, S.E.

A strong representative committee has been formed, and the Society is now seeking support by way of subscription or donation from all classes of traders, its objects being stated shortly as follows:—

(1) To promote and protect the interests of Traders in Poisons and Poisonous Compounds for Technical or Trade Purposes.

(2) To take steps as the Executive Committee may consider desirable for opposing legislation which is calculated to injuriously affect such Traders.

(3) To secure the removal of repressive and vexatious restrictions in regard to the sale of Poisons and Poisonous Compounds to technical and trade purposes by Traders other than Pharmacists.

(4) To promote and support by all constitutional means the passage through Parliament of any Bill or Bills comprehending the above objects.

(5) To advise and assist Members of the Society in any litigation in which the general interests of the Traders in Poisons and Poisonous Compounds for Technical or Trade Purposes are in the opinion of the Executive Committee injuriously affected.

A petition to Parliament in favour of the proposed Bill has been drawn up for the signature of seedsmen, nurserymen, gardeners, corn dealers, ironmongers, oil and colourmen, hardwaremen, agricultural agents, farmers, and other classes of tradesmen and users of chemical compounds containing poisons but only intended for technical and industrial purposes. The text of the petition is given below.

Copies of it are being sent out from the offices of the Society to persons in various localities who will interest themselves in the matter; and with the view of making the movement of a popular character, the minimum annual subscriptions for membership of the Society has been fixed at 5s., whilst donations are invited.

[TEXT OF PETITION.]

Petition in favour of Pharmacy Act Amendment Bill.

To the HONOURABLE THE COMMONS of the UNITED KINGDOM of GREAT BRITAIN and IRELAND in PARLIAMENT ASSEMBLED.

THE HUMBLE PETITION of the undersigned, being Persons or Traders in the Kingdom of Great Britain and following the occupation set opposite our respective signatures.

SHEWETH as follows:—

1. BY the Pharmacy Act, 1868, it is enacted that it shall be unlawful for any person to sell or keep open shop for retailing, dispensing or compounding poisons unless he be a Pharmaceutical Chemist, or a Chemist and Druggist within the meaning of the Act, and be duly registered.

2. THAT numerous poisonous compounds necessary for Horticultural, Agricultural and other Trade and Technical Purposes are now being manufactured, but by reason of the Pharmacy Act, the Agents in these industries are prevented from retailing such compounds, and for the benefit of trade generally and the convenience of the Public it is expedient that poisonous compounds which are *not* for medicinal use *nor* intended for the preparation of Medicine may be retailed by Traders (as well as Pharmacists) for any Trade or Technical Purpose *in original sealed packages* as received from the wholesale dealer or manufacturer.

3. THAT many of the poisonous compounds used for Trade or Technical purposes are of a heavy or bulky character, and it frequently happens that Pharmacists have neither room nor accommodation for the storing of such goods.

4. THAT in many of the Country districts a Pharmacist is not to be found within a radius of some miles, and it would be materially to the convenience of many of us the undersigned Farmers, Gardeners, and others, were we able to obtain such compounds from the Seedsmen, Nurserymen, Corn Dealers, Iron and Hardware Dealers, Agricultural Agents and other Tradesmen in our respective districts.

5. A BILL entitled "An Act to amend the law relating to the sale of poisons and alter and amend the Pharmacy Act, 1868," is now pending in your Honourable House, whereby it is proposed to make it lawful for other persons (in addition to Pharmacists) to sell or keep open shop for the sale of poisonous compounds for the express purpose *only* of such Compounds being used for Trade or Technical Purposes, and under proper restrictions provided for in such Bill.

6. YOUR PETITIONERS represent consumers or users of such poisonous compounds and also several branches of trade to which the provisions of the Bill would be of great utility and value, and such Bill would in their opinion confer a great benefit upon the public generally, and tend to the improvement of trade, and to the removal of defects which your Petitioners have found to exist under the present law.

YOUR PETITIONERS therefore pray your Honourable House that the Bill may be allowed to pass into Law.

AND YOUR PETITIONERS will ever pray, etc.

EXAMINATION OF AMMONIACUM, BDELLIUM, GALBANUM, OPOPANAX AND SAGAPENUM.*

BY K. DIETERICH.

The determination of the acid number in the case of ammoniacum and galbanum, by direct titration, is very unsatisfactory, as the end reaction is very indefinite; if the resin is only allowed to stand for five minutes with the alkali the free acids are not completely neutralised, and if allowed to remain longer in contact, saponification ensues.

AMMONIACUM.—The author finds the following to be a satisfactory method:—About 1 Gm. ammoniacum is rubbed to very fine powder in the cold; it is then heated under a reflux condenser, first with

* From the *Pharmaceutische Centralhalle*, 40, 467. Abstract.

water 50 Gm. and then with alcohol 100 Gm. for fifteen minutes. After cooling, the whole volume is made up to 150 Gm. and filtered. To 25 Gm. of the filtrate 10 C.c. semi-normal alcoholic potash are added, allowed to stand for five minutes and titrated back with semi-normal H_2SO_4 and phenol-phthalein. As the result of the examination of twenty-three samples, the author gives the limits for acid number as varying from 85 to 105. The resin and saponification number (fractional saponification) is then determined by the following method:—Two separate portions of ammoniacum, each of 1 Gm., are treated with 50 C.c. petroleum ether (sp. gr. 0.700 at 15° C.). 25 C.c. semi-normal alcoholic potash are added to each, and allowed to stand for twenty-four hours at ordinary temperature, in two closed flasks.

The one portion after the addition of 500 C.c. of water is titrated back with semi-normal acid; this gives the resin number; to the second portion is now added 25 C.c. semi-normal aqueous KOH and 75 C.c. of water, and the mixture is again allowed to stand with frequent shaking for twenty-four hours; it is then diluted with 500 C.c. of water and titrated with semi-normal sulphuric acid and phenol-phthalein; this gives the saponification number. The following limits were found by examination of various samples:—

Resin number	99.4 to 155.4
Saponification number	145.6 to 162.4

An African ammoniacum (*Ferula tingitana*) gave the following values:—

Acid number	64.29	51.56	47.58	92.21
Resin	103.89		104.59	
Saponification	105.3		108.10	

Showing that the African gum is not so pure as the Persian.

BDELLIUM.—The following are the figures obtained for African bdellium:—

Acid numbers range from	10 to 21
Ester numbers from	69 to 85
Saponification numbers from	82 to 111

In the case of Indian bdellium, the figures show a considerable difference:—

Acid number about	36
Ester	47
Saponification	84

GALBANUM.—The acid, resin, and saponification numbers of galbanum are determined as for ammoniacum. The limits for acid number were found to vary from 25 to 65.

Resin number	107.5 to 122.5
Saponification number	116.2 to 135.8

Adulteration of galbanum with ammoniacum raises the acid number. With asafetida it is lowered, thus:—

	Acid Number.
Galbanum with 5 per cent. ammoniacum	29.28 to 37.68
" " 10 " " "	33.00 " 47.00
" " 20 " " "	42.34 " 66.51
Galbanum with 5 per cent. asafetida	34.77 " 46.13
" " 10 " " "	29.84 " 36.66
" " 20 " " "	21.45 " 29.87

The acid and saponification numbers of Bdellium, Opopanax and Sagapenum were determined by the following modified process:—

Acid Number.—One Gm. of the finely powdered gum resin is heated for 15 minutes under a reflux condenser, with distilled water 30 C.c.; strong alcohol 50 C.c. is now added and the mixture heated for 15 minutes under reflux condenser, on the water bath; when cold, the solution is titrated with semi-normal KOH with phenol-phthalein as indicator. The number of C.c. of semi-normal KOH used up $\times 28 =$ acid number.

Saponification Number.—About 1 Gm. of the gum resin is allowed to digest for thirty minutes with 30 C.c. water; 25 C.c. semi-normal alcoholic potash is now added, and the whole heated under a reflux condenser for thirty minutes on a water bath; allowed to cool, diluted with alcohol, and titrated back with semi-normal acid. The number of C.c. semi-normal KOH used up $\times 28 =$ SN. The ester number is obtained by subtracting acid from saponification number.

OPOPANAX AND SAGAPENUM.—For *Opopanax* (Burseraceous) the figures obtained are:—Acid number, from 10 to 30; ester number, 82 to 125; saponification number, 96 to 152; while umbelliferous *Opopanax* gives acid number, from 32 to 58; ester number, from 105 to 142; saponification number, 138 to 200. *Sagapenum* gives, acid number about 14; ester number, from 32 to 40; saponification number, 45 to 54.

TESTING CLINICAL THERMOMETERS.*

BY DR. CHARLES RICE.

The clinical thermometer is an important factor in the diagnosis and prognosis of disease at the present day. Without its aid the approach or advent of numerous dangerous diseases or pathological conditions cannot be recognised with certainty, until the disease or condition has advanced to a stage where it may become less amenable to treatment, and where the result depends largely upon the vital resources of the patient, which might have been materially fortified if the physician or surgeon could have utilised the information conveyed by a reliable thermometer.

The general public scarcely realises the extent to which the business of manufacturing clinical thermometers has progressed at the present time. While, some twenty-five years ago, the clinical thermometer was looked upon rather as a curiosity and hypercritical appliance, its annual production and consumption now reaches into the millions.

THE VARIOUS KINDS OF THERMOMETERS.

Of course, the only practically useful clinical thermometer is the self-registering one; and this may be of two kinds, either with plain front or with magnifying front lens. Of either of these there are again various grades or classes, differing as to the shape of the bulb or stem, length of stem, colour of glass, sensitiveness, etc., etc. It is assumed that the reader is familiar with the several kinds; hence a description is deemed superfluous here. Moreover, for our purposes, all these distinctions can be disregarded, since the method of testing their accuracy, which will be described below, can be applied to all.

As a rule, clinical thermometers are graduated between about 94° and 110° F., in one-fifth of a degree. For special purposes, where unusually high temperatures are to be measured (as sometimes in cases of insolation, etc.), some may be had on which the graduation is carried to 115° F., or even higher.

EXPENSE OF THE CERTIFICATED INSTRUMENTS.

If it is the object to examine the absolute accuracy of a thermometer for every degree of its scale, the mode of procedure is much more complicated than that below given, and requires special apparatus and considerable practical experience. For this reason so-called "standard" thermometers are rather expensive, and even the commercial certificated clinical thermometers are rather high in price. Of course, if these have been tested by a reliable authority, they are fully worth the money. But the general public and most of the hospitals and charitable institutions in this country cannot afford to pay this high price, and therefore have to content themselves with uncertificated ones. But here they run the risk of getting worthless instruments. While much trust may be placed in the names of certain manufacturers, it is nevertheless a fact that even the best brands will be found now and then—sometimes even a good deal—deficient.

AN OPPORTUNITY FOR PHARMACISTS.

Among the pharmacists in this country there are many who do a large business in clinical thermometers, and whose professional reputation is of such a character that their certification would be accepted by medical men of their acquaintance, and eventually also by others and the public, as a satisfactory guaranty of the accuracy of any thermometers tested by themselves. There is hence a chance here of expanding their business in a legitimate direction, and the writer hopes that this suggestion will be followed by those who may find it worth their while.

*From the *Bulletin of Pharmacy*.

In the course of many years' experience the writer has examined many thousands of thermometers, and has long ago settled down to a method which aims to avoid errors of observation as far as possible, it is believed, and which permits to ascertain the accuracy of instruments within limits that are considered sufficient in practice—namely, one-tenth of a degree, though for ordinary clinical purposes an accuracy to one-fifth of a degree is amply sufficient.

VALUE OF "SEASONING" IN A THERMOMETER.

Of course, the first requisite for testing thermometers is the possession of a standard thermometer. This need not be an expensive instrument, but may be any well-seasoned clinical thermometer which has been carefully compared with a standard one and found to be sufficiently accurate, or whose deviations from the standard are exactly known for every degree of its scale. "Well-seasoned" in this case means that it must have been made several years before it was graduated, as it is well known that the calibre or bore of a thermometer suffers slight changes for some time after it has undergone the process of manufacture. The best reputed makers of thermometers state that they never graduate and sell any thermometers that are not fully seasoned. Unfortunately, there is no test by which a seasoned thermometer can be distinguished from an unseasoned one at the time of purchase. And while honest makers no doubt adhere to the rule, it is well known that the majority disregard it altogether.

TESTING.

It is not at all necessary to test a clinical thermometer throughout the whole scale of degrees that is marked upon it. In most cases it will be sufficient to ascertain its accuracy at some point between about 97° and 104° F. But, if time is not pressing, it is best to make at least two tests, one at a temperature between about 97° and 102° F., and one at a few degrees higher. If a thermometer agrees with the standard at both points within one-fifth of a degree, it may be regarded as sufficiently accurate for all practical purposes. Any that agree with it exactly, or within one-tenth of a degree, may be put aside as particularly accurate, and these may, of course, be sold at a higher price with a corresponding certificate.

Now, if only one clinical thermometer, or only a few, are to be tested, this may be done simply by first shaking down the "index" or mercury in all of them and immersing them with the standard—best tied together—in a rather large volume of water at the proper temperature. If the thermometers are inserted cold, there will, of course, be a "cold wave" produced around them, which will last until the temperature has become equalised by diffusion or by stirring. If the volume of water is large, the final result will not vary by any appreciable degree from the theoretical one, because the stored-up heat in the volume of water practically neutralises the slight chill introduced by the few cold thermometers.

Some thermometers have the peculiarity of apparently registering correctly, but losing their register or index more or less rapidly when withdrawn from the source of heat. For this reason it is necessary to re-examine them twenty-four hours (or, if time is available, after a longer interval) after each of the before-mentioned tests, when they should be found to offer the same reading as when they were first examined. A retrocession of the mercurial index by as little as one-tenth of a degree renders the rejection of the respective thermometer advisable.

DEGREE OF SENSITIVENESS IN THERMOMETERS.

A further classification of the thermometers that have successfully passed all the tests may now be made, to ascertain their sensitiveness. For this purpose they are once more (but only once, at any optional part of the scale) tested as before described, and removed from the warm water after an immersion of an exactly known period of time. For instance, those that are found to have attained the correct temperature (according to the standard—which,

if sluggish, may have been previously inserted for a sufficient length of time), after the lapse of sixty seconds, or one minute, may be set aside as one-minute thermometers. Similarly, there may be separate groups of two, three (or more) minute thermometers, which will often be found useful, as many purchasers lay value on the time within which a thermometer responds.

In making contracts for clinical thermometers there are many features which permit an exact definition or description, so that a control of the articles delivered is not difficult. The only feature that is not definable or controllable is the age or ripeness of the thermometers. Nothing beyond the word of the maker can tell whether they had been allowed to become seasoned or not. It may be of interest to some of the readers of this paper to know what conditions are prescribed for the clinical thermometers bought, under contract, for the public hospitals of the city of New York. The specifications read as follows:—" . . . gross of clinical thermometers (to be delivered in instalments as required), four inches long, to be substantially made, with single bulb, plain front, indestructible index, each even degree plainly numbered, the graduation between 94° and 110° F. extending over a space of not less than 1½ inches, and to be correct within 0.2 of a degree as determined by the standard thermometer of the Department." It was found useless to add a condition as to sensitiveness, because among a gross or more delivered at one time there are always found a number which are more sensitive than others, and these are reserved for special purposes. The higher sensitiveness is mainly due to the fact that the glass of the bulb is thinner, for which reason these sensitive thermometers are much more easily broken. For all ordinary purposes a good solid three or four-minute thermometer is much preferable.

RE-EXAMINATION.

Thermometers remaining in stock should be examined again at the expiration of every six months, and a record should be kept of the number and condition of all those which have retained their accuracy after the first six months. After every further lapse of six months, if they are still found to be accurate, their value will have proportionately increased, as they may then be certified in good faith as being seasoned.

LETTERS TO THE EDITOR.

What a Pharmacy Bill Should Include.

I take a great interest in "Facts and Fancies," as the right kind of reading for chemists, but I do not quite agree with "An Ordinary Pharmacist" in his suggestion that we should relinquish the substance of our present business to grasp at the shadow of future professionalism. Let us rather firmly secure real professionalism first, then relinquish our present substance—*i.e.*, the monopoly of the sale of poisons—if need be. A direct amendment of the Pharmacy Acts is certainly desirable, and, if I may be permitted to say so, should run on the following lines:—(1) Sole right to our titles and the sole use of them also. (2) Sole right to the practice of pharmacy—*i.e.*, dispensing of physicians' prescriptions solely by pharmacists. (3) The restriction of sale of poisons to persons qualified and reliable to execute such duties—*i.e.*, chemists and druggists. (4) Exemption from jury service. (5) One man one pharmacy. (6) Systematic education, comprising three or four stages. (a) First examination, as at present constituted for entrance to apprenticeship. (b) Second or intermediate examination at end of apprenticeship, whereby candidates would be enabled to take up assistants' certificate—A.P.S. (c) Third or qualifying examination—M.P.S. (d) Honours examination, the Major—Ph.C. or F.P.S. (Fellowship). (7) Benevolent Fund as at present constituted.

It would be interesting to invite discussion on the above rough suggestions so as to obtain the opinions of others on this important

subject. Going back to No. 1, the chemist should stick hard and fast to his titles—Ph.C., Chemist and Druggist, Pharmacist, Dispensing Chemist—and demand them for himself alone. With strenuous opposition to Clause No. 2 of the Companies Bill, 1900, as advocated by "An Ordinary Pharmacist," lies our whole existence as individuals, and we should use our exertions to the utmost; if we fail, it will be our own fault; chemists, as a rule, being so short-sighted and indifferent to their own power. Unity of purpose is what is required. Imagine for one moment the alas! almost impossible desideratum of a united will of 15,000 chemists. Imagine the possibilities of such a thing. Yes. Unity! Unity!! Unity!!! and, again, Unity!!!! is what is required. United opposition, say, of 10,000 of that 15,000 to the hateful thing that is slowly strangling us, that horrible incubus whose tentacles are sucking our life blood—company pharmacy. Surely they could overpower such a monster with their united power. Then, again, No. 2, with its war cry, "Prescribing for the doctor and dispensing for the chemist," no one being allowed to dispense physicians' prescriptions or medicines but pharmacists, chemists alone, except in villages without the radius of five miles of a pharmacy, when, no chemist being available, the medical practitioner should be allowed to dispense his own medicine. That should put down those who are so far below the usual standard of a medical man as to give attendance and physic for the ridiculously low fee of 1s., such persons being a disgrace to their profession.

Another evil is the traffic in dispensing for medical men's own patients at so much a bottle, usually 6d., whereby the chemist is robbing himself and his *confrères* of their legitimate profit. This is certainly a growing evil, and should be stopped, so much so that in a few years a genuine prescription will be a *rara avis* in a pharmacy, and there will be no need for dispensing chemists. Exemption from jury service would be extremely beneficial to the chemist who is obliged to "run his own show," it being obviously more important to him to dispense medicines than attend inquests, etc.; whereas there are always good men and true to be found in other trades for the service. Now is the time to formulate our plan of campaign. Now is the accepted time for our new blood members of Council to exert themselves and demonstrate sincerity to their pledges, by showing that their electioneering utterances are not merely vapour, but are their earnest convictions and intentions for the betterment of our future state. Let them recognise our local associations, bring them all in touch with one central authority, say, the Council, under the name of the General Pharmaceutical Council, for the utilisation of the above-mentioned power of the united chemists and druggists of the United Kingdom, undertaking the protection and preservation of the interests, aims, rights (pharmaceutical), and the advancement and betterment of the status of what is to be in the near future the pharmaceutical profession.

Brighton, June 9, 1900.

A BRIGHTON CHEMIST (34/33).

Ninety-Six Doses for a Shilling.

The other day the following prescription was handed in at our establishment to be dispensed:—

R Acid. nit. mur. dil.	ʒiiss.
Ac. phos. dil.	ʒvi.
Liq. strychnin.	ʒiv.
Inf. calumbæ	ad ʒxii.
M. ft. Guttæ.	

Sig. ʒi. ex cyatho aq. ter die.

The prescription bore the name of several Wakefield "chemists," not "stores." When asked what the price would be, said: "2s. 3d. for ʒxii., 1s. 3d. for ʒvi." To which the customer replied that he had never paid more than 1s. 3d., and usually 1s. for the ʒxii. Needless to say he went in search of another chemist, and may we even go so far as to hope that he had to resort to his kind friends at Wakefield.

York, June 12, 1900.

J. WINSHIP.

ANSWERS TO QUERIES.

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

SOLIDIFIED SPIRIT (E. J. L.—43/9).—The preparation you ask about is evidently "Spiratine," an article supplied by Messrs. Barclay and Sons, Limited, 95, Farringdon Street, E.C.

STAMPED MEDICINE LICENCE (F. C. W.—43/8).—Any person who retails medicinal preparations requiring the Government stamp attached must hold a licence.

SPECIALISTS (W. J. L.—43/7).—The patient's regular medical attendant is the person best qualified to recommend a specialist. We are unable to do so.

DEVELOPER (E. J.—43/13).—As you do not say what your difficulty is, it is impossible to say. Could you not get a clear solution, or were the negatives at fault, or what was the trouble?

ANALYST (A. B. G.—43/12).—There is no qualification required by law for the position of analyst, but Fellowship of the Institute of Chemistry is gradually becoming recognised as the most desirable qualification.

SOLUBLE ESSENCE OF LEMON (R. H. S.—43/18).—Macerate 10 oz. of fine-cut fresh lemon peel with 20 fl. oz. of rectified spirit, for fourteen days, then strain, press, add 1 drachm of terpeneless lemon oil and filter bright through powdered pumice.

PETROLEUM EMULSION (J. D.—43/11).—Make a smooth mixture with 24 parts of liquid paraffin, B.P., 6 of powdered gum acacia, 2 of powdered gum tragacanth, and 2 of tincture of quillaia; then add, all at once, 16 parts of water, and rub together until the emulsion is formed.

SPRAY FOR GOOSEBERRY MOTH CATERPILLARS (T. W. P.—43/31).—Dissolve naphthalin, 1 lb., in paraffin oil, 1 gallon. Then dissolve soft soap, 1 lb., in boiling water, 2 gallons. Pour the paraffin and naphthalin solution into the soap solution while hot, stir briskly, and then work a fine-rose garden syringe in the mixture until a uniform emulsion results. Set aside for several hours, then again stir well. For use, dilute 1 pint of this strong emulsion with 1½ gallons of water, and syringe the infested trees with the mixture at dusk. Repeat the application in a couple of days. This is also very effective for aphids on rose trees.

CONCENTRATED TONING SOLUTION (J. A.—43/10).—The probable cause of the precipitation of the gold is the neutralisation of the gold chloride and the dilution of the solution; the stronger a solution of a soluble gold or platinum salt the less liable it is to decompose. Then, again, if the solution were exposed to light that would at once cause incipient decomposition, which would continue. It is doubtful whether such a dilute solution could be kept for any length of time without precipitating, but at any rate it should not be neutralised, as any free hydrochloric acid would merely displace some of the sulphocyanic acid from its salt, and that acid has but slight action on the silver image. A more stable bath can be made by using potassium sulphocyanide, and the following formula should be satisfactory:—Dissolve (1) 90 grs. of potassium sulphocyanide in 3 ounces of distilled water, and (2) 6 grs. of gold chloride in 1 ounce of distilled water; add (2) gradually to (1), shaking well after each addition, then bottle and keep in the dark. For use dilute 1 part of the mixture with 3 parts of water.

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LONDON: SATURDAY, JUNE 16, 1900.

THE COUNCIL MEETING.

NOTWITHSTANDING the infusion of new blood and the notice of motion by Mr. HILLS, the proceedings of the newly constituted Council last Wednesday were not remarkably eventful. The chair was taken by Mr. MARTINDALE, and after some brief conversation as to the presidential election, in the course of which Mr. MARTINDALE made known his intention not to venture upon another year of office, the minutes of the preceding regular and special meetings were read and confirmed. Mr. MARTINDALE then expressed his regret that he had not been present at the last two meetings, and the satisfaction with which during his travels he had found the Society to be held in such high esteem in South Africa.

The receipt of letters of acknowledgment from the Pharmaceutical Society of Ireland, Miss BIRD, the family of M. PLANCHON, Mr. FRED REYNOLDS, the families of Sir DOUGLAS MACLAGAN, Mr. HUGILL, and Mr. WATT was mentioned.

In the ballot for election of President, Mr. NEWSHOLME received a very large majority of votes, and on taking the chair thanked his colleagues for the honour conferred upon him, adding that, though the opportunity had come about unexpectedly in consequence of his having been recently called upon to take the place of the President, he felt that it was incumbent on every one to fulfil as far as he could the duties of the position in which he was placed.

In the ballot for Vice-President, Mr. ALLEN was elected by a considerable majority of votes and, in thanking his colleagues for their expression of confidence, expressed himself desirous of making his past experience of Council work serviceable in his new position for the utmost advantage of the Pharmaceutical Society.

In the ballot for Treasurer, Mr. ATKINS was unanimously re-elected to that office and thanked the members of Council for that renewed mark of their confidence.

The PRESIDENT then moved a vote of thanks to Mr. MARTINDALE for the zealous manner in which he had filled

the office, which was seconded by the VICE-PRESIDENT, supported by Mr. HILLS, and carried unanimously, with a general expression of regret that the state of his health had prevented his continuance in the chair.

Mr. MARTINDALE, in reply, thanked the Council for the kind expression of sympathy and appreciation of his endeavours to serve the Society, which he hoped to be still able to continue in some way.

Mr. RICHARD BREMRIDGE was reappointed Secretary and Registrar, as well as the Editor and Sub-editor, Mr. E. M. HOLMES as Curator, and Mr. J. RUTHERFORD HILL as Assistant-Secretary in Scotland.

The additions to the Society comprised 33 members, 54 student-associates, and a considerable number of restorations.

The appointment of Committees was then proceeded with (see page 643).

The report of the Finance Committee was adopted on the motion of Mr. MARTINDALE without comment.

On the recommendation of the Benevolent Fund Committee five grants, amounting in all to sixty-nine pounds, were ordered to be paid.

The report of the Library, etc., Committee referred chiefly to routine work, and was adopted.

Mr. W. H. LENTON was appointed Burroughs Scholar.

On the motion of Mr. CARTEIGHE some resolutions were passed in reference to the lease of the Society's property at Strawberry Hill, and to the committee entrusted with the settlement of investments in freehold ground rents.

The PRESIDENT and several other members of Council were appointed delegates to the forthcoming meeting of the British Pharmaceutical Conference.

The SECRETARY reported that a letter had been received from the Nottingham Chemists' Association with a resolution expressing approval of the opposition of Clause 2 of the Companies Bill, and regret that no endeavour had been made to secure titles to registered persons by some amendment of that Bill. It was referred to the Law and Parliamentary Committee (see page 644).

A resolution from the Forfarshire Chemists Association expressed the opinion that the time has arrived for altering the method of conducting the qualifying examination. This was referred to the General Purposes Committee (see page 644).

Another resolution, passed at a meeting of the Liverpool Chemists' Association, expressed approval of the Council's decision to oppose Clause 2 of the Companies Bill.

In the report of the General Purposes Committee, the scheme for rearrangement of the districts of the Society's local secretaries was mentioned as having been under consideration and deferred; the alteration of the bye-laws was also mentioned. In accordance with a suggestion by Mr. CARTEIGHE the draft bye-laws were referred back to the sub-committee in order to give opportunity to consider proposed alterations of the distinctive terms now applied to the examinations.

Mr. HILLS then brought forward the motion of which he had given notice (see page 644), proposing that the present position of the Companies Bill and the position of pharmacy in relation to company trading should be considered by the Law and Parliamentary Committee, with a view to suggesting the policy and action most

expedient to adopt in reference to Clauses 2 and 3 of the Bill, arguing, in explanation, that under existing conditions further consideration of the company trading question is desirable because the Council would eventually have to deal with it if Parliament does not do so in the present or next session.

Mr. HARRISON seconded the motion, because he thought the present time opportune for reopening the question, since company trading is increasing and is being carried on in a way that is scandalous in leading to evasion of the law.

Mr. STORRAR supported the motion, because he thought the result of the Council election was to show that a feeling existed as to regulation of companies being necessary, notwithstanding the divided views of the Council on that point, which had led to the decision to oppose Clause 2 of the Companies Bill. He did not, however, support the motion simply for the reasons given by Mr. HILLS, but also because he knew many agreed with him in thinking that the only proper way to deal with companies trading as chemists and druggists is by amendment of the Pharmacy Act.

Mr. WOOTTON hoped that the vote on this motion would be understood as a reversal of the decision arrived at by the Council last March. That remark gave rise to some expression of objection by Mr. STORRAR and Dr. SYMES, the PRESIDENT explaining that if the matter were referred, as proposed by Mr. HILLS' motion, the Council could not tie the hands of the Committee. The subject would be considered in its widest aspects.

Mr. WOOTTON then added that he wished the Council to be definitely committed to something, and that the Committee should report to the next meeting of Council, urging that the voting at the Council election was—in his opinion—a distinct mandate to the Council to reverse its decision in regard to a matter which he was surprised to see had, for several years past, not been considered most urgent; also that the Council should have an interview with the LORD CHANCELLOR to discuss the matter with him, as he presumed he was amenable to reason.

Mr. TAYLOR said he should vote for the motion, but from an opposite point of view to that taken by Mr. WOOTTON, not because it implied a reversal of the Council's decision, but because it did not do so. Circumstances might lead to such a result, but until the matter was gone into it could not be regarded as closed. He questioned whether they had considered how far any regulation of company pharmacy might affect the status of the Pharmaceutical Society, and not merely the position of individuals in regard to competition. Legal recognition of company pharmacy would bring about an entirely new state of affairs, and the Society might find itself in the position of a teaching, examining and registering body for the purposes of limited companies.

Mr. GLYN-JONES urged that the Council should see the LORD CHANCELLOR with a view to educating him on the question at issue.

Mr. ATKINS was not prepared to admit that there would be any reversal of the Council's decision. If a solution of the difficulty could be arrived at by all means take advantage of it, but he was strongly adverse to approving regulation of companies.

Mr. HILLS, in reply, expressed satisfaction that his motion was so well received even by those who held views opposite to his own, and proposed that a meeting of the Committee should be held next week so that if a resolution could not be come to, the subject might be brought before the Council again at its next meeting.

Mr. GLYN-JONES then moved that the Committee be asked to report so as to avoid the delay which occurred last year; but, though Mr. WOOTTON seconded the motion, the PRESIDENT ruled it out of order.

In reference to the scheduling of carbolic acid, Mr. MARTINDALE said he thought the matter was being delayed unnecessarily. When he and Mr. CARTEIGHE saw the Privy Council officials they were told that the Agricultural Department had the subject under consideration, and he thought the Privy Council should be again written to.

The PRESIDENT doubted whether any useful purpose would be served in that way.

Dr. SYMES expressed doubt as to the Privy Council being fully alive to the urgency of the matter, and as to what the Board of Agriculture has to do with it, except as the result of misrepresentations that had been made as to the effect of placing carbolic acid in the poison schedule, and an interview with the PRESIDENT would do away with the influence of those misrepresentations.

Mr. GLYN-JONES thought the Society and the Council had been placed in a false position by the statement in the House of Commons that the Government was in communication with the Board of Agriculture and the Pharmaceutical Society.

At the suggestion of the PRESIDENT, it was arranged that in the event of nothing being done during the next month, a member of the Council should give notice of motion on the subject for the next meeting of Council.

THE COUNCIL AND THE COMPANY TRADING QUESTION.

THE motion of which notice had been given by Mr. WALTER HILLS, prior to the meeting of the Council on Wednesday last, was chiefly remarkable for the skilful manner in which it had been drawn up. The fact that it was carried unanimously should suffice to prove that it commits the Council to nothing in particular, nothing more indeed than it has been doing for a long time past, *i.e.*, carefully watching the progress of events. The Law and Parliamentary Committee, *i.e.*, the whole Council, is requested to take into immediate consideration the present position of the Companies Bill, and to report as to the line of policy which appears most expedient to adopt if any further step should be taken in the matter by the Government during the existence of the present Parliament. In addition, the Committee is requested to consider the position of pharmacy in respect to company trading, and to suggest what the Council should do in the circumstances. The special point which is thus referred should not be difficult to report upon, as the present position of the Bill does not differ from that of any other abortive measure which the Government introduced with the declared intention of passing. But the wider question will not be so readily answered; perhaps a Pharmacy Bill is the most likely outcome of the Committee's deliberations.

ANNOTATIONS.

THE PRESIDENT OF THE PHARMACEUTICAL SOCIETY is, for the first time on record, a member of the Society not resident in the Metropolitan area. Mr. Newsholme, who now occupies the position, resides in Sheffield, and has for the past three years fulfilled the duties of Vice-President in a manner that has been generally approved. During the past two months also he has been the virtual head of the Society, acting as President during the enforced absence of Mr. Martindale, whom he now succeeds. No better choice could have been made by the Council in thus breaking away from custom that has been established more by accident than for any special reason. While Mr. Newsholme is to be cordially congratulated upon being the first provincial member of the Society elected to the highest position in the body corporate, the members of the Society may esteem themselves fortunate in having so capable a pharmacist to preside over the deliberations of their elected representatives. In accepting the responsibilities of the office, Mr. Newsholme is undertaking a more serious task than any of his predecessors, on account of the greater difficulty in his case of devoting the necessary time and attention to the conduct of the Society's affairs. But that difficulty should be minimised by the appointment of a London member—Mr. C. B. Allen—as Vice-President, and, as previously suggested in these pages, by the delegation to others of certain duties which it has been customary to regard as being inseparable from the position of President. In any case, however, Mr. Newsholme's year of office is likely to be far from an uneventful one. The company trading question has again presented itself for consideration, new bye-laws are to be made and established, the local organisation of the Society is about to be remodelled, it may be decided to draft a new Pharmacy Bill, and in various other ways the year promises to be a full one.

A NEW PHARMACY BILL may be the best solution of the existing deadlock in connection with the company trading question, but agreement as to what such a measure should include may be as difficult to arrive at as unanimity on the company pharmacy problem itself. Already, however, suggestions on the subject have begun to come in, and it may be anticipated that many others will be forthcoming during the next few months. Those published in last week's Journal (see p. 625) appear to have disturbed the serenity of some readers, but it is interesting to note how the ideas then mooted blend with those embodied in the draft Bill (see p. 647) about to be promoted by the Society of which Mr. T. G. Dobbs is Secretary. It is not at present possible to print the text of that draft in full, but a fair idea of its scope can be gathered from the summary which is printed this week, together with the text of the petition in favour of the measure, and other information kindly furnished by Mr. Dobbs's representative. It is evident that a determined effort is about to be made on behalf of seedsmen and other unregistered persons, with the object of enabling them to retail certain poisonous compounds in sealed packets, and it is far from improbable that the matter may be considered sympathetically by many members of Parliament. There is, however, one inherent defect in the proposals, inasmuch as the Bill appears to be somewhat loosely drafted and the safeguards suggested do not appear altogether sufficient in the public interest. The statement that the provisions of the Bill do not apply to poisons sold for medicinal purposes is probably meant to minimise the opposition of registered chemists, but it will be found difficult in practice to determine whether or not a particular poison is intended for medicinal or technical purposes. Detailed criticism on such a point, however, is obviously premature, and must be deferred until the full text of the Bill is available.

THE DESIRES OF "A BRIGHTON CHEMIST" are, it is to be feared, unattainable. He does not object in the abstract to modification

of the existing restrictions on the sale of poisons, but he would prefer not to relinquish his hold in that direction until he has secured all else he thinks desirable. That indicates a cautious but hardly a diplomatic frame of mind. Briefly, he asks that the existing position should be improved—so far as chemists are concerned—by preventing the use of chemists' titles by associations of unqualified persons, by restricting the dispensing of physicians' prescriptions to duly registered persons, and by exempting chemists and druggists from service on juries. Beyond that, he would apparently agree to abolish branch shops, impose a compulsory curriculum and establish an assistant's qualification. Unfortunately, he wishes for more than the Government is likely to agree to. Titles can be protected if the legitimate holders of them will only work together with that object in view: The sole right to dispense is the privilege which British pharmacists chiefly desire to possess, but it is doubtful if it can ever be secured unless something important is offered in return, such as assent to what would virtually be the addition of a third part to the poisons schedule. Exemption from jury service is not likely to be obtained by chemists and druggists, except by becoming pharmaceutical chemists and, at present, that can only be done by passing the Major examination. The abolition of branch shops will be opposed by none more bitterly than by the registered persons who own them. The curriculum idea has been steadily opposed by registered chemists for years, and there is no immediate prospect of its realisation. Finally, the institution of an assistants' qualification would be a fatal error, and should, therefore, not be advocated. Division of the qualifying examination, following the establishment of a compulsory curriculum, is quite another matter, but it remains to be seen whether chemists generally would support, or refrain from opposing, a Bill in which the joint proposals were embodied.

DEGREES IN PHARMACY or, rather, mingled feelings of dread lest such degrees should be instituted in this country and inability to prevent such a movement, appear to constitute a cause of constant worry—a veritable nightmare in fact—to the *Medical Press*. In this week's issue of that doughty organ, it is somewhat incorrectly stated that for years past an agitation has been in progress in the pharmaceutical world to obtain university recognition of "the claims of pharmacy to be a science deserving of a titular stamp." As might be expected, our medical contemporary fails to see any sufficient ground for that claim; but it is not clear what is meant by the statement, advanced as a reason, that "pharmacy is a calling rather than a profession." But the fact remains that many medical practitioners fear lest the granting of degrees in pharmacy and the consequent right to the use of the title "Doctor" should obliterate the distinction between pharmacists and themselves. They appear to possess so little confidence in their own ability to maintain such a distinction in the public mind that they would like to prevent pharmacists using a title which they think would facilitate the carrying on of "illegitimate counter practice." But it is not obvious why the use of the title "Doctor" should not be equally objectionable in the case of pharmacists who obtain a degree in science, which the *Medical Press* suggests they should do if they have any desire for that academical distinction to which pharmacy is held not to lend itself. And though the leaders of pharmacy are advised to recognise the futility of the movement in favour of securing university recognition for pharmacists, and the undesirability of its accomplishment, it is safe to state that, before many years have elapsed, it will be possible to obtain a science degree in pharmacy at more than one university in England, and that it will be both futile and undesirable for medical practitioners—most of whom, by the way, hold no degrees—to attempt to stop the movement in that direction.

THE NEW CLINICAL LABORATORIES which have been added to the Westminster Hospital were opened, on June 12, by Lord

Lister, President of the Royal Society, in the presence of a large company of medical and scientific gentlemen. The laboratories have been added to the hospital for a more scientific and systematic examination of disease than can be carried out satisfactorily in the wards. According to the *Times*, they are equipped with the latest apparatus, and the most recent microscopical, chemical, and bacteriological methods will be applied in the diagnosis of the diseases from which the hospital patients are suffering. Since improvement of medical treatment must of necessity follow upon improvement in diagnosis, the establishment of clinical laboratories is a step which is calculated to increase the efficiency of the hospital as a means whereby real benefits are made available for the sick poor. Acting on this belief, the hospital authorities have drawn heavily upon their capital in order to make the laboratories thoroughly efficient, and rely upon the public to see that their expenditure on this improvement does not impair the efficiency of the hospital in other directions. The opening of the laboratories was preceded by a reception in the board-room of the hospital held by Sir J. Wolfe-Barry, chairman of the House Committee, who, on behalf of the House Committee, thanked Lord Lister for his presence. He said thirty thousand pounds had been spent in bringing the hospital up to modern requirements. The main purpose of the clinical laboratories was the elucidation of disease in the hospital. They were not for independent research, but the benefit to the hospital patients from the researches which would be carried out would extend to all classes. At present application has not been made for a licence to make experiments on animals. In time it is hoped to institute an electrical laboratory fitted with apparatus for Röntgen-ray work and micro-photography.

LORD LISTER, after inspecting the laboratories, said they would give the physicians of the hospital an opportunity of bringing to bear on their cases the most advanced knowledge and the most refined methods of investigation. Many a diagnosis which would otherwise be obscure would be rendered clear in those rooms, and he felt convinced that those who had worked in the laboratories would not only benefit patients in the hospital, but would also, unfailingly, be able to extend the boundaries of knowledge and promote the now rapid advance of pathological and therapeutic knowledge. The laboratories would also be of service as a powerful means of affording sound practical knowledge to the student. He considered that the public owed a debt of gratitude to the governing body of Westminster Hospital for having wisely and boldly devoted a large sum of money to the creation of these laboratories. He felt sure that, before many years were over, it would be recognised that those laboratories were among the most important means of doing good service to the community which hospitals could contain.

THE IDEA OF REGULATING "COMPANY PHARMACY" continues to fascinate some registered chemists, and Mr. Glass has submitted to the Edinburgh and District Chemists' Trade Association what he may regard as a "full blown" suggestion for amending Clause 2 of the Companies Bill. Starting with the assumption that "company pharmacy" cannot be stopped, but without defining what he means by that term, he proposes to amend the Clause in a way that does not differ materially from several others that have been suggested. In fact, the proposed clause is not markedly different from that of the Lord Chancellor; it would do no more to protect the public against inefficient service, while it would operate in an equally objectionable manner against the professional interests of those who are legally qualified to practise pharmacy. As Mr. Taylor urged at the Council meeting on Wednesday (see p. 645), it is necessary to consider how far the regulation and legal recognition of company pharmacy would affect the status of the Pharmaceutical Society and, it may be added, of individual chemists. It will probably then be recognised that the effect would be far-reaching and inevitably bad.

ENGLISH NEWS.

ROYAL INSTITUTION.—A general monthly meeting of the members of the Royal Institution was held on June 11, Sir James Crichton-Browne, Treasurer and Vice-President, in the chair. The following were elected members:—Mr. C. E. Baxter, Mr. C. Coward, Mr. A. Dupré, Mr. L. V. Harcourt, Mr. W. C. Prescott, and Mrs. M. F. Thorne. The special thanks of the members were returned to Mr. Harold Swithinbank for his donation of £50 to the Fund for the Promotion of Experimental Research at Low Temperatures. The Managers reported that at their meeting held that day the following resolution was unanimously agreed to:—
"The Managers of the Royal Institution of Great Britain, on the occasion of the retirement of Sir Frederick Bramwell from the office of Honorary Secretary, desire to place on permanent record an expression of their high appreciation of the admirable way in which he has performed the duties of that office and of his signal services to the Institution generally. Elected a member of the Royal Institution in 1876, Sir Frederick Bramwell has since then delivered seven Friday evening discourses on subjects cognate to that branch of applied science with the progress of which in this country, during the Victorian Era, his name must ever remain honourably associated. Having joined the Board of Managers in 1879, he was induced in 1885, notwithstanding professional engagements of the most onerous and responsible character, to undertake the additional burden of the duties of Honorary Secretary to the Institution. For fifteen years these duties have absorbed no inconsiderable proportion of his time, and have been discharged with incomparable energy, business ability and courtesy. Himself a generous patron of the Institution, and foremost to support every project for its advantage, he has been able to suggest improvements in the administration of its property which have added to its material resources. Mainly concerned in the arrangement of the courses of lectures and Friday evening discourses, he has succeeded with no small expenditure of labour in maintaining these at a high level of educational value and in making them attractive and popular and representative of every modern advancement in the arts and sciences. While extending the usefulness of the Institution in every direction, and introducing into it many new members, he has by his genial personality done much to promote smoothness and harmony of working in its several departments. The managers feel that the Royal Institution has been singularly fortunate in having so long enjoyed the services of Sir Frederick Bramwell in the capacity of Honorary Secretary, and they rejoice to know that although he is no longer to fill that office, they are still to have the benefit of his counsels at their Board. Sir Frederick Bramwell's name is indelibly stamped upon the history of the Royal Institution for the last quarter of the nineteenth century. He will always be gratefully remembered by its members, but the managers wish to add to personal remembrance this formal record of their cordial recognition of his merits."

ALLEGED FALSE PRETENCES.—At Clerkenwell Police Court on June 7, William Bishop (30), described as a chemist, of 164, Millfield Road, Lower Clapton, was charged on remand, before Mr. Cluer, with obtaining twenty-four boxes of pills, value £2 7s., the property of James Crispe, manufacturing chemist (see *ante*, p. 630). Evidence having been given for the prosecution, for the defence it was stated that Bishop had a wife and four children, and was in impecunious circumstances. He had once been in business himself, but failed.—Mr. Cluer ordered him to be imprisoned for twenty-one days.

DIVISION OF SAMPLES FOR ANALYSIS.—A case came on for hearing at Trowbridge on Wednesday, June 6, in which the decision given in the Divisional Court, Queen's Bench Division, on May 31 (see *ante*, p. 630), appears to have been applied. John Sainsbury, grocer, Hill Street, Trowbridge, was summoned for selling mag-

nesia consisting of magnesium carbonate, and not magnesium oxide, as required by the B.P.—An objection to the Pharmacopœia being put in as evidence to show the proper composition of magnesia was disallowed, but the solicitor for the defence was more successful when he submitted that the case for the prosecution must fail because the inspector sent to the analyst a third of the number of the packets purchased, instead of a third part of the contents of a single packet, the case being dismissed on that ground.

THE NECESSITY FOR A GUARANTEE.—John Nicholl, grocer, Ripponden, was advised by the magistrates at Halifax Police Court, on Saturday, June 2, to obtain a written guarantee with all articles which come under the provisions of the Food and Drugs Act when purchasing from the wholesale dealer. He was summoned for selling camphorated oil which was not in accordance with the B.P., 1898, it being certified to contain camphor, 9 per cent.; olive oil, 48 per cent.; mineral oil, 43 per cent. He showed that he had ordered the "very best camphorated oil," and had paid a price such as ought to have secured that quality. The magistrates accepted defendant's statement, pointing out, however, that he did not obtain a guarantee of purity, but had, no doubt unknowingly, retailed to the public an adulterated article.—Fined 20s. and costs.

A GUARANTEE, BUT NO REDRESS.—Following the preceding case, Walter Thorpe, grocer, Mellor Royd, Soyland, was summoned at the same court (Halifax) for selling sweet spirit of nitre absolutely destitute of ethyl nitrite.—It was stated for the defence that the label guaranteed the contents of the bottle to be "sweet spirit of nitre, absolutely pure," the label thus constituting a guarantee from the wholesale dealer, but through ignorance of the law defendant had allowed the seven days to elapse during which he could give notice that he possessed such a guarantee.—The Inspector pointed out that defendant could proceed against the wholesale dealer, who, however, it was stated, is in the bankruptcy court, hence no redress could be expected in that quarter.—Fined 10s. and costs.

A CORONER ON COUNTER PRESCRIBING.—At the Fulham Coroner's Court, Mr. Drew recently held an inquest concerning the death of Robt. Clark (36), a carman, of 35, Seagrave Road, West Brompton.—Evidence was given to the effect that the man for some time prior to his death had a cough, for which he obtained some medicine from Mr. James Dickson Stewart, chemist and druggist, of 100, Richmond Road, South Kensington.—According to Dr. James Young, of Melmoth Place, the medicine contained ether and chlorodyne. Personally he should have been careful about giving chlorodyne to the man on account of the enlarged condition of his heart, which was the cause of death, as it would be injurious. He could not say, however, that in this case it accelerated death.—The Coroner, after questioning Mr. Stewart as to the circumstances under which he supplied the medicine, said that by his action he had constituted himself an apothecary, and apparently gave a mixture indiscriminately, without knowing the condition of the person. It was injurious, but, fortunately for the chemist, did not accelerate death. Chemists were not entitled to prescribe; they were not educated to diagnose internal disease, and it was certainly a very injudicious action on the part of Mr. Stewart. He recognised the difficult position in which chemists were placed, because if one did not prescribe someone near by would; still, the law said it must not be done (*sic*).—A verdict was returned in accordance with the medical evidence.

STOCK PRESCRIPTIONS IN LIVERPOOL.—Mr. E. Gibson, Deputy Coroner, held an inquest at the Liverpool Police Buildings, on June 8, on the body of Michael Melvin, dock labourer, of Upper Frederick Street.—Melvin was a heavy drinker, and had called at a chemist's shop, complaining of feeling unwell. An assistant made up a mixture from a stock prescription, two ingredients of

the medicine supplied being digitalis and acetanilide. The deceased, who took six doses during the evening, had taken medicine in this manner for years, having gone to the same chemist for it. He died next morning.—As a result of post-mortem examination, Dr. Foulston said that both lungs were affected with pneumonia, and death was due to double pleuro-pneumonia. Nothing whatever would have saved the life of the man except hospital treatment. Taking into consideration the condition of the patient, he did not think it was the right mixture to prescribe.—Mr. E. Gibson, Deputy Coroner, considered it extremely improper for any chemist, whether qualified or not, to prescribe in the manner just described. He would like it to be understood that when he presided over an inquiry into such cases a close examination would be made, and the person who had prescribed the medicine would be severely censured. It was neither to the good nor to the safety of the public for unqualified persons to prescribe medicine for patients.—The jury found a verdict of "Natural causes," and endorsed the remarks of the Deputy Coroner.

OVERDOSE OF CHLORODYNE.—On Friday, June 8, an inquest was held at Milford Haven respecting the death of George Warmley Hodgson (38), of Edinburgh, which occurred the previous Tuesday on board his yacht "Aura."—It transpired that deceased, who was a gentleman of independent means, was in the habit of taking sleeping medicine, but when out at sea and the medicine was exhausted he used chlorodyne, and on the day in question had apparently taken an overdose of Dr. Collis Browne's chlorodyne.—A verdict of "Accidental death" was returned.

OVERDOSE OF LAUDANUM.—An inquest was held at Yarmouth on June 2 with respect to the death of Francis Ellen Iles, masseuse and nurse, of 133, Havelock Road.—Evidence showed that deceased had a large practice, and occasionally, after night cases, suffered from sleeplessness. On the previous Friday evening she complained of feeling ill, and lay down to try to obtain a little sleep before attending a case for which she was engaged. Shortly afterwards she was found in a profound state of narcotism, having apparently taken a large dose of laudanum, and in spite of medical attention died early the next morning.—The jury found that "death was due to misadventure from an overdose of laudanum."

POISONING BY COCAINE.—An inquest was held at Hampstead on Monday, June 11, relating to the death of Florence Mary Smith, wife of a doctor residing at 24, Pandora Road, West Hampstead.—It appeared that she had suffered from internal pains, and on the previous Thursday morning had gone to her husband's room stating that she had taken some cocaine three hours before, and was afraid she had poisoned herself. He, however, did not think seriously of the matter, but a few hours later she died.—A verdict of "Death from misadventure" was returned.

POISONING BY CARBOLIC ACID.—The properties of carbolic acid, it might, not unreasonably, be thought, are sufficiently well known to prohibit its use as a cure for pain; yet, according to the evidence given at an inquest held on June 4 at Hove, William Marchant (58), a laundryman, of 109, Montgomery Street, Hove, took a dose of carbolic acid, kept in the house for the drains, thinking it would ease a dreadful pain with which he was troubled.—The jury returned a verdict of "Death from misadventure."—At another inquest, held at Hove on the same day, it was stated that Dennis Hogan (39), a labourer, had been a teetotaler for some time past, but on Mafeking night he got drunk, and subsequently behaved so wildly that his wife was afraid to stay in the house with him. On the following Monday he took a bottle of carbolic acid, which was used for the drains, and after telling his ten-year-old daughter that he was "going to sleep for ever," went into the bedroom, where he was found later, suffering from carbolic acid poisoning and pneumonia, to which he succumbed on the following

Friday.—The jury returned a verdict in accordance with the medical evidence, adding that the deceased had taken the carbolic acid while of unsound mind.—In the case of Mary Ann Vardy (20), domestic servant, of Bedlington, it was stated at an inquest held on June 6 that she had frequently threatened to commit suicide, and on the previous day carried out her threat by swallowing a quantity of carbolic acid. There being no apparent motive for the action the jury returned a verdict of "Suicide while temporarily insane."—At an inquest held at Ramsgate on June 8, on the body of Edward James Wood, a draughtsman, belonging to Plumstead, the evidence showed that the deceased had taken from a thousand to fifteen hundred minims of carbolic acid. It was stated that he had been in bad health for some time, and was depressed owing to the fact that he could not get employment because men would not work with him on account of an ugly, though harmless, skin disease with which he was troubled.—A verdict of "Suicide while temporarily insane" was returned.

IRISH NEWS.

THE SALE OF POISONS.—In the Queen's Bench Division, Dublin, on Monday, June 11, before the Lord Chief Baron and Judges Madden and Boyd, an application was made on behalf of Alexander Thompson, a sergeant of the Royal Irish Constabulary, stationed at Roscommon, and also inspector of weights and measures in the district, for a *certiorari* to bring up and quash three orders made by the magistrates at Roscommon Petty Sessions on April 10, dismissing three summonses which had been issued by him against Jane and James Jones, Castle Street, Roscommon, for offences alleged to have been committed by them against the Pharmacy Act and the Sale of Poisons (Ireland) Act. Counsel also applied for a *mandamus* to compel the magistrates to hear and determine the three summonses issued by Sergeant Thompson. The application was grounded on an affidavit made by Sergeant Thompson, which stated that on February 5 last Michael Tiernan, of Carrigeens, Tuesk, aged fifty-two years, purchased two ounces of spirits of salts and two ounces of corrosive sublimate at the defendant's shop. Those poisons were sold and delivered to Michael Tiernan by Robert Walker, an assistant in defendant's shop, and were contained in an ordinary noggin bottle, on which a label bore the words "Joseph O'Neill, old malt whisky, Roscommon," and the said bottle was not labelled with the name of the article sold, nor did it bear the word "Poison," nor did the name and address of the vendor appear on the bottle, as required by the provisions of the 33rd and 34th Vic., cap. 26, sec. 2. On the evening of February 5, Michael Tiernan drank a portion of the contents of the bottle so supplied to him, believing it to be whisky, and died the same night. An inquest on the body was held, and Walker, who attended as a witness, admitted, after having been cautioned, that he had sold to Tiernan the contents of the bottle in question, and the coroner's jury had returned the following verdict:—"That the death of Michael Tiernan was caused by having accidentally taken and drunk a quantity of spirits of salts and corrosive sublimate, from the effects of which he died in Roscommon on February 5, 1900." The affidavit further stated that the defendants carried on business as grocers and ironmongers, neither of them being registered pharmaceutical chemists and druggists. The matter, on being reported to the Pharmaceutical Society of Ireland, applicant was instructed by the Council of that body to prosecute Jane and James Jones for unlawfully keeping open shop for retailing and dispensing of poisons, and for having sold poisons not labelled with the word "poison." When the case came on for hearing it was dismissed on the ground of improper prosecution, the contention being that it was the Pharmaceutical Society, and not Thompson, should have prosecuted.—The Court granted both applications.

ANOMALOUS RATES.—As an evidence of the anomalous rates on merchandise in Ireland it is stated by the Port and Docks Board, Dublin, that a merchant in Birmingham can send his goods to Sligo cheaper than they can be sent from Dublin to the same town. A Commission is being asked for to inquire into the matter.

FOREIGN NEWS.

SUNDAY CLOSING IN GERMANY.—We are informed that the petition in favour of enabling small apothecaries' shops in country districts, referred to in our last number, was not submitted to the German Reichstag, but to the Prussian House of Deputies. It has been rejected by that body because the matter of Sunday closing belongs to the privileges of imperial legislation, and not to those of a single federated state. The rejection was therefore only a formal one. In principle the Prussian Government is not at all disinclined to meet the wishes of the owners of small pharmacies, who are constrained to do their hard work without any assistance. The Minister of medical affairs has sent an inquiry to the Presidents of the provincial governments, asking whether there is any need of closing the small pharmacies for some hours on Sunday afternoon.

THE NEW GERMAN PHARMACOPŒIA.—The new (IV.) edition of the German Pharmacopœia will come in force on January 1, 1901.

MEDICAL COURTS OF HONOUR.—By the rules of the Courts of Honour, established by the official Medical Boards in Prussia, the Presidents of the Courts were bound to communicate to the Attorney-General every punishment inflicted upon a medical man by the Court. Several Presidents have therefore, on that account, declined to take their oaths of office, and the Government will probably abandon that claim.

AMERICAN NEWS.

THE MEDICAL PROFESSION OF THE UNITED STATES, it is stated, does not properly appreciate and support the United States Pharmacopœia; at least, there is said to be a widespread feeling to that effect. Dr. H. C. Wood, in his Presidential address at the recent decennial Convention for the Revision of the U.S.P., referred to that feeling, and while admitting that there is some foundation for it, thinks it is exaggerated. It is true, he states, that owing to the activity of manufacturing pharmacists, and the number and skill of their commercial salesmen, aided by the deficiencies of medical education and the peculiar, childlike credulity which is so common in doctors, all kinds of proprietary mixtures and proprietary articles, and extra pharmacopœial remedies, are largely used in the United States.

LAZY DOCTORS FIND IT SO EASY to write for Smith's Panacea for human ills, and it is so easy for the doctor who knows neither materia medica nor therapeutics to order Jones's Consumption Cure or Thomas's Kamiaulia, that so long as laziness and incompetence remain, so long, Dr. Wood is of opinion, will such things be done. No blame is attached to the Pharmacopœia for the existing state of affairs and no perfection of the Pharmacopœia is expected to influence it.

ANY ATTEMPT TO REDUCE THE PRODUCTS OF THE PHARMACOPŒIA to the level of the proprietary or patent medicine would, however, be to destroy the dignity of the work, to bring it into contempt, and finally to uproot its influence. Hope for the future, Dr. Wood states, lies in the rapid and steadily improving education of the

American medical profession, and not in anything that the Convention or its Committee can do.

THE INTENSITY OF THE FEELING that the American medical profession is not so thoroughly interested in the Pharmacopœia as it ought to be is attributed largely to a misconception of the intent of the Pharmacopœia and its relations to the medical profession. Dr. Wood points out that a pharmacopœia is not intended to be a guide to practice, or a working-book to be used by a doctor, but is really a hand-book of the apothecary. He does not believe that at any time or in any country pharmacopœias ever had much sale among the medical profession; and each year as the doctor becomes less of a pharmacist, he believes the tendency of the doctors to buy pharmacopœias must grow less rather than more.

TO POPULARISE THE PHARMACOPŒIA in the medical profession, Dr. Wood thinks it would be necessary to make it a treatise on therapeutics; or, in other words, cause it to cease to be a pharmacopœia. So long as it is a pharmacopœia it is the basis upon which text-books and dispensatories are to be written, thus becoming, through those treatises, a guide to the medical profession. It remains the apothecary's *vade mecum*, with which, in hand, he does his work; consequently its sales must be chiefly among the apothecaries. In the opinion of the President of the Convention for the Revision of the U.S.P., there may have been a time when the medical horizon was so narrow that the doctor had time to concern himself as to how the druggist made laudanum, but at present the doctor has as much as he can do to store his mind with purely medical facts; he wants simply to know what laudanum does when he administers it to the patient, and he trusts to the pharmacist to give him laudanum when he requires it.

IN REGARD TO THE INVESTIGATION OF NEW DRUGS, the Medical Society of the State of New York has passed a resolution urging that the interests of medical science require the establishment of a bureau of materia medica in order that "disinterested investigation" may be made into the character and value of new drugs. The Society recommends to the decennial Convention the creation of such a bureau by and under its authority, with the provision that it shall report annually upon the matters falling within the scope of its work.

REGIMENTAL PHARMACISTS in the National Guard of the State of New York have now a recognised commissioned rank equal to that of first lieutenant, a Bill amending the military Code and elevating the hospital stewards in rank and increasing the corps having become law on May 3. The amendment, which was brought about largely by the efforts of the *American Druggist*, provides for the appointment in each regiment of a military pharmacist with the rank of first lieutenant; the appointment of two hospital stewards in the place of two assistant stewards, as now provided in each regiment, and for an increase in the hospital corps from thirteen to twenty-five men. It also provides that the military pharmacists, as well as the hospital stewards must be registered pharmacists. To qualify for appointment as a military pharmacist, it is necessary to serve one year, preceding appointment, in the National Guard or the Naval Militia of the State.

THIS RECOGNITION OF PHARMACISTS' PROFESSIONAL QUALIFICATIONS, the *American Druggist* states, will have more far-reaching results than most pharmacists have at present any idea of; for when the Federal Government and the State legislatures accord to pharmacists in the service of the State equal recognition with the other professions, much will have been accomplished towards the elevation of pharmacy, inasmuch as "public favour invariably follows official recognition, and every step in the direction referred to means fuller recognition from the public."

Obituary.

BATES.—On June 10 (suddenly), at 38, George Street, Oldham, Elizabeth, wife of Hiram Bates, M.P.S. Aged 57.

DRIFFIELD.—On June 3, W. G. Driffield, Chemist and Druggist, Spilsby. Aged 86.

FRYER.—On June 8, Charles John Fryer, Chemist and Druggist, Wandsworth Road, London, S.W. Aged 46.

HARRIS.—On June 8, Joseph Bastable Harris, Chemist and Druggist, South Molton. Aged 36.

NETTLE.—On June 5, at St. Blazey, William Robert Pett Nettle, Pharmaceutical Chemist, Upper Tooting. Aged 41. Mr. Nettle had been a member of the Pharmaceutical Society since 1881.

THARRATT.—At 55, Myrtle Street, Liverpool, on June 4, Lucy Ellen, the wife of George R. Tharratt, Pharmaceutical Chemist.

NEW REMEDIES.

NEW MORPHINE PREPARATION.—A patent has been granted in Paris for the manufacture of a new local anæsthetic, containing morphine in a readily soluble form. Morphine hydrochloride or sulphate is mixed with an excess of borax, or other alkaline salt and iodoform. Phenol is added to this mixture to form an easily soluble phenate.—*Oesterr. Zeits. für Pharm.*, 54, 248.

EXTRACT OF VACCINIUM MYRTILLUS IN COLIC.—Straus uses suppositories of extract of bilberry as a remedy for intestinal colic, employing the following formula: Extract of bilberry, 30 Gm.; potassium carbonate, 3 Gm.; distilled water, 7 Gm.; cacao butter 60 Gm. To make 30 suppositories; 2 to be used daily.—*Oesterr. Zeits. für Pharm.*, 54, 247.

DESICCATED EXTRACT OF SUPRA-RENAL CAPSULE IN ACUTE CORYZA.—Millener (*Buffalo Med. Journ.*) finds that a solution of 20 grains of dried extract of supra-renal capsule, dissolved in half a fluid ounce of water, is very effectual in reducing the congestion of the nasal mucous membrane in coryza. The nose and nasopharynx should first be cleansed with an alkaline wash of sodium bicarbonate, sodium salicylate, and boric acid. The solution is applied on pledgets of cotton.—*B.M.J. Epit.*, 1, 1900, 64.

KINEURINE.—Quinine glycerophosphate has been recently introduced under this name. It is stated by Moncour that the patient does not become inured to its effects as is the case with most of the salts of quinine. It is given in doses of 30 to 60 centigrammes as an antiperiodic at the beginning and end of the febrile symptoms. The same dose is given per diem for neuralgia. As a tonic 10 to 20 centigrammes is administered.—*Merck's Report*, 1899, 49.

PHARMACEUTICAL SOCIETY OF IRELAND.

On Wednesday, June 6, the monthly meeting of the Council was held at 67, Lower Mount Street, Dublin.

The PRESIDENT, Mr. George D. Beggs, occupied the chair, and the other members of the Council present were the Vice-President, Mr. J. J. Bernard, and Messrs. Grindley (Treasurer), Wells, Montgomery (Belfast), Kelly, and Simpson.

On the motion of the PRESIDENT, seconded by Mr. SIMPSON, Mr. George Browne was co-opted a member of the Council, in the room of Mr. Michie, resigned.

THE LATE MR. DOWNES.

The following letter was received from Miss S. Downes, daughter of the above-named gentleman:—"Dear Mr. Ferrall,—Please convey to the members of the Pharmaceutical Council our sincere thanks for their sympathy in our sad bereavement. My father took the keenest interest in the Society and all its concerns.—Again thanking you and the Council, yours sincerely, SARA J. DOWNES. We are deeply touched by the appreciation shown by the English

Society in the journal you kindly sent, which we now return, with thanks.—S. J. D."

The REGISTRAR read a letter, dated May 4, from Mr. Richard Bremridge, Secretary of the Pharmaceutical Society of Great Britain, enclosing a copy of a resolution which had been passed at a previous meeting of the Council of the Society, and also directing attention to sympathetic remarks which were made at the Council meeting in reference to the character and services of the late Mr. Downes. The resolution was as follows:—"Resolved that this Council learns with sincere regret the death of Mr. R. J. Downes, the late President of the Pharmaceutical Society of Ireland, and desires to express its deep sympathy with the Pharmaceutical Society of Ireland in the loss of so able, earnest, and zealous a leader." Moved by the VICE-PRESIDENT, and seconded by Mr. WALTER HILLS.

PRESIDENT: It is very gratifying to get such a letter from the Pharmaceutical Society of Great Britain acknowledging the worth of the late Mr. Downes.

The Registrar was directed to reply, stating that the Council thoroughly appreciated the kindness of the Society in passing the resolution.

CORRESPONDENCE AND OTHER BUSINESS.

A letter from the Privy Council of Ireland enclosed their Order approving of the appointment of Mr. James Michie, M.P.S.I., as one of the Society's examiners.

A letter from Mr. Joseph Donnelly, solicitor, of Belfast, forwarded £3 5s. 4d., being the Society's share of a fine imposed on James Hogg, jun., of Hogg and Co., Limited, Belfast, for compounding without being qualified to do so. The letter also reported that two fines of £5 each had been imposed on Mr. William James Gibson, chemist and druggist, of 71 and 73, King Street, Belfast, for illegal compounding; but that the presiding justice had recommended Mr. Gibson to memorialise the Lord Lieutenant for the remission of one penalty, or a portion of it. The following letter from Mr. Gibson was also read by the REGISTRAR:—"Gentlemen,—I beg to inform you that I have forwarded a memorial to the Lord Lieutenant regarding the case which you had against me some weeks ago for shop known as Mahon and Co., Sandy Row. I feel satisfied had you been fully aware of the facts of the case you would not have instructed the prosecution to be issued against me, but hope that when the matter will be brought before you, you will give it your favourable consideration.—Thanking you in anticipation, I remain, yours truly, W. J. GIBSON."

The Registrar was directed to acknowledge the receipt of Mr. Gibson's letter, and to request him to furnish the facts.

Donations were received from the Pharmacy Board of Victoria of a copy of their Report for 1899; from the Director of the Missouri Botanical Garden of a copy of his Eleventh Report, 1900; and from the Director of the Wellcome Chemical Research Laboratories of copies of three pamphlets.

On the motion of Mr. GRINDLEY, seconded by Mr. WELLS, thanks were voted to the donors.

The PRESIDENT moved, pursuant to notice, that the Regulations for the examination for licence as a registered druggist be amended by the addition of the following words:—"Candidates presenting themselves for this examination must be twenty-one years of age."

Mr. GRINDLEY seconded the motion, which was unanimously agreed to.

On the motion of Mr. GRINDLEY, seconded by Mr. WELLS, Mr. John McGratty, of Ennistymon, was elected a member of the Society.

On the motion of Mr. O'SULLIVAN, seconded by Mr. WELLS, Mr. George Robinson, of New Ross, was elected a member of the Society.

Mr. James Pollard, of Callan, was, on the motion of the VICE-PRESIDENT, seconded by Mr. SIMPSON, elected an associate druggist.

Other business having been disposed of, the Council adjourned.

ROYAL INSTITUTION.

The Friday evening lecture on June 8 was given by Dr. ALLAN MACFADYEN, Director of the Jenner Institute of Preventive Medicine, on

THE EFFECT OF PHYSICAL AGENTS ON BACTERIAL LIFE.

The lecturer gave some particulars as to the size, number and distribution of bacteria, and pointed out that the subject is important, not merely as a biological question, but also because micro-organisms fulfill such important functions in the various processes of Nature, in industrial operations, and in connection with the health of man and animals.

Given a suitable soil and a sufficiently high temperature, the propagation of bacteria is extremely rapid, but in the absence of these primary conditions they do not multiply, remaining quiescent or dying. The surface layers of the soil constitute the great storehouse in nature for bacteria, which may be said to exist there under natural conditions. In the air the physical conditions are entirely unfavourable to micro-organisms, and the majority to be found in it are derived from the soil, the number lessening when the surface-soil is moist and increasing when it is dry. The relative bacterial purity of the air is largely a question of dust, and while of the bacteria which the air contains the large majority are quite harmless, a few injurious organisms have been found in it. It has been proved, however, that the atmosphere is not one of the important channels of infection.

The continued existence of bacteria in air is rendered difficult by the influence of desiccation and sunlight. The former is one of Nature's favourite methods for getting rid of these micro-organisms, because moisture is necessary for their development and vital processes, and, indeed, constitutes about 80 per cent. of their cell-substance. Direct sunlight is a most deadly bactericidal agent, and diffuse light, though slower in action, is also injurious. Sunlight, too, has an important effect on the spontaneous purification of rivers; thus, the conditions favouring the presence and multiplication of bacteria in water are a low altitude, warmth, abundance of organic matter and a sluggish or stagnant condition of the water. The freezing of water, while stopping the multiplication of organisms, may preserve the life of disease-producing germs by eliminating the destructive action of commoner competitive forms.

The lecturer said that, as regards electricity, there is little or no direct evidence of its direct action on bacterial life, nor, so far as he was aware, has any direct action of the X rays yet been definitely proved. Of all the physical agents that do affect bacterial life temperature is the most important. The range of temperature under which their growth is possible ranges from zero to 70° C. There is an extensive group of organisms, termed thermophylic, which grow best between 55° and 65° C., temperatures at which ordinary protoplasm becomes inert or dies. It is a striking fact that these organisms are widely distributed, and as an instance of their activity, it was mentioned by the lecturer that cellulose—a substance exceedingly difficult to decompose—is by their action completely disintegrated in from ten to fourteen days.

As to the inimical effects of temperature, an organism grown above its *optimum* temperature becomes attenuated and may eventually die, while if placed below its *minimum* temperature it may cease to develop. To thoroughly destroy bacterial life it is useless to apply a dry heat. Moist heat is the best form of disinfection. No spore can stand exposure to steam at a temperature of 140° C. To non-sporing organisms the boiling point is fatal in a few minutes, but the spores themselves are much more resistant to heat. Thus the anthrax bacillus is killed by exposure to a temperature of 70° C. for one minute, but the spore stage resists that temperature for hours.

Dr. Macfadyen illustrated the varying thermal death point of organisms and the problems of sterilisation by the case of milk, a liquid which is able to carry the infection of various diseases.

IN ORDER TO RENDER MILK INNOCUOUS

freezing and the addition of preservatives are inadequate. Heat is the one and only efficient and trustworthy agent. The temperature employed must be sufficiently high to be fatal to the organisms producing rapid decomposition of the milk as well as to those producing disease in man, and must be followed by rapid cooling in order to preserve the fresh flavour and prevent the multiplication of the bacteria that still remain alive in the liquid. It has been found that if the milk be passed first through a hot and then through a cold coil of metal tubing, so that it is quickly heated to 70° C., and then as quickly cooled in iced water, complete destruction of about 90 per cent. of the bacteria is effected in about thirty seconds. This destruction of about 90 per cent. of the bacteria is known as Pasteurisation; the 90 per cent. includes the diphtheria, typhoid, tubercle, and pus organisms.

It was pointed out by the lecturer that Pasteurisation is partial, not complete, sterilisation. Thus the butyric organisms are not destroyed until they are subjected to a temperature of 100° C. for an hour. If the heat be maintained for a further period of three to six hours the destruction of all remaining organisms is accomplished. However, Pasteurisation at 68° C., coupled with rapid cooling, suffices for all practical purposes. The heating may be accomplished for large quantities either by passing the milk in a thin steam over a heated metal surface or by heating the liquid in bulk.

Bacteria are much more sensitive to high than to low temperatures, as has been shown by some experiments recently carried out at the Royal Institution. Some multiply at zero, others remain alive when frozen under ordinary conditions.

A typical series of bacteria, including the cholera Asiatica and the anthrax bacilli was exposed to the temperature of liquid air, about -190° C., for twenty hours, but in no sense could any impairment of vitality be detected. The fresh growths obtained from the exposed tubes were normal in every respect, and the functional activities of the bacteria were unaffected. In the case of certain phosphorescent species, the luminosity vanished when they were cooled in liquid air, and returned when they were warmed again. In a further series of experiments bacteria were cooled in liquid air for a week, but without affecting their vitality.

At the instance of Sir James Creighton Browne, and under the personal supervision of Professor Dewar, the same series of bacteria has quite recently been subjected by Mr. Rowland to the temperature of liquid hydrogen, about -250° C., and again the results were *nil*. The bacteria renewed their ordinary life processes on regaining normal temperatures, with unimpaired vigour, having undergone no structural alterations. This is the more remarkable since the conditions were such as to subject the organisms to an enormous mechanical strain.

The lecturer pointed out that this temperature is only 23° C. above the zero of absolute temperature, at which, on our present theoretical conceptions, molecular movement ceases, and the entire range of chemical and physical reactions with which we are acquainted either stop or assume an entirely new phase. The fact that life continues to exist under such conditions affords new ground for reflection as to whether all life is dependent for its continuance on chemical reactions. Biologists will therefore follow with the keenest interest Professor Dewar's heroic attempts to reach the absolute zero, as upon his success must rest the settlement of the vexed question of vitality. Meanwhile, said Dr. Macfadyen in conclusion, biologists are led to reconsider many of the main issues of the problem, and by providing a new realm for experiment, Professor Dewar has placed in their hands an agent of investigation from the effective use of which they may hope to gain a little further insight into the great mystery of life itself.

CHEMICAL SOCIETY.

A meeting was held on Thursday, June 7, the President, Dr. T. E. THORPE, C.B., in the chair.

The SENIOR SECRETARY (Mr. Wyndham R. Dunstan) rose to express to the President the congratulations of the Society on the honour recently conferred upon him by her Majesty the Queen; it was, in addition, an honour to the Society that it had taken place during his presidency.

The PRESIDENT, who was received with hearty applause, briefly expressed his thanks.

Dr. RUHEMANN and Mr. STAPLETON read a paper describing

SYNTHESES OF ACONITIC ACID.

This acid ought to exist in two stereoisomeric forms, namely maleic and fumaric varieties, and it was to produce these that the work of the authors was directed. Condensations were made of ethyl aceto-acetate with the ethyl salts of chloromaleic, chlorofumaric, and acetylene dicarboxylic acids respectively. The compounds obtained from the chlorofumaric and acetylene dicarboxylic esters proved identical.

Dr. RUHEMANN also described compounds derived from the reactions of guanidine with aceto acetic ester, and of benzamidine with acetylene dicarboxylic ester.

Another paper was read by Dr. RUHEMANN, describing work carried out with Dr. Beddow, on the

REACTION OF SODIUM PHENOLATE WITH PHENYL-PROPIOLIC ESTER.

Sodium phenolate, produced by dissolving sodium directly in phenol reacts readily, yielding β -phenoxy cinnamic ester, the sodium becoming attached to the electro-negative group of the molecule.

A paper was read by Dr. JOWETT, on

THE CONSTITUTION OF PILOCARPINE.

The experiments of Dr. Jowett have been carried out upon isopilocarpine, on account of its stability being greater than that of pilocarpine. The more stable substance is more suitable for experiment, and its constitution being known; that of the other would probably readily follow. It was found that by treatment of the alkaloid with methyl iodide and decomposing the product with silver oxide a methyl compound was obtained, but by a similar treatment of the product a second methyl group could not be introduced.

By oxidation with alkaline permanganate a lactonic acid of the formula $C_7H_{10}O_4$ is produced, which by further oxidation gives an almost quantitative yield of isobutyric acid. No acetone is produced in the second oxidation, hence the author believes the lactonic acid to be the β -lactone of hydroxy isobutyl malonic acid.

Dr. CROSSLEY pointed out that if the lactonic acid had the constitution suggested it could hardly be oxidised without the formation of acetone, and suggested that the author would probably find it by testing with *p*-brom phenyl hydrazine.

Doctors CHATTAWAY and ORTON described further experimental work on the

CHLORO AMINO DERIVATIVES.

obtained by the action of hypochlorous acid on anilides.

By the transformation of these substituted nitrogen chlorides ortho and para derivatives are always obtained, but no meta derivatives. By starting with meta-chlor-acetanilide a chloro amino derivative is obtained, which on transformation yields two dichloro acetanilides, each of these in its turn gives two trichloro acetanilides while the latter yielding to a further treatment give one and the same tetrachloro acetanilide. These reactions showed a marked difference from those previously studied in the tardiness with which the transformation of the nitrogen chloride took place.

The rate of transformation was observed by the help of the hydriodic acid test, the production of free iodine showing the presence of the untransformed substance.

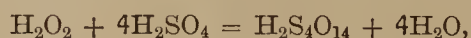
A paper was read by Dr. LOWRY on an investigation carried out with Mr. WEST on

PERSULPHURIC ACID.

It was discovered by Berthelot that persulphuric acid is formed by the reaction of sulphuric acid and hydrogen peroxide, but the equilibrium of the reaction had not been studied.

Berthelot also found that the oxide S_2O_7 was produced by the silent electrical discharge on a mixture of oxygen and sulphur dioxide or trioxide.

He dissolved the oxide S_2O_7 in sulphuric acid, and obtained an acid of the properties of persulphuric acid, but did not analyse the acid obtained. Since hydrogen peroxide reduces potassium permanganate, while persulphuric acid is inactive, it is possible to determine the progress of the reaction between sulphuric acid and hydrogen peroxide. The authors have determined the conditions of equilibrium of this reaction, and have sought to apply to them the laws of mass action. By a study of the curve of concentration of the reacting substances and products Dr. Lowry has been led to the conclusion that the reaction is chiefly of the following order:—



while there also exists small quantities of the compound $H_2S_2O_8$. By observing the behaviour of acids of different concentration it appears that the oxidising property in the concentrated acid is chiefly due to the compound $H_2S_4O_{14}$, while in dilute solution the action of $H_2S_2O_8$ predominates. This was shown by the oxidation of aniline to nitrosobenzene by the former, and the production of a brown precipitate (Marshall's test) by the latter.

The PRESIDENT remarked that however suggestive the results shown by the curves might be the proof of the nature of the acid is still light.

Dr. LAPWORTH pointed out that instead of plotting the concentrations of the reacting substances it would have been better if the concentration of the reacting ions could have been plotted.

Other papers being taken as read the proceedings then terminated.

EDINBURGH AND DISTRICT CHEMISTS' TRADE ASSOCIATION.

The annual meeting was held in the Pharmaceutical Society's House, 36, York Place, Edinburgh, on Friday, June 8, at 11.30 a.m., Mr. DAVID MACLAREN, Chairman of the Association in the chair.

The minutes of last meeting were read and approved.

Mr. C. F. HENRY, Honorary Secretary, read the annual report, from which it appeared that there was an increase of five members during the year. The Association had suffered a heavy loss in the death of their Honorary Treasurer, Mr. William Burley. The chief work of the year had been in connection with the Companies Bill. It would be satisfactory to members to note that one of the recommendations made by the Association in regard to this question viz., that the name of the qualified person in charge of any company's shop should be conspicuously posted on the shop or other place in which the business is carried on, had been embodied in Clause 2 of the amended Bill. The report expressed a hope that the question of titles would also be satisfactorily settled before the Bill was passed.

On the motion of Mr. BOA, seconded by Mr. GLASS, the report was adopted.

The HON. SECRETARY then submitted the financial statement, showing a credit balance of £34 16s. 0d., which was adopted on the motion of Mr. BOWMAN, seconded by Mr. DEWAR.

COMPANIES BILL.

Mr. W. S. GLASS then submitted his proposed amended form of Clause 2 of the Companies Acts Amendment Bill as follows:—

No company may carry on the business of a pharmaceutical chemist or chemist and druggist unless such business is *bona fide* conducted by a

manager or assistant being a duly qualified pharmaceutical chemist or chemist and druggist, and unless the name of the person so qualified is conspicuously posted in letters easily legible in the shop or other place in which the business is carried on, and unless any name or title implying registration under the Pharmacy Acts be taken, used, or exhibited only in connection with the name of the duly qualified manager or assistant aforesaid, but subject to this provision—anything which would be an offence under Sections 1 and 15 of the Pharmacy Act, 1868, if committed by an individual, shall be an offence if committed by a company.

The present situation in regard to the matter, he said, might be summarised under the following four points:—

1. Can what is called "company pharmacy" be stopped? There could be very little doubt that the only answer to such a question was clearly "no."

2. Is it possible to secure regulation of "company pharmacy"? To this he saw no difficulty in answering "yes."

3. How can regulation be secured? This could be done by insisting that every shop belonging to a company should be *bona fide* conducted by a registered chemist.

4. Companies should be made liable to penalties for any failure to comply with statutory regulations. He therefore proposed that the Association should adopt the amended form of Clause 2, which he now submitted as a suitable and sufficient way of securing what they desired and could reasonably hope to attain.

Mr. LUNAN said he thought the association as such was really committed by their past action to a policy on the lines of this motion. It was a practical proposal of which he was in favour, and he would therefore second the motion that it should be approved of.

The SECRETARY said Mr. C. A. Macpherson, who was prevented attending the meeting, had sent him a letter saying he would have liked to define his position by going into details for which there was no time. Briefly, he did not approve of the amendment any more than he did of the original clause itself. It asked too much, and conceded too much. It sought to prevent a company carrying on the business of a chemist and druggist without defining what that business was, and would thus place a company in a worse position than a single individual. It also approved and would statutorily recognise vicarious qualification, which if granted to a company could not be withheld from an individual. While he thought the efforts of chemists ought to be directed to having it declared to be illegal for companies composed of legally unqualified persons to retail poisons, and to have it enacted that the business of other companies shall be managed by legally qualified persons, and that they shall be subject to all the provisions of the Pharmacy Acts the same as individuals are, he did not think there was much need to be concerned about the present Companies Bill. It was a highly contentious measure in other than its pharmaceutical aspects, and had very little chance of passing this session in the present state of affairs.

After some further discussion, the clause suggested by Mr. Glass was put to the meeting and unanimously approved.

On the motion of Mr. GLASS it was agreed to send copies of the clause to the Lord Chancellor, the Secretary of State for Scotland, the members of Parliament for the city of Edinburgh and all other members of Parliament representing constituencies included in the district covered by the Association, to the members of the Council of the Pharmaceutical Society, and to the Council.

ELECTION OF OFFICE BEARERS.

The following were elected office bearers for the ensuing year:—Chairman, George Lunan; Vice-Chairman, W. S. Glass; Secretary, C. F. Henry, 1, Brandon Terrace, Edinburgh; Assistant Secretary, R. J. MacDougall; Treasurer, R. L. Hendry; and as members of Committee, Messrs. Baker, Boa, Bowman, Brindle, Dewar, D. McGlashan, McLaren, MacPherson, W. Smith, and F. Stephenson. Mr. Thomas C. Smith (T. and H. Smith and Co.), was elected a member in place of Mr. D. MacKenzie removed to London.

THE STUDENTS' COLUMNS.

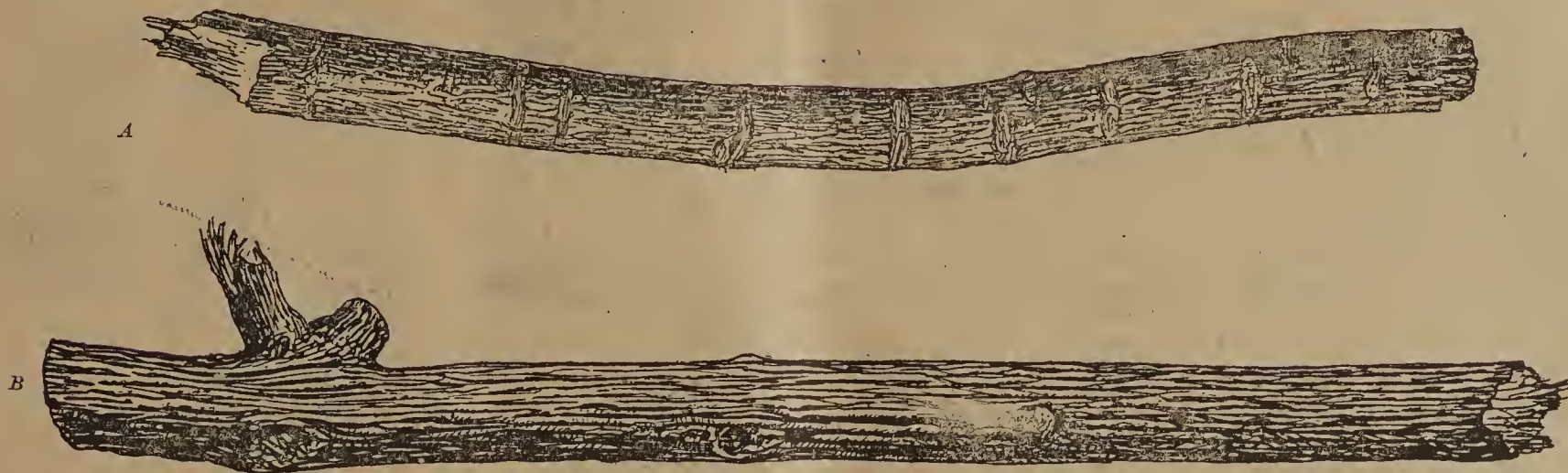
THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Glycyrrhizæ Radix.

LIQUORICE ROOT is obtained from *Glycyrrhiza glabra*, Linn. (N.O. Leguminosæ) and other species, but chiefly the former, the peeled root and peeled subterranean stem being official. The plants are widely distributed over Southern Europe and eastward to Central Asia, being largely cultivated for the preparation of extract; *G. glabra* is also cultivated to a limited extent in England, near Mitcham and in Yorkshire, but the dried official root is chiefly imported from Spain and the South of France. There are several other varieties in commerce, such as Russian, Persian, etc., but they do not agree with the official description. The plants produce tall, erect, herbaceous stems and stout perennial roots which divide, a few inches below the surface of the ground, into several long straight descending branches, beset with slender wiry rootlets.

runners, minute dark buds. When peeled the pieces are shorter, yellowish in colour, and have a smooth fibrous surface. The pieces break with a coarse fibrous fracture, and a transverse section exhibits a yellow wood—consisting of narrow, porous wedges of vascular tissue, alternating with numerous medullary rays—encircled by a thick cortex with groups of bast fibres arranged in radial lines, the groups appearing as rows of dark points opposite to the wedges of vascular tissue. In addition, the pieces of subterranean stem, which constitute the greater portion of the drug, are distinguished by the presence of a small dark pith. The characteristic sweet taste of liquorice is due to the presence of glycyrrhizin and sugar; the faint but peculiar earthy odour also appears to be due to glycyrrhizin.

NOTES.—The distinctive characters of Spanish liquorice, which is the only imported dried root, etc., that appears to satisfy official requirements, are its sweet taste free from bitterness, the yellow colour of a transverse section, the fibrous bark, and the presence of minute buds and pith in most of the pieces. Russian liquorice, is usually imported in the peeled condition, and differs from



LIQUORICE.—A, Root of Spanish liquorice B, rhizome of ditto.

Long horizontal subterranean stems (runners or stolons) are also given off by the principal roots near the surface, those being provided with buds which develop into aerial stems if the runners be allowed to remain undisturbed until the following year. The whole of the underground part of the plant is collected in the autumn, carefully dried, and peeled if intended for medicinal purposes. Liquorice root possesses demulcent and expectorant properties, and its preparations help to disguise the taste of nauseous medicines; it is used in the preparation of Extractum Glycyrrhizæ, Extractum Glycyrrhizæ Liquidum, Liquor Sarsæ Compositus Concentratus, Pilula Hydrargyri and Pulvis Glycyrrhizæ Compositus, whilst the Liquid Extract, in turn, enters into the composition of Mistura Sennæ Composita and Tinctura Aloes.



LIQUORICE.—A, Transverse section of Spanish liquorice root; B, ditto rhizome, showing pith. Both enlarged.

CHARACTERS.—Liquorice is imported from Spain and the South of France in bundles of long, nearly cylindrical, dark, reddish-brown pieces, which are usually longitudinally wrinkled and not scaly, but bear on the surface small transverse root-scars and, in the case of

Spanish in being slightly bitter; it is also larger as a rule, and consists chiefly of purplish roots with scaly cork, the pieces being destitute of pith and exhibiting no traces of buds. It is the product of *G. glandulifera*, W. and K.; other varieties of liquorice root, derived from *G. echinata*, Linn., have a similar bitter taste to the Russian and, like that, should not be used for medicinal purposes. The chief constituent of liquorice is the sweet principle glycyrrhizin, which appears to be a compound of glycyrrhizic acid with ammonia, and may be present to the extent of more than 7 per cent. It has been obtained as a transparent yellow substance, soluble in boiling water or cold alcohol. By treatment with glacial acetic acid, it yields glycyrrhizic acid, which, on boiling with dilute acids, breaks up into a tasteless crystalline powder named glycyrretin and parasaccharic acid. Glycyrrhizic acid is obtained from hot aqueous solutions as a gelatinous mass; when dry it forms an amorphous solid which swells up in cold water. It is soluble in boiling acetic acid but only very slightly soluble in ether or alcohol. It has a sweetish taste and acid reaction, combining with alkalis to form crystallisable soluble salts which are intensely sweet. A substance resembling it has been obtained from the rhizome of *Polypodium vulgare*, the leaves of *Myrrhis odorata*, and the bark of *Lucuma glycyphlæa*. Other substances which have been found in liquorice root are sugar, asparagin, starch, albumin, resin, and various salts, whilst a small quantity of tannin is said to occur in the outer bark. An amorphous bitter substance named glycyramarin is also said to have been isolated, but that would appear to have been obtained from *G. glandulifera* or *G. echinata*. The resin found in liquorice is stated to yield para-oxybenzoic acid when fused with caustic potash

Gossypium.

COTTON or COTTON WOOL consists of the hairs of the seed of *Gossypium barbadense*, Linn. (N.O. Malvaceæ), and of other species of *Gossypium*, cultivated in tropical and sub-tropical countries. The plants yielding it are herbs, shrubs, or small trees, which produce three- to five-celled capsular fruits containing numerous seeds covered with a wool-like mass of long white or yellowish hairs. Those are removed from the seeds, separated from impurities by means of special machinery, and freed from adhering fatty matter, so as to render them more absorbent. That is effected by boiling the crude "wool," under pressure, with a dilute caustic alkali, after which it is washed, bleached by the action of chlorinated lime and hydrochloric acid, again washed, dried, and the fibres mechanically loosened and separated, so as to make a fleecy, wool-like mass. The purified cotton is used in the preparation of Pyroxylin, but is more largely employed in medicine as a surgical dressing, being frequently medicated for that purpose with boric, carbolic, or salicylic acid, mercuric chloride, iodoform, etc., etc.

CHARACTERS.—Cotton wool occurs, when purified, in long, white, soft filaments, about 2 to 4 or 5 Cm. long, and 0.02 Mm. broad, each consisting of an elongated cell which appears, when magnified as a flattened twisted band, with slightly thickened, rounded edges. It is inodorous, tasteless, and should absorb water readily, the absence of fatty matter being thus indicated.

TESTS.—Cotton should impart to water in which it is immersed neither an alkaline nor an acid reaction, thus showing that it has been thoroughly washed after being freed from fatty matter and bleached. On incineration in air it burns, leaving less than 1 per cent. of ash. Concentrated solution of copper ammonio-sulphate should dissolve cotton almost completely, the dissolved cellulose being thrown out of solution again on adding an acid. Cotton is insoluble in hot solution (8 per cent.) of potassium hydroxide, is not permanently stained yellow by picric acid solution, and contains only traces of nitrogenous substances, being thus distinguished from animal fibres. Iodine solution colours it yellow, the colour changing to blue on treatment with sulphuric acid, this cellulose reaction distinguishing cotton from many other vegetable fibres.

NOTES.—The distinctive characters of purified cotton are its wool-like appearance, absorbent properties, solubility in solution of copper ammonio-sulphate, and the appearance of the hairs under the microscope. They consist principally of cellulose, associated with traces of inorganic matter, albuminoids, etc. The fatty matter which forms a thin coating on crude cotton consists of a wax (m.p. 86° C.) soluble in alcohol and ether, mixed with stearic and palmitic acids.

Granati Cortex.

POMEGRANATE BARK is obtained from the stem and root of *Punica granatum*, Linn. (N.O. Lythraceæ), a shrub or small tree indigenous to North-Western India, but cultivated in countries bordering on the Mediterranean and in sub-tropical regions generally. It has small deciduous foliage, handsome scarlet or crimson flowers, and bears a pulpy spherical fruit about the size of an orange, with a leathery skin which becomes hard and brittle on drying. The dried bark of both stem and root is official. It possesses astringent and anthelmintic properties, and is used in the preparation of Decoctum Granati Corticis.

CHARACTERS.—Pomegranate bark seldom occurs in quills, but usually in irregular curved or channelled pieces, varying from 5 to 10 Cm. in length, and from 12 to 25 Mm. in width. The root bark has a rough, yellowish-grey outer surface, marked with irregular conchoidal depressions due to exfoliation of the outer portion of the bark; the inner surface is smooth and yellow, with irregular brownish blotches. The bark breaks with a short fracture and the fractured surface is nearly white; a transverse section exhibits fine tangential and still finer radial lines when examined with a lens. The stem bark is in straighter channelled pieces than the root bark and may also occur in quills. It frequently bears the

minute apothecia of lichens, is smoother than the root bark and exhibits no conchoidal depressions, though it presents occasional shallow longitudinal furrows and bands of pale cork. Neither root nor stem bark has any distinctive odour, but both possess an astringent, slightly bitter taste, due to the presence of tannin and alkaloids respectively.



POMEGRANATE BARK.—A, Outer surface of root bark; B, inner surface of ditto; C, transverse section of bark, slightly magnified.

NOTES.—The distinctive characters of pomegranate bark are the rough surface with conchoidal depressions of the root bark, the comparatively smooth outer surface with lichens of the stem bark, the short fracture with pale fractured surface, and the yellow inner surface with brown patches. The chief constituents of the bark are the three liquid alkaloids, pelletierine (punicine), isopelletierine (isopunicine), and methylpelletierine (methyl-punicine), and the crystalline alkaloid pseudo-pelletierine (pseudo-punicine). The first two, to which the anthelmintic property of the bark is due, constitute the pelletierine used in medicine; the other two



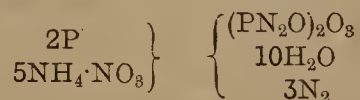
POMEGRANATE BARK.—Outer surface of stem bark.

bases are inactive. The root bark may contain more than 3 per cent. of alkaloids, but the stem bark does not often contain more than 0.5 per cent. The proportion diminishes when the bark is kept, and the average in commercial bark, which is chiefly obtained from stems, is said to be only about 0.35 per cent. In addition, the bark contains about 22 per cent. of tannin, together with mannite, sugar, gum and pectin. The bark of *Buxus sempervirens*, which may be mixed with pomegranate bark, is bitter, but not astringent, as it contains no tannin.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

The appearance of a paper with this heading in the current number of the *Berichte* of the German Chemical Society is a circumstance calculated to excite no little astonishment, but it is a fact nevertheless, and the paper contains an experimental refutation by Winkler of a statement recently published by F. Fittica as to the convertibility of phosphorus into arsenic. That was stated to have been effected by heating amorphous phosphorus with ammonium nitrate to 200° C., and on the assumption that arsenic was a nitrogenous compound of phosphorus, PN_2O , its synthesis was represented by the equation—



The presence of arsenic in commercial phosphorus is known to be due to the use of arsenical sulphuric acid for decomposing calcium phosphate; it has been found by Wittstock to amount to as much as 0.76 per cent., and it may even be more than double that amount, as sulphuric acid made from Rio Tinto pyrites may contain 0.202 per cent. of arsenic. Fittica does not state how much arsenic there was in the phosphorus used in his experiments, and his assumption that he had converted phosphorus into arsenic to the extent of 8 or 10 per cent. was merely an estimate as unfounded as the fanciful formula PN_2O . Winkler's determinations of the arsenic in several portions of phosphorus, subjected to oxidation in different ways, and in another portion subjected to Fittica's treatment, show that, in all instances, the amount was the same, and that the supposed convertibility of phosphorus into arsenic is one of those errors which result from the endeavour to support theories by imperfectly observed facts.—*Bericht*, **33**, 1693.

Professor Armstrong points out that A. Bach, in contending (*Ber.*, 1900, **33**, 1506) that the liquid obtained on mixing a solution of hydrogen peroxide with sulphuric acid probably contains hydrogen tetroxide, has obviously failed to take into account the existence of persulphuric acid in such a solution. In all his experiments—both in those in which palladium hydrogen was oxidised and in those with peroxides—a large excess of normal sulphuric acid was added; the solution was then titrated with permanganate, and the oxygen which was given off was collected and measured. It is noteworthy that the liquid was shaken during several minutes after the titration was completed in order to expel the gas. It is open to question whether, in these cases, some persulphuric acid was not formed by peroxidation of the sulphuric acid, and whether the extra oxygen obtained by Bach was not derived from this. Bach regards the fact that other dehydrating agents besides sulphuric acid—for example, hydrogen chloride—produce effects, when mixed with hydrogen peroxide, similar to those obtained on using Caro's reagent, as evidence in favour of the view that hydrogen peroxide is converted into tetroxide by dehydration: $3\text{H}_2\text{O}_2 = \text{H}_2\text{O}_4 + 2\text{H}_2\text{O}$. It is pointed out, however, that the effects produced by Caro's reagent are merely such as it might be anticipated would be exercised by hydrogen peroxide acting in presence of a powerful dehydrating and hydrolysing agent, and it is the use of hydrogen peroxide under such conditions that characterises the novelty in procedure.—*Proc. Chem. Soc.*, **16**, 134.

SICCO.

This is the name given to dry hæmatogen by Schneider. It forms red brown tasteless and odourless crystals, which keep well without any addition of glycerin, alcohol, or other preservative. It is free from all blood impurities, dissolving completely in cold water, and coagulating on heating. Gastric juice digests 99 per cent. of the preparation. It contains, in 100 parts, albumin, 89.52; organic iron, 0.332; mineral salts, 2.6; fat, 0.11; the remainder being water. For the extemporaneous preparation of hæmatogen by means of this body, the following process is recommended:—Hæmatogen sicco., 80, is dissolved in distilled water, 400; to this is added a solution of caustic soda, 2, in water, 278, and then simple syrup, 120, alcohol (90 per cent.), 120, and aromatic mixture, 5.5. Allow to stand for three days, then filter.—*Pharm. Zeit.*, **45**, 87.

From experiments made, chiefly on *Phascolus*, G. André concludes that the regeneration of insoluble albuminoids takes place in plants at the expense both of asparagin and of the nitrogen of amide-acids. This takes place concurrently with the absorption of phosphoric acid. The soluble carbohydrates are apparently, in part at least, oxidised directly in respiration. Starch, and the cellulose which can be saccharised by dilute acids at 100° C., decrease progressively from germination until the period when the weight of the plant is greater than that of the seed; while the amount of cellulose, properly so-called (*i.e.*, not capable of being saccharised by dilute acids), continually increases, that being largely due to the transformation of starch.—*Comptes rendus*, **129**, 1262, and **130**, 1198.

INHERITANCE OF PARENTAL PROPERTIES IN HYBRIDS.

Hugo de Vries lays down the law that a hybrid never "halves" any of the special characters either of the father or of the mother. It inherits some characters from the one parent, some from the other. When the parents differ in only one point, the hybrid does not occupy an intermediate position between the two, but resembles one or the other parent. In the hybrid the simple differential character of one of the parents is evident or "dominant," the antagonistic character of the other parent being latent or "regressive." These antagonistic characters usually remain combined during the whole of the vegetative life of the hybrid, the one dominant, the other latent; but in the reproductive period they become separated; each pollen-grain and each oosphere receives only one of the two.—*Comptes rendus*, **130**, 845.

VOLUMETRIC DETERMINATION OF BORATES.

Jules Wolff employs a solution of ferric salicylate in sodium salicylate as an indicator for the titration of boric acid and its salts by acidimetry. Thus, in the case of borax, the solution is treated with a known volume of standard acid, in excess, the salicylate indicator added, and the amount of free acid titrated until the violet tint is replaced by a clear madder red colour. The end reaction is very sharp. The difference between the amount of acid used, and that found, gives the equivalent of the sodium in the salt. If needed, the amount of boric acid may then be titrated direct in the same experiment by the addition of glycerin, using phenolphthalein as an indicator. In the presence of ammonium salts, excess of soda is first added, the ammonia driven off by boiling, then excess of acid is run in. The indicator is prepared thus: from 5 to 6 Gm. of sodium salicylate are dissolved in 25 C.c. of water, then solution of ferric chloride is added drop by drop, until a slight permanent turbidity results. The solution is filtered and divided into two parts; to one half sufficient dilute soda solution is added to give a deep orange tint, the other is sensitised with acid to the point of developing a red tint, the two portions are mixed, and 10 Gm. of sodium salicylate dissolved in the mixture.—*Comptes rendus*, **130**, 1128.

BUTEA KINO.

BY DAVID HOOPER, F.C.S.

Butea frondosa, Roxb., the Dhak, Palás, or Bastard Teak Tree, is very common in Central and Northern India. Plassey, the scene of Clive's victory over Suraj-ud-daula, in 1757, is situated in the Nadiyá district of Bengal, and owes its name to the presence of these trees in the neighbourhood. In February and March the scarlet flowers appear on the trees, and the natives imagine that they resemble tigers' claws steeped in blood.

Dr. Roxburgh was the first to describe the kino from this tree. He remarked that a red juice issued from natural fissures and wounds made in the bark during the hot season, which hardened into a ruby-coloured, brittle gum. Dr. J. Forbes Royle, in a communication* to the Royal Asiatic Society in 1838, described the character and possibilities of this gum before the Committee of Commerce and Agriculture. The astringent exudation is not only obtained from *B. frondosa*, but also from *B. superba*, *B. minor*, and *B. parviflora*. It is sold in most Indian bazaars under the names of *Kamar kas*, *Dhak-ka-gond*, and *Kueni-ka-gond*, the first name signifies "binder of the loins," which sufficiently describes its medicinal action. The natives of North Western India formerly used the gum for precipitating their indigo, and it is reported to have been used by others for dyeing and tanning purposes. A specimen of this gum having been sent to M. Guibourt, the famous French pharmacognosist, he identified it as "Gomme astringente de Gambie," which he stated had entirely disappeared from commerce as a substitute for African kino.

Mr. E. Solly, F.R.S., undertook a series of experiments with butea kino with a view to its application in dyeing. He found that from the careless manner of collection it often contained 25 per cent. of impurities, consisting of wood, bark, small pebbles, and sand, and that the colour of the gum darkened considerably on exposure to the air. A specimen of the kino purified by solution in water, so as to separate the impurities, contained in one hundred parts 73.26 parts of tannin, 5.05 parts of difficultly soluble extractive and 21.67 parts of gum, with gallic acid and other soluble substances. The fact that its properties became altered on exposure for any length of time to air, light, and moisture, considerably diminished its value.

Butea kino has, however, a reputation which approaches that of Malabar kino, the product of *Pterocarpus marsupium*, and by many writers, mainly on the evidence of Dr. Roxburgh, that "pure water dissolves it perfectly," it was recommended as an efficient substitute, and in due time found a place in the 'Pharmacopœia of India.' In a useful work 'Bazaar Medicines' (ed. 1883, p. 31), Dr. E. J. Waring remarks that "almost all, if not the whole of the kino met with in the bazaars is the produce of the butea trees; but this is a matter of little moment, as it appears to be equally effectual as an astringent."

Two samples of butea kino, evidently of fresh and selected gum, were forwarded by Mr. Moodeen Sheriff, of Madras, and Dr. J. Newton, of Bellary, to the authors of the 'Pharmacographia,' and were duly examined (p. 197). The Madras sample was in dark ruby-coloured tears, and free from earthy contamination, and boiling alcohol dissolved 46 per cent. of what was inferred to be kino-tannic acid, leaving a residue of soluble mucilaginous matter. The sample from Bellary was paler in colour, and dissolved almost completely in cold water. The only remark to make in the light of these examinations is that the residue left after the spirit extraction is reported as soluble mucilaginous substances, whereas in tests made by me the residue was invariably insoluble in water. During the compilation of the 'Pharmacographia Indica,' I examined a fresh sample of butea kino received from Madras, and the result of its examination was responsible for the following paragraph appearing in the article on *Butea frondosa*

(vol. 1, p. 456) in that work. "The secretion in a fresh state is ruby coloured, and is soluble for the most part in water; when kept for some time it darkens in colour, swells up like bassorin, and only partially dissolves. Both fresh and commercial samples behave in the same manner with rectified spirit, giving up less than half their weight of tannin to the solvent, and leaving a large quantity of insoluble gum."

In the proposed 'Indian and Colonial Addendum to the British Pharmacopœia of 1898,' butea or Bengal kino is recommended for use as an equivalent of the official (East Indian, Malabar or Madras) kino, and its characters and tests are described according to the 'Pharmacographia.' The remark that it "should be free from an admixture of corky or woody particles" anticipates a process of purification which is almost impracticable since these impurities constitute one of the chief features of the kino. In an additional report on the Indian Section of the Addendum published in February of this year, the editor, as if doubtful about the conflicting results of former investigators of Bengal kino, asks the question—Is it fairly soluble? I have recently endeavoured to answer the question with regard to the official kino,* and I shall now try to effect a solution of the present one.

The following seven authentic samples of butea kino have been submitted to analysis during the past year. The moisture and ash were first determined in the usual manner. A portion of each specimen in a powdered condition was next extracted with alcohol of 90 per cent., to dissolve out the available tannin, and this principle was determined in the aqueous solution of the residue of the extract after evaporating off the spirit. The insoluble matter was calculated by difference.

	Water.	Tannin.	Non-Tannins Soluble.	Insoluble.	Ash.
1. Garhwal, N.W.P.	10.15	15.45	3.55	42.95	35.70
2. Saharanpur, N.W.P.	14.35	23.10	10.90	46.10	5.55
3. Lucknow, N.W.P.	12.60	30.05	10.60	36.35	10.40
4. Ganjam, Madras.....	14.05	35.30	8.50	36.40	5.75
5. Bengal.....	11.20	27.70	9.80	19.50	31.80
6. Rajputana.....	13.40	34.70	10.70	28.95	12.25
7. Panjab.....	13.30	62.20	7.65	9.90	6.95

Nos. 1, 2, and 3 were specimens from the collections in the Indian Museum, Calcutta; No. 1 having been in store for about seventeen years, while Nos. 2 and 3 were received in 1894.

No. 4 was sent in 1898 by my friend, Mr. E. D. M. Hooper, Conservator of Forests; the sample was of a light red colour, and appeared to have been freshly collected.

The Bengal gum was obtained from a drug bazaar in Calcutta; the grains were of a dark colour and the impurities were of a gross description.

The specimen from Rajputana was purchased from a bazaar in the Pachbadra Salt Region, and like the previous one, was largely contaminated with foreign matters.

The Panjab sample was in bright red tears, with a certain admixture of brown corky bark and dried muddy particles. It was received in the office of the Reporter on Economic Products only a few weeks ago.

Butea kino lends itself to ignorant admixture by the careless collector, or criminal adulteration by the dealer much more than Malabar kino. In the first place, butea kino is not collected by any systematic tapping of the trees, and then as the juice is thinner than that of the *Pterocarpus*, it spreads itself over the bark and dries in little tears instead of pouring out of a wound and drying in large masses. It forms in older trees where the corky bark is developed, and young trees will bleed sparingly or not at all in the dry season. The jungle tribes of the Central Provinces gather the naturally exuded gum, and with it the light

* An abstract of this paper appears in *Pharm. Journal*, vol. 5, p. 500.

* The tannin value of Malabar kino, *Pharm. Journal*, March 3, 1900, p. 224.

brown corky bark to which it adheres. The presence of bark becomes, on this account, a characteristic feature of this kino.

Besides the bark of the tree, stones and dirt and foreign seeds are invariably found in the commercial gum. The following impurities have been recognised by me in some of the specimens received for analysis:—Seeds of *Celastrus paniculata*, grains of rice, wheat, lentils, raisin pips, debris of insects, mice excrement, fragments of capsules, sticks and leaves. When it is considered that the price of the gum is from one to three annas (or pence) per pound, it can hardly be expected that much care could be taken to clean the gum before it is sold.

The samples of kino in the above table of analyses are arranged as far as possible according to age. It is not possible to exactly determine the age of supplies purchased in the market, but a fair indication may be obtained from the date of receipt of these samples in the Museum. The most noticeable feature in the table is the small amount of soluble tannin in the old sample compared with the large proportion in the most recent specimen. The gums from the North West Provinces, received in 1894, are also inferior in astringency to those of Bengal and Rajputana received within the last year. Although the analysed samples are not very numerous, I consider that there is ample evidence to show that butea kino is rendered less soluble in spirit as time advances, and that for medicinal purposes the gum should be used when it is recently collected.

In order to account for the disappearance of the soluble tannin the figures in column marked "Insoluble" might be studied with advantage. The insoluble matters consist of portions of bark and dirt, with a dark-coloured substance, possessing mucilaginous properties. In the early part of this paper this is referred to as an insoluble gum, but if the original exudation had been a mixture of insoluble gum and tannic acid, alcohol would remove the latter, and leave the gum lighter in colour. Besides, the chief forms of insoluble gum are either soluble in boiling acid (pararabin) or boiling alkali (metarabin); but the residue of butea kino, remaining after treatment with spirit, dissolves immediately in warm caustic soda with the formation of traces of pyrocatechin, this indicates the existence of a catechol-tannic acid altered by oxidation or other form of decomposition. In the fresh sample of kino from the Panjab the action of spirit revealed an exceptional composition, since the residue consisted of bark and earthy ingredients, with little or no dark-coloured slime.

The gelatinisation of the official tincture of kino from *Pterocarpus marsupium* is attributable to the production of an insoluble body from the tannic acid. In this connection an experiment was made with three tinctures of butea kino, sample No. 7. The first tincture was made with 1 part of kino dissolved in 10 ounces of alcohol (90 per cent.). The second was made with the same proportions, but the alcohol used contained 25 per cent. by volume of distilled water. The third tincture was made with diluted spirit consisting of equal volumes of alcohol (90 per cent.), and distilled water. The first tincture had a turbid appearance but the second and third had a clear deep-red colour. They were filtered after a week's maceration, but the process was very tardy in the cases of No. 1 and No. 2, so that some of the tincture gelatinised before it passed through the filter paper. Tincture No. 3 was clarified in a very satisfactory manner, leaving only the woody and earthy impurities behind. The three tinctures were left in beakers, loosely covered to prevent the entrance of dust, when it was noticed that on account of the evaporation of spirit in the first tincture it was showing signs of solidification; the second tincture was somewhat thicker than when it was first made, but it was perfectly fluid; while the third sample appeared to lose none of its limpid character on exposure.

The formation of a resinous insoluble body in the crude juice of most kinos has often been noticed, and this property has been

utilised in connection with the exudation from one of the wild nutmeg trees of Assam. In the Khasi Hills, the stem of *Myristica gibbosa*, Hook., yields a red juice, which is called "wild varnish," and is employed by the natives for painting over their furniture and door-posts to render them impervious to water. The juice has been examined by me, and, as pointed out by Dr. Schaer* with respect to that obtained from Javanese species of *Myristica*, it is composed almost entirely of tannin, with a small amount of calcium tartrate.

With regard to the official recognition of butea kino in the 'Indian and Colonial Appendix to the Pharmacopœia,' it would seem that the kino from the present official source is of such a high standard and sufficiently abundant to meet all requirements for medical practice in India. Butea kino in its crude state is very impure, and it would be a matter of difficulty to adequately clean it for medicinal purposes. Moreover, butea kino, as a rule, is very inferior in its soluble properties, and its apparently rapid alteration from the soluble to the insoluble condition would render it objectionable for preparing tinctures.

PHARMACOGRAPHIC NOTES.

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

Curator of the Museums of the Pharmaceutical Society.

Kola Seeds.

The kola nuts in commerce have for some time puzzled botanists and pharmacognosists on account of their variation in colour and form. Evidence has not hitherto been forthcoming to show whether these seeds are the produce of different species, or of



COLA ACUMINATA.—A, Flowering twig, reduced; B, Ovary, enlarged, showing free acuminate stigmas.

varieties of one species, and the literature on the subject has to a certain extent been overlooked. Dr. K. Schumann, of Berlin, who has recently investigated the matter, and has written a mono-

graph on the genus *Cola*, has divided that genus, which now comprises thirty species, into sub-genera. He includes the kola nut in his sub-genus *Autocola*, which is characterised by the stamens, or rather sessile half-anthers being arranged in two rows one above the other, and not in a single row as in the majority of species.

Dr. Schumann describes the fruit of *Cola acuminata* as having a fleshy yellow pericarp, with an odour resembling that of a *Maréchal Niel* rose, and containing four or five large seeds. The seeds have a white testa, which becomes brown when the fruit dehisces, and they become exposed to the light. The embryo consists of four cotyledons, of a "carmine" red colour, which, when separated, present a triangular, or externally a convex form. These remarks apply to the kola nut brought to Germany from the Cameroons.



C



D



E

COLA ACUMINATA.—C, Young fruit; D, Seed; E, Germinating seed.

Examination of specimens of the kola plants in the Herbarium of the Botanical Museum at Berlin showed that one plant from Ashanti collected by Cummins, and another from Sierra Leone collected by Afzelius differed from the true *Cola acuminata* in having the stigmas broad, obtuse, and closely pressed to the ovary. Specimens of the kola nut with two cotyledons obtained direct from Togoland, and of the tree yielding it, proved to Dr. Schumann that the kola nut of commerce having two cotyledons is the produce of the tree having obtuse appressed stigmas, and not of *C. acuminata*, which has pointed, free, curved stigmas. This new species he has named *Cola vera*. It has seeds also of a carmine red colour when fresh. But the two seeds germinate in a totally different manner. In the one, *C. acuminata*, the four cotyledons spread open and the plumule grows up in the centre; in the other, *C. vera*, the two cotyledons remain closed, and the plumule arises outside them.

These two are not the only species yielding edible seeds. The *C. lepidota*, Schm., which belongs to the same subgenus, having the anthers in a single row only, but seeds with two cotyledons, and another species used by the Bali people, are also eaten. How much these different seeds vary in the amount of the caffeine

and theobromine they contain has not yet been ascertained, but the seeds of *Cola vera* are the most highly prized. The large leaf in which they are wrapped is identified as that of *Cola cordifolia*.



A

B

COLA VERA.—A, Flowering twig, reduced; B, Ovary, enlarged, showing stigmas.

The two different kola seeds above described were noticed as long ago as 1860. C. Barter, in his account of the plants found during the Niger Expedition, given in the *Journ. Linn. Soc.*, iv., p. 19, states that there are two kinds of kola nuts, one with four cotyledons, called "Fatak," by the Foulahs, and the other with two cotyledons, called Gonja, by the same people. The latter were said to come from the Ashanti country, but he had not seen the tree.



C

D

COLA VERA.—C, Germinating seed; D, single cotyledon.

The species with four cotyledons he had seen at Fernando Po, and in many parts of the lower Niger, abundant at Onitsha occurring also at Prince's Island, and apparently common along the coast, the flowers being variable in colour, cream-coloured, greenish yellow and pale red. The seeds appeared to be carried in about equal quantities into the interior, but the one with two cotyledons (Ganja), in the Nupe country is worth about 100 cowries, whilst the other (Fatak), averages about 80 only. The value of cowries at Rabba was 2,500 for the dollar of 4s. 4d.

HYPNOTICS ANTAGONISTIC TO COCAINE.—Gioffredi points out that chloral hydrate, paraldehyde, urethane and other hypnotics counteract the physiological action of cocaine, although the latter has no reciprocal action on hypnotics.—*Chem. Zeit. Repert.*, 24, 93.

ASSAY OF DRUGS BY THE USE OF LIVING PLANTS.*

BY HENRY KRAEMER.

The following experiments give the results at the end of the second twenty-four hours.

Brucine Sulphate.

Temperature (16°-21° C.).

Second 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{30}$ gr. or .0022 gm.	{ 16.5 mm. 16. " }	{ Apparently normal }	{ 25.5 mm. 25. " }	{ Apparently normal }
$\frac{1}{20}$ gr. or .0032 gm.	{ 15.5 " " 15.5 " "	{ " "	{ 24. " " 24.5 " "	{ " "
$\frac{1}{15}$ gr. or .0043 gm.	{ 17.5 " " 18. " "	{ " "	{ 26. " " 26.5 " "	{ " "
$\frac{1}{12}$ gr. or .0054 gm.	{ 18. " " 18.5 " "	{ " "	{ 27. " " 27. " "	{ " "
$\frac{1}{10}$ gr. or .0065 gm.	{ 10. " " 10. " "	{ " "	{ 14. " " 14. " "	{ " "
$\frac{1}{8}$ gr. or .013 gm.	{ 8. " " 9. " "	{ " "	{ 12. " " 12.5 " "	{ " "
$\frac{2}{5}$ gr. or .025 gm.	{ 6. " " 6. " "	{ " "	{ 7. " " 7. " "	{ " "
$\frac{3}{5}$ gr. or .039 gm.	{ 3.5 " " 4. " "	{ " "	{ 5. " " 5. " "	{ " "
$\frac{4}{5}$ gr. or .052 gm.	{ 3. " " 3. " "	{ " "	{ 3.5 " " 3.5 " "	{ " "
1 gr. or .065 gm.	{ No growth }	{ Dead, flabby }	{ 2.5 " " 3. " "	{ " "
$1\frac{1}{5}$ gr. or .078 gm.	{ — }	{ — }	{ No growth }	{ Dead, flabby }

In the above experiments, as in those of the first twenty-four hours, we notice an increase over that in the corresponding strengths of strychnine.

A series of experiments upon alcoholic solutions of strychnine nitrate (Merck's) containing $\frac{1}{20}$ grain, $\frac{1}{10}$ grain, $\frac{1}{5}$ grain, $\frac{1}{5}$ grain of the alkaloid to 50 C.c. of the solution were carried out, with the following results:—

Strychnine Nitrate and Ethyl Alcohol.

Strychnine nitrate . . . 0.3 gm.
Alcohol, 94 per cent. . . 75 C.c.
Water 25 C.c.

Temperature (16°-21° C.).

First 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{20}$ gr. in 50 C.c. of sol. or 1 C.c. sol. H ₂ O q.s. 50 C.c. . .	{ 5. mm. " 5.5 " "	{ Apparently normal }	{ 9. mm. " 9.5 " "	{ Apparently normal }
$\frac{1}{10}$ gr. in 50 C.c. of sol. or 2 C.c. sol. H ₂ O q.s. 50 C.c. . .	{ 2.5 " " 2. " "	{ " "	{ 4. " " 4. " "	{ " "
$\frac{1}{5}$ gr. in 50 C.c. of sol. or 2½ C.c. sol. H ₂ O q.s. 50 C.c. . .	{ 1.5 " " 2. " "	{ " "	{ 3. " " 3. " "	{ " "
$\frac{1}{5}$ gr. in 50 C.c. of sol. or 4 C.c. sol. H ₂ O q.s. 50 C.c. . .	{ No growth }	{ Dead, flabby }	{ No growth }	{ Dead, flabby }

In the above experiments, the maximum growth of the seedlings occurred in the solution containing $\frac{1}{20}$ grain in 50 C.c. of the alcoholic solution, and death in the solution containing $\frac{1}{5}$ grain.

The following table gives the results at the end of the second twenty-four hours:—

Strychnine Nitrate and Ethyl Alcohol.

Strychnine nitrate . . . 0.3 gm.
Alcohol, 94 per cent. . . 75 C.c.
Water 25 C.c.

* Presented at the Richmond Meeting of the American Pharmaceutical Association, May, 1900. Concluded from page 621.

Temperature (16°-21° C.).

Second 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{20}$ gr. in 50 C.c. of sol. or 1 C.c. sol. H ₂ O q.s. 50 C.c.	{ 6. mm. " 6. " "	{ Apparently normal }	{ 14. mm. " 15. " "	{ Apparently normal }
$\frac{1}{10}$ gr. in 50 C.c. of sol. or 2 C.c. sol. H ₂ O q.s. 50 C.c.	{ 3. " " 3.5 " "	{ " "	{ 5. " " 5. " "	{ " "
$\frac{1}{8}$ gr. in 50 C.c. of sol. or 2½ C.c. sol. H ₂ O q.s. 50 C.c.	{ 2. " " 2.5 " "	{ " "	{ 4. " " 4. " "	{ " "
$\frac{1}{5}$ gr. in 50 C.c. of sol. or 4 C.c. sol. H ₂ O q.s. 50 C.c.	{ No growth }	{ Dead, flabby }	{ No growth }	{ Dead, flabby }

In the second twenty-four hours we notice a corresponding increase in growth as was noticed in previous experiments.

In the following experiments, alcoholic solutions of brucine sulphate containing $\frac{1}{20}$ grain, $\frac{1}{10}$ grain, $\frac{1}{5}$ grain and $\frac{1}{5}$ grain of the alkaloid to 50 C.c. of the solution were used:—

Brucine Sulphate and Ethyl Alcohol.

Brucine sulphate . . . 0.3 gm.
Alcohol, 94 per cent. . . 75 C.c.
Water 25 C.c.

Temperature (16°-21° C.).

First 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{20}$ gr. in 50 C.c. of sol. or 1 C.c. sol. H ₂ O q.s. 50 C.c.	{ 6. mm. " 6. " "	{ Apparently normal }	{ 10. mm. " 10. " "	{ Apparently normal }
$\frac{1}{10}$ gr. in 50 C.c. of sol. or 2 C.c. sol. H ₂ O q.s. 50 C.c.	{ 3.5 " " 4. " "	{ " "	{ 5.5 " " 6. " "	{ " "
$\frac{1}{8}$ gr. in 50 C.c. of sol. or 2½ C.c. sol. H ₂ O q.s. 50 C.c.	{ 2.5 " " 3. " "	{ " "	{ 4.5 " " 4.5 " "	{ " "
$\frac{1}{5}$ gr. in 50 C.c. of sol. or 4 C.c. sol. H ₂ O q.s. 50 C.c.	{ No growth }	{ Dead, flabby }	{ No growth }	{ Dead, flabby }

In these experiments with brucine, alcohol and water, we again notice an increase in growth over the experiments with strychnine, thus tending to show that brucine is a less powerful alkaloid upon plants than strychnine.

The following table gives the results of the experiments at the end of the second twenty-four hours:—

Brucine Sulphate and Ethyl Alcohol.

Brucine sulphate . . . 0.3 gm.
Alcohol, 94 per cent. . . 75 C.c.
Water 25 C.c.

Temperature (16°-21° C.).

Second 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{20}$ gr. in 50 C.c. of sol. or 1 C.c. sol. H ₂ O q.s. 50 C.c. . .	{ 7. mm. " 7. " "	{ Apparently normal }	{ 16. mm. " 16. " "	{ Apparently normal }
$\frac{1}{10}$ gr. in 50 C.c. of sol. or 2 C.c. sol. H ₂ O q.s. 50 C.c. . .	{ 4.5 " " 4.5 " "	{ " "	{ 7. " " 7.5 " "	{ " "
$\frac{1}{8}$ gr. in 50 C.c. of sol. or 2½ C.c. sol. H ₂ O q.s. 50 C.c. . .	{ 4. " " 3.5 " "	{ " "	{ 6. " " 6.5 " "	{ " "
$\frac{1}{5}$ gr. in 50 C.c. of sol. or 4 C.c. sol. H ₂ O q.s. 50 C.c. . .	{ No growth }	{ Dead, flabby }	{ No growth }	{ Dead, flabby }

In the second twenty-four hours the same conditions remain throughout the experiment; the maximum growth occurred in the solution containing $\frac{1}{20}$ grain and death in the $\frac{1}{5}$ grain solution.

In the following table are given the results with alcoholic solutions of strychnine nitrate and brucine sulphate, containing $\frac{1}{20}$ grain, $\frac{1}{10}$ grain, $\frac{1}{5}$ grain and $\frac{1}{2}$ grain of the alkaloids in equal proportion to 50 C.c. of the solution:—

Strychnine Nitrate, Brucine Sulphate and Ethyl Alcohol.

Strychnine nitrate . . 0.15 gm.
Brucine sulphate. . . 0.15 gm.
Alcohol, 94 per cent . . 75 C.c.
Water. 25 C.c.

Temperature (16°-21° C.). First 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{20}$ gr. in 50 C.c. of sol. or 1 C.c. sol. H ₂ O q.s. 50 C.c. . .	6 mm.	Apparently normal	10 mm.	Apparently normal
	7 " "		11.5 " "	
$\frac{1}{10}$ gr. in 50 C.c. of sol. or 2 C.c. sol. H ₂ O q.s. 50 C.c. . .	3 " "	"	5 " "	"
	3 " "		5.5 " "	
$\frac{1}{5}$ gr. in 50 C.c. of sol. or 2½ C.c. sol. H ₂ O q.s. 50 C.c. . .	2 " "	"	3.5 " "	"
	2 " "		3.5 " "	
$\frac{1}{2}$ gr. in 50 C.c. of sol. or 4 C.c. sol. H ₂ O q.s. 50 C.c. . .	No growth	Dead, flabby	No growth	Dead, flabby

Comparing the above experiments with those of strychnine and alcohol and brucine and alcohol, we observe an increase in the growth of the seedlings over that of strychnine and alcohol, and a slight decrease under that in brucine and alcohol.

The following gives the results with strychnine and alcohol and brucine and alcohol at the end of the second twenty-four hours:—

Strychnine Nitrate, Brucine Sulphate and Ethyl Alcohol.

Strychnine nitrate . . 0.15 gm.
Brucine sulphate. . . 0.15 gm.
Alcohol, 94 per cent. . 75 C.c.
Water 25 C.c.

Temperature (16°-21° C.). Second 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{20}$ gr. in 50 C.c. of sol. or 1 C.c. sol. H ₂ O q.s. 50 C.c. . .	7 mm.	Apparently normal	1.7 mm.	Apparently normal
	8 " "		1.8 " "	
$\frac{1}{10}$ gr. in 50 C.c. of sol. or 2 C.c. sol. H ₂ O q.s. 50 C.c. . .	4 " "	"	6 " "	"
	4 " "		6.5 " "	
$\frac{1}{5}$ gr. in 50 C.c. of sol. or 2½ C.c. sol. H ₂ O q.s. 50 C.c. . .	3 " "	"	4.5 " "	"
	3 " "		4.5 " "	
$\frac{1}{2}$ gr. in 50 C.c. of sol. or 4 C.c. sol. H ₂ O q.s. 50 C.c. . .	No growth	Dead, flabby	No growth	Dead, flabby

In the second twenty-four hours the same conditions are evident.

In the following table are given the detailed results with a tincture of nux vomica of U.S.P. strength (0.3 gramme of total alka-

loids in 100 C.c. of tincture) from which the oil has been extracted. 13.332 grammes of the powdered drug, the amount used in making 100 C.c. of the U.S.P. tincture, contained 0.750 gramme of oil or 5.62 per cent.

Tincture of Nux Vomica (Free from Fat).

Temperature (16°-21° C.).

First 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{50}$ gr. alkaloids in 50 C.c. or ½ C.c. tinct. H ₂ O q.s. 50 C.c.	4 mm.	Apparently normal	9 mm.	Apparently normal
	4 " "		9.5 " "	
$\frac{1}{40}$ gr. alkaloids in 50 C.c. or ¾ C.c. tinct. H ₂ O q.s. 50 C.c.	3 " "	"	6 " "	"
	3 " "		7 " "	
$\frac{1}{20}$ gr. alkaloids in 50 C.c. or 1 C.c. tinct. H ₂ O q.s. 50 C.c.	2 " "	"	4 " "	"
	2.5 " "		4 " "	
$\frac{1}{10}$ gr. alkaloids in 50 C.c. or 2 C.c. tinct. H ₂ O q.s. 50 C.c.	1.5 " "	"	2.5 " "	"
	1.5 " "		3 " "	
$\frac{1}{5}$ gr. alkaloids in 50 C.c. or 2½ C.c. tinct. H ₂ O q.s. 50 C.c.	1 " "	"	2 " "	"
	1 " "		2 " "	
$\frac{1}{2}$ gr. alkaloids in 50 C.c. or 4 C.c. tinct. H ₂ O q.s. 50 C.c.	No growth	Dead, flabby	No growth	Dead, flabby

In the foregoing, it is seen that no growth of the radicle occurred in the solution containing 4 C.c. of the tincture, and that between 4 C.c. and ¼ C.c. there was a gradual increase in length according as the strength of tincture in the solution was decreased.

In the following experiments are given the results at the end of the second twenty-four hours:—

Tincture of Nux Vomica (Free from Fat).

Temperature (16°-21° C.).

Second 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{50}$ gr. alkaloids in 50 C.c. or ½ C.c. tinct. H ₂ O q.s. 50 C.c.	5 mm.	Apparently normal	15 mm.	Apparently normal
	5 " "		15.5 " "	
$\frac{1}{40}$ gr. alkaloids in 50 C.c. or ¾ C.c. tinct. H ₂ O q.s. 50 C.c.	3.5 " "	"	6.5 " "	"
	3.5 " "		7.5 " "	
$\frac{1}{20}$ gr. alkaloids in 50 C.c. or 1 C.c. tinct. H ₂ O q.s. 50 C.c.	3 " "	"	5 " "	"
	3 " "		5 " "	
$\frac{1}{10}$ gr. alkaloids in 50 C.c. or 2 C.c. tinct. H ₂ O q.s. 50 C.c.	1.5 " "	No further growth	2.5 " "	No further growth
	1.5 " "		3 " "	
$\frac{1}{5}$ gr. alkaloids in 50 C.c. or 2½ C.c. tinct. H ₂ O q.s. 50 C.c.	1 " "	"	2 " "	"
	1 " "		2 " "	
$\frac{1}{2}$ gr. alkaloids in 50 C.c. or 4 C.c. tinct. H ₂ O q.s. 50 C.c.	No growth	Dead, flabby	No growth	Dead, flabby

The seedlings in the solutions containing ¼ C.c., ½ C.c. and 1 C.c. of the tincture show a slight increase in growth during the second twenty-four hours, while those in solutions containing 2 C.c. and 2½ C.c. show no further growth.

The following table gives the results with a tincture of nux vomica U.S.P. strength (0.3 gramme of total alkaloids in 100 C.c. of tincture) from which the fat has not been extracted:—

Tincture of Nux Vomica.

Temperature (17°-21° C.).

First 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{50}$ gr. alkaloids in 50 C.c. or $\frac{1}{4}$ C.c. tinct. H ₂ O q.s. 50 C.c.	5 mm.	Apparently normal	10 mm.	Apparently normal
	5 "		10 "	
$\frac{1}{10}$ gr. alkaloids in 50 C.c. or $\frac{1}{2}$ C.c. tinct. H ₂ O q.s. 50 C.c.	4 "	"	8.5 "	"
	4 "		9 "	
$\frac{1}{20}$ gr. alkaloids in 50 C.c. or 1 C.c. tinct. H ₂ O q.s. 50 C.c.	3 "	"	5 "	"
	3 "		5 "	
$\frac{1}{10}$ gr. alkaloids in 50 C.c. or 2 C.c. tinct. H ₂ O q.s. 50 C.c.	2 "	"	3.5 "	"
	2 "		3.5 "	
$\frac{1}{5}$ gr. alkaloids in 50 C.c. or 2 $\frac{1}{2}$ C.c. tinct. H ₂ O q.s. 50 C.c.	1.5 "	"	2 "	"
	1 "		2.5 "	
$\frac{1}{5}$ gr. alkaloids in 50 C.c. or 4 C.c. tinct. H ₂ O q.s. 50 C.c.	No growth	Dead, flabby	No growth	Dead, flabby

Comparing the above results with those of tincture of nux vomica free from fat, it will be seen that there is a slight increase in the growth.

The following table gives the results with tincture of nux vomica (fat) at the end of the second twenty-four hours:—

Tincture of Nux Vomica.

Temperature (16°-21° C.).

Second 24 hours.

Per Cent.	PISUM SATIVUM.		LUPINUS ALBUS.	
	Actual Growth.	Remarks.	Actual Growth.	Remarks.
$\frac{1}{50}$ gr. alkaloids in 50 C.c. or $\frac{1}{4}$ C.c. tinct. H ₂ O q.s. 50 C.c.	6 mm.	Apparently normal	16 mm.	Apparently normal
	6 "		16 "	
$\frac{1}{10}$ gr. alkaloids in 50 C.c. or $\frac{1}{2}$ C.c. tinct. H ₂ O q.s. 50 C.c.	4.5 "	"	9.5 "	"
	5 "		9.5 "	
$\frac{1}{20}$ gr. alkaloids in 50 C.c. or 1 C.c. tinct. H ₂ O q.s. 50 C.c.	3.5 "	"	6 "	"
	3.5 "		7 "	
$\frac{1}{10}$ gr. alkaloids in 50 C.c. or 2 C.c. tinct. H ₂ O q.s. 50 C.c.	2 "	No further growth	3 "	No further growth
	2 "		3.5 "	
$\frac{1}{5}$ gr. alkaloids in 50 C.c. or 2 $\frac{1}{2}$ C.c. tinct. H ₂ O q.s. 50 C.c.	1.5 "	"	2 "	"
	1 "		2.5 "	
$\frac{1}{5}$ gr. alkaloids in 50 C.c. or 4 C.c. tinct. H ₂ O q.s. 50 C.c.	No growth	Dead, flabby	No growth	Dead, flabby

In these experiments we still notice an increase in the growth of the radicle over that of tincture of nux vomica free from fat.

Conclusion.

At the present time, when the assaying of drugs is of so much importance to the physician and also to the pharmacist, it is needless to say that any methods which will enable us to arrive at results which can be used directly, or calculated so as indirectly to be of value to the professions, are of considerable importance. The question arises, how can the figures obtained be translated so as to be of practical value. From the results obtained we may say generally that the rate of growth of the radicles in the solutions containing toxic principles is inversely proportional to the toxicity of the solution.

The results of the foregoing experiments tend to show that there is a definite solution of alcohol or nux vomica alkaloids that is

toxic, and that with solutions containing different amounts of alcohol or nux vomica alkaloids there is a definite measure of growth depending upon the quantity contained therein. Inasmuch as this is to be taken as a measure of the amount of alcohol or alkaloids affecting the plants experimented upon, it is seen that we have here a direct means of measuring the quantity of alcohol or alkaloids in the respective solutions.

VEGETABLE DRUGS IN THE U.S.P.*

Whatever may be the views of anyone concerning the work upon vegetable drugs, not only in the U.S.P., but in the pharmacopœias of any country, it is apparent that there are some statements in definition and description which are too narrow when we look at the drugs practically. The question of origin of drugs is in some cases still obscure, and in other cases greater freedom should be given in the selection of commercial varieties. We mention the following instances:—

Myrrh.—Deffers has shown that *Commiphora myrrh* (Nees), Engl., is without any odour, and that the stems do not yield any resin. Deffers and Schweinfurth consider genuine myrrh to be derived from *Commiphora abyssinica* (Berg.), Engl. A part of the myrrh from Arabia is supposed by Engler to be obtained from *C. schimperi* (Berg.), Engl. It appears that in commerce the Arabian myrrh from Aden is more highly valued than that of the Somalis. Very recently Mr. and Mrs. Philips have collected plants which are similar to that figured in Bentley and Trimen as the source of myrrh, and what the Somalis gave them to understand yielded myrrh. The whole question, therefore, resolves itself into one of great uncertainty as to whether only one species yields the myrrh of commerce.

Copaiba.—According to Taubert, a good many American species of *Copaifera* yield copaiba. The balsam yielded by *C. officinalis*, Jacq. (of Guiana, Colombia, and Venezuela), is considered to be the best. Good balsams are also yielded by *C. guyanensis* (Desf.), O. Ktze (Amazon region); *C. multizuga* (Hayne), O. Ktze (Amazon region); *C. confertiflora* (Benth.), O. Ktze (Pianhy); *C. coriacea* (Mart.), O. Ktze (Bahia); *C. langsdorffi* (Desf.), O. Ktze, and *C. oblongifolia* (Mart.), O. Ktze (both from Rio Janeiro and Minas Geraes).

Balsam of Tolu.—Besides *Toluifera balsamum*, L., another plant, *T. peruifera* (L. fil.), Baill., is also said to yield small quantities of an aromatic balsam resembling that of tolu.

Tamarind.—This fruit is not only yielded by *Tamarindus indica*, L. (of tropical Africa), but also by *T. indica*, var. *occidentalis*, Gaertn. (of West Indies and Ecuador), the fruit of the latter being more yellowish in colour, more mucilaginous, and less cohesive in consistency and with less of an acid taste.

Rheum.—It is quite possible that other species besides *Rheum officinale*, Baill., furnish the commercial root. Dammer mentions: *R. australe*, Don. (of the Himalayas), *R. leucorrhiza*, Pall. (of Central Asia), and *R. rhaponticum*, L. (of Western China).

Ipecac.—Besides the root of *Cephaelis ipecacuanha*, Brotero (or Rio Ipecac), there are quantities of another root—viz., Carthage—which find their way into commerce. From the results of analyses it would appear that the latter is richer in emetic alkaloids than the former. This remains, however, to be proved.

Sarsaparilla.—The E. Mexican of Vera Cruz root is yielded by *Smilax medicā*, Schlecht. et Cham. The origin, however, of the Jamaica sarsaparilla (given as *S. officinalis*, H. B. K.) and of Para sarsaparilla (given as *S. papyracea*, Duham., of Guiana and Brazil) is not at all certain, but is open to question.

Ammoniac.—Not only does *Dorema ammoniacum*, Don., yield ammoniac, but also the following species:—*D. aucheri*, Boiss. (of Persia), and *D. aureum*, Steks (of Beluchistan). Drude says that African ammoniac is yielded by *Ferula tingitaria*, L. Battandier

* From the *American Journal of Pharmacy* for May, 1900.

is authority for the statement that *Ferula communis*, var. *gummifera*, of Algiers and Morocco, yields a gum resin which looks much the same as the African ammoniac.

Sumbul.—This root is the product of not only *Ferula sumbul* (Kffm.), Hook. f., but also of *F. narthex*, Boiss.

Storax is yielded by *Liquidambar orientalis*, Mill., and by *L. styraciflora*, L.

We find, further, that in looking at the definitions and descriptions of the drugs in the U.S.P. a more liberal interpretation must be given the subject from a practical point of view. Under Crocus, for instance, only the stigmas are supposed to be present in the commercial article. The article on the market, even under the most favourable circumstances, does not possess 100 per cent. of stigmas. The amount of foreign material that ought to be allowed in the best commercial specimens must be carefully borne in mind by the practical pharmacist (see *Amer. Journ. Pharm.*, 1900, p. 123).

Quite a number of cases might be mentioned where, in addition to the drug as specified by the U.S.P., other parts of the plant from which it is derived are generally present, as in *Belladonnæ folia* (includes stems, petioles, flowers, and fruits), *Matico* (includes fruits), *Caryophyllus* (includes some stems), etc. In some other cases other plants are present, as in *Chondrus* (a number of algæ). Prof. D. M. R. Culbreth has shown ('*Proc. A. Ph. A.*,' 1898, p. 765) in a number of vegetable drugs the inferiorities with per cents. that are contained in the drugs upon the market—viz., *cimicifuga*, *hydrastis*, *podophyllum*, *geranium*, *senega*, *wild cherry*, *black haw*, *veratrum viride*, *poke root*, *wild ginger*, *angelica*, and *sassafras bark*.

There are a number of groups of drugs to which rather stringent definitions, descriptions, and limits of admixture may be applied, as in seeds, fruits, roots, barks, and flowers. In other cases, the difficulty of giving specific definitions is very clear, as for example in the case of leaves and herbs, rhizomes, and plant exudations. To say that certain drugs consist "chiefly" of certain parts covers the ground a little better—e.g., *Crocus*, chiefly of stigmas; *chondrus*, chiefly of *Chondrus crispus*, etc. It would be better, however, if, as in the case of *crocus*, the percentage of stigmas present in the commercial product were given.

SOME PHARMACOPŒIAL PROBLEMS.*

BY CHARLES RICE, PH.D., NEW YORK.

While each new pharmacopœia, at the time of its appearance, represents, in a general way, the then existing state of therapeutic and pharmaceutical progress, there is, naturally, no lack of new problems, which continue to present themselves for consideration, not only after the work is issued, but sometimes also while it is still passing through the press. In the case of our own pharmacopœia, a number of quite serious problems were encountered during the last two revisions, some of which, as, for instance, the admission of "patented" synthetics, were solved by the dictate of the National Convention, while others, such as nomenclature and standardisation of all drugs except *cinchona* and *opium*, were left to the discretion of the Committee of Revision. The committee endeavoured to solve these problems to the best of its ability, and its decisions and action have, on the whole, met with approval on the part of competent judges.

Among the more important problems which confronted the present Committee of Revision was that of emancipating the pharmacopœia from the control of the publishing trade, and of setting it up on an independent financial basis. This problem may be regarded as definitely solved, and, therefore, may be omitted from consideration here. Disregarding the minor problems which affect the details and minutiae of the text of the articles contained in the pharmacopœia, there remain certain subjects which stand out more prominently, and are worthy of general discussion. They

are, moreover, of such a nature that they should be definitely passed upon and settled by the National Convention, so that the next Committee of Revision will be relieved of all responsibility regarding their rejection or adoption. These subjects are not new, and have frequently been written and talked about. But, in the course of time, our knowledge has made material advances, some of our views have undergone changes, certain prejudices may have been abandoned, and conditions in general appear to have so changed that it is perfectly proper to disregard former arguments and deductions, and to consider the subjects anew.

The pharmacopœia was originally intended to be the official guide both for the physician and the pharmacist. During the earlier period of its existence in this country the physician took a greater interest in, and had, at least officially, a larger share in its preparation or revision than the pharmacist. That this is no longer the case is generally known and acknowledged. While, theoretically, the medical profession has not lost its interest in it, and is well represented at every Decennial Convention, yet, practically, the pharmacopœia has ceased to be a work of reference for the physician. And why? Chiefly because it does not contain the information which the physician requires regarding the nature, properties, and doses of some of the most important remedies he uses. To a large extent he is himself responsible for this condition of things, for he has, very likely, been one of the large group of medical men who opposed the admission into the pharmacopœia of the very things regarding which he needs information, and for which he must now look elsewhere. Most physicians do not take much interest in botanical or chemical descriptions, or in tests of identity and purity.

The main objects which a physician usually has, or would have, for consulting a pharmacopœia are to ascertain:—

- (1) What form or forms of administration are officially available in the case of a certain drug?
- (2) What is the strength of the respective preparations?
- (3) What are the ordinary doses?

Under present circumstances he may find in the book an answer to the first two questions, but, knowing that he will find none to the last-named one, which to him is probably the most important, he simply ignores the pharmacopœia, and turns at once to sources which he has found by experience to afford the desired information. There is no use whatever in trying to make the pharmacopœia better known to, or "more popular" with, the physician, unless it is made worth his while to consult it. To restore the pharmacopœia to its former status among medical men is a task which requires their co-operation in this, that the next Committee of Revision may be authorised to give the average doses in connection with the several drugs and preparations. It may be taken for granted that the committee will exercise its best judgment in arranging this part of the text so that no harm can result to either profession.

The pharmacist, particularly at his prescription counter, also often has occasion to look for precisely the same information that the physician wants, and, knowing that he would look for it in vain in the pharmacopœia, he at once consults some other work of reference, preferably one which will give him at the same time all other needed information regarding physical or chemical properties, solubilities, incompatibilities, etc. Is it to be wondered at that the pharmacopœia is not a "popular" book among pharmacists?

As to the so-called "*newer remedies*," and more particularly the "patented" synthetics, a curious anomaly may be observed in the position taken with reference to them by many physicians, who in their daily practice freely prescribe such as *trional*, *sulphonal*, *phenacetin*, and others, and who treat of them and advocate them in their medical writings, and even on the lecture platform, yet who are disinclined to vote for their admission into the pharmacopœia. This may be regarded as an ethical riddle. If the pharmacopœia is to be gradually purged of old and useless drugs and

* From the *American Journal of Pharmacy*.

preparations, and not to be brought up to date by the introduction of the newer drugs of recognised value used universally by the medical profession, it might just as well remain unrevised, and go out of existence. Medical and pharmaceutical schools have for a number of years past found it necessary to supplement the official series of remedies from other text-books. The time might eventually arrive when the pharmacopœia would cease to be of service even as a text-book in schools.

In view of all this it can hardly be doubted that the next Decennial Convention will authorise the new Committee of Revision to introduce into the pharmacopœia such of the "newer remedies"—irrespective of any consideration of patent rights, etc.—as shall be found worthy of a place therein. It will not be very difficult to decide their respective merits, because if the following conditions are exacted in every case, the number that will deserve consideration will probably be less than a dozen. The conditions or characteristics that ought to be complied with are the following:—

(1) If the remedy is a definite chemical compound, its chemical composition and physical and chemical properties should be known and controllable. (Examples: antipyrin, aristol, chloralamid, phenacetin, salophene, sulphonal, trional.

(2) It should have passed the experimental period, and should be in regular and general use by the medical profession as a remedy of a definite and recognised therapeutic value.

Statistics as to the regular and general use of any such remedy can readily be obtained from reliable sources, such as the larger dispensing pharmacies, large hospitals, the Government medical service, etc. As to how and under what titles these remedies are to be introduced is of minor importance. This may safely be left to the Committee of Revision.

In former times the pharmacopœia was a work chiefly concerning itself with what its name expresses, namely, the *making* of medicines. At the present day the name has already become, at least partly, a misnomer, and the time may not be far distant when it should rather be called "pharmaconomia" or "pharmacographia," that is, a book *prescriptive* for, or *descriptive* of, medicines. This gradual transition is, however, quite natural, and in normal proportion to the changes that have taken place in the condition and status of the profession of pharmacy. When we consider the exacting demands which are made at the present day, under various laws, upon the quality of medicines dispensed by pharmacists, it is not to be wondered at that the latter become more and more unwilling to assume full responsibility for the quality, and particularly the exact strength, of the preparations they dispense, but that they prefer to shift this responsibility upon the manufacturer, more especially when the latter assures them that he is willing to assume the responsibility himself.

This matter of responsibility for the quality of medicines in combination with considerations of economy, particularly by the saving of time, space, labour, and wages, has brought it about that the manufacture of certain classes of pharmaceutical preparations is becoming more and more concentrated in the hands of large firms, and that the function of the pharmacist—at least of the conscientious pharmacist—is chiefly confined to an examination of the preparations which he buys by means of such tests as are available to him.

Recognising these conditions, modern pharmacopœias have, at each new revision, eliminated working processes for preparations which were known to have passed almost entirely into the large manufacturers' hands, and have substituted for them more detailed descriptions and tests. Among the tests, those which are intended to show the strength of the preparations by gravimetric or volumetric assays have been made more and more rigorous, and their application has been extended to drugs and preparations which formerly were not subject to strict regulations.

The progress made in organic proximate analysis, notably during the past fifteen years, brought forth a demand for the *standardisa-*

tion of the preparations of potent drugs, often, unfortunately, on the part of persons who were not sufficiently familiar with the technical difficulties that stood in the way of a more general application of the then known methods of assay. In 1890 the present Committee of Revision was directed to give processes of assay for two drugs only, namely, cinchona and opium, it being left at liberty to extend standardisation to others. By the time the committee was ready to go to press, only one more drug, viz., nuxvomica, was added to the list, it being deemed unwise to proceed further at that time. Since then, however, a very material advance has been made in the methods of proximate analysis, and there is every reason to hope that processes of assay can be provided at the next revision for such drugs as belladonna, coca, colchicum, gelsemium, hyoscyamus, ipecac, physostigma, pilocarpus, stramonium, and, perhaps, some others.

The term "standardisation," as applied to pharmacopœial preparations, comprises three distinct features, which are not seldom confounded, and one of which is commonly overlooked. They are as follows:

(1) *Quantitative Determination of the Active Principles.*—The quantity of the active principle (or principles, as the case may be) in the drug or preparations to be standardised must be determinable by a fairly simple process yielding practically uniform results in different hands.

(2) *Identification of the Active Principle.*—It should be possible to identify the active principle by some fairly simple process. This applies, of course, only to preparations not made directly from the original drug, but purchased ready-made in the market, possibly of unknown or doubtful brand or origin. This is the feature which is often overlooked. It is manifestly insufficient merely to determine the amount of alkaloidal or other active substance present, particularly in the case of preparations made from expensive drugs, unless it is shown that the separated principle is unaccompanied by matters foreign to the drug, such, for instance, as some cheap foreign alkaloid that might have been added to bring out a favourable "assay." While this feature (the identification) is quite important in actual practice, it can be disregarded in the pharmacopœia, since the latter generally directs to start a preparation from the drug itself, about the identity of which there can be no question.

(3) *Adjustment of Strength.*—This is the final end and aim of "standardisation." It is, of course, comparatively easy to standardise the preparations of any drug, the active principle (or principles) of which can be correctly determined quantitatively. It will merely be necessary to agree upon some definite strength or upon an upper and lower limit of the active principles. Of course, standardisation need be applied only to drugs of importance and potency. There is no need of standardising preparations of gentian, quassia, sarsaparilla, squill, senna, etc., even if it were possible in each case to do this.

But there are some drugs which, with our present knowledge, it is not possible to standardise in the sense above-mentioned. One of these is ergot. It is claimed by some that its physiological action is due to Keller's "cornutine," and some manufacturers assay it and standardise it on the basis of this alkaloid. But it is not by any means certain that other principles in ergot do not participate in its peculiar action.

Another case in point is digitalis. We know that digitoxin is the most active of the cardiac principles it contains. But there is no certainty as yet that it is the only one that should be considered. If we knew for certain that the proportion of digitoxin to the other principles present in digitalis were at all times the same, we could accept it as a measure to gauge the activity of digitalis by. But even this point is not cleared up. And our experience with other drugs makes it likely that the proportion between the various principles of digitalis varies more or less at different times.

Strophanthus may be mentioned as another drug for which we have no practical assay process.

Realising these facts, and yet desiring to give to their customers reliable preparations, some of the larger manufacturing houses have adopted the plan of testing these and certain other drugs "physiologically." This is a quite laudable undertaking, and we have no reason to doubt that it is actually carried out. The method of testing employed by one of these houses has been published, but we have no knowledge as to the methods used by the others. It is safe to infer, however, that as long as a *uniform* method of physiological testing (for each separate drug requiring it) has not been agreed upon, the products of the different houses will turn out to be uniform only by accident.

It would be interesting to ascertain what results would be attained by the several "standardisers," acting independently of each other, from samples of one and the same lot of a preparation, say of ergot, submitted to them without information as to the origin, age, or mode of preparation. Under present conditions it seems hardly probable that their results would agree. Who, then, shall standardise the standardisers? This is a problem for which a solution is sought, but not readily found.

But whenever the medical profession will be able to offer methods of physiological testing which will show both the *quality* and the *quantity* of effect, and which are accepted by a majority of competent judges, then such tests may well be introduced into the pharmacopœia, even if they should involve special skill and knowledge not possessed by the average pharmacist at the present time. By the time when such tests will have been brought forward and proven practically reliable, the conditions will probably have so changed that nearly all users of the pharmacopœia will be able to apply them, or else such tests will have to be made only upon wholesale lots by some experts of acknowledged skill and reputation, whose verdict or certificate will be generally accepted.

If physiological tests are to be applied to such drugs at all, it would manifestly be a waste of time, labour, and valuable material for the pharmacist working on a small scale to test each separate small lot of a preparation when it is finished. He will find it much more advantageous to purchase either the drug itself or the respective preparation, already tested and "standardised" by some recognised expert assuming full responsibility for its standard. Although this standard will, no doubt, be affected by the "personal" error of the expert (until a method is discovered which will exclude or neutralise this error), yet the results will be comparable among themselves, and thus a practical uniformity attained. This shifting of the responsibility back on the manufacturer would, in these particular cases, not be an evil to be regretted, but a positive gain, as it seems to be the only way by which a practical uniformity in such variable drugs as are mentioned above can be brought about.

To sum up, the writer offers the following recommendations:—

(1) That the next Committee of Revision be authorised to introduce doses into the pharmacopœia (details to be left to the committee).

(2) That the committee be authorised to introduce such of the newer remedies as fulfil the conditions above-mentioned.

(3) That the committee be instructed to extend the principle of standardisation to as many of the potent drugs, and preparations made from them, as may be found possible, but that no physiological tests be introduced at the next revision.

BRACHYCLADUS STUCKERTI.—An aqueous infusion of the roots and leaves of this new species of Argentine Composite is employed with great success by the natives for the relief of asthma, and also to counteract mountain sickness, due to living at great elevations. For asthma it is smoked in cigarettes, and has the advantage that in many cases it induces sleep, whereas cannabis indica prevents it. The infusion of the herb taken internally is also very efficacious in preventing the attacks of spasmodic asthma.—*Merck's Report*, 1899, 145.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

Our First Provincial President.

Hearty congratulations to Mr. Newsholme on his elevation to the presidential chair, and also to the members of the Pharmaceutical Society, who are now presided over for the first time by a provincial pharmacist. It is much to be regretted that Mr. Martindale, whom we all respect so highly as a pharmacist, should not have seen his way clear to take office for a second year, but apart from that I fail to see that any better arrangement could have been made at present than the one which has actually been carried into effect. With Mr. Allen, who is fully conversant with all the routine work of the Society, as Vice-President, the difficulties which must necessarily present themselves at the outset, with a President non-resident in London, should prove far from insuperable, the more especially since the unusual circumstances of the case may be expected to act as a special incentive to the whole executive body to see that nothing is left undone which may conduce to the success of the year's work.

The Company Trading Question.

Already we find things shaping themselves satisfactorily with regard to the company trading question, so far as it concerns pharmacy, as witness the report of last week's meeting of the Council. Without attaching undue importance to the fact that the Council decided unanimously to act on the suggestion which Mr. Hills brought forward at the meeting, it is satisfactory to note that our representatives are agreed as to the desirability of devoting immediate attention to the all-engrossing problem. As pointed out in the editorial columns of the *P.J.* last week, it should not be difficult for the Law and Parliamentary Committee to report as to the line of policy which appears most expedient to adopt in reference to the Companies Bill; for that measure is virtually defunct so far as the present Session of Parliament is concerned, and it is doubtful if there will be any "next" Session. But the matter is certain to crop up again early in the new Parliament which may be expected to assemble before many months have elapsed, and it is imperative that matters should be properly in train in view of that eventuality.

The Next Step.

That the wider question will not be so readily answered I can also see, but it should be obvious that one very emphatic way of presenting a reply would be to embody the views which commend themselves in a draft Pharmacy Acts Amendment Bill, and such a measure, we are told, is the most likely outcome of the Committee's deliberations. Meanwhile, however, the Council is committed to nothing beyond immediate consideration of three points—the present position of the Companies Bill, the line of policy to be adopted in reference to Clauses 2 and 3 of that Bill, and the position of pharmacy in respect to company trading. That is to say, nothing has been decided by the new Council beyond the re-opening of the whole question. It is gratifying to know that the consideration is to be "immediate," and we shall all hope that some definite result may be arrived at before the time comes for taking action. The lines upon which action should be taken appear obvious to many of us but, unfortunately—and that is our chief difficulty—we do not all see alike in the matter. If, however, the Council should be able to agree upon a definite policy, I see no reason why similar accord should not prevail among the rank and file.

The Definite Issues Raised.

Leaving generalities and coming to particulars, we are faced with the necessity of deciding three main questions:—first, whether we should continue to oppose any attempt to allow unqualified persons—alone or in combination, or under any condition—to use our titles; second, whether we should acquiesce in the regulation of limited companies carrying on the business of a chemist and druggist; third, whether we should seek to gain for the profession of pharmacy any privileges with which it is not endowed at present. My own views, already expressed clearly enough, are in favour of an affirmative reply being given to the first and third questions only; the “unclean thing,” as Mr. Rymer Young has aptly termed the proposed regulation of companies, I would much prefer not to touch at all. If companies are to be regulated they must be registered, but that need only be as licensed retailers of poisons and is a police matter; pharmacists can afford to ignore that point, which is entirely the business of the Government, as representing the public. It would be absurd for pharmacists either to take any part in the operation or to vex their souls about the manner in which it may best be performed. The Government ought to consult the Pharmaceutical Society, as representing experts in the matter, but, in any case, we should leave ourselves free to oppose whatever is proposed if, in our opinion as experts, what is suggested does not commend itself to us as being best adapted to meet the circumstances of the case.

An Open Mind Should be Kept.

Mr. Taylor, whose speech at the Council meeting afforded sufficient justification of the action of his supporters in electing him on the representative body, is probably better able to keep an open mind on this subject than the majority in our ranks, but he will do good service if he can imbue many other pharmacists with a reasonable measure of the impartiality which is so strongly characteristic in his case. He was able to vote without hesitation for the motion brought forward by Mr. Hills, because the difficulty facing the Council is not yet surmounted, and he is, apparently, of opinion that the matter must be fought out sooner or later. But he seems far from considering that the motion implied condemnation of the Council's former action, though—as he was compelled to point out—circumstances may arise which would justify him in voting for a reversal of the former resolution, the effect of which was to commit the Council to unqualified opposition to Clause 2 of the Companies Bill. Other recently elected members of Council seem to be possessed with the mistaken notion that they have been returned with a mission to secure an immediate reversal of the former resolution. But their new Lancashire colleague has a clearer perception of the situation, and his speech summed up the matter admirably.

What Regulation May Imply.

It is significant, by the way, to note how well Mr. Taylor has gauged the problem facing us. He sees clearly that if company pharmacy were legally recognised as the Lord Chancellor proposes, the Pharmaceutical Society would find itself reduced to the level of a body for teaching, examining, and registering managers and assistants for limited companies which carry on the business of a chemist and druggist. As such, it would soon cease to be a representative body, and its administrative functions might as well be taken over by the General Medical Council or even the Board of Trade. But the work of Jacob Bell and his friends should hardly be productive of so ridiculous a result as that. If such a peril indeed threatens, it must be averted, not by the legal recognition and regulation of companies, but by the promotion of the professional idea in pharmacy and the maintenance of an inflexible determination to save the position gained by the founders of the Pharmaceutical Society and strengthened by their successors during a period of more than half a century.

LETTERS TO THE EDITOR.

A Disclaimer.

In the *Pharmaceutical Journal* of June 9, appears a report of police court proceedings at Gravesend, on May 31, at which “Clarence Morrison,” described as a chemist and druggist, was charged and fined for disorderly behaviour. As I am, I think, the only Clarence Morrison registered as a chemist and druggist, I would be grateful if due publicity were given in the *Journal* to the fact that I was in no way connected with this case.

Carshalton, Surrey.

CLARENCE P. A. MORRISON.

June, 14, 1900.

The Dispensing of Proprietary Articles.

The paper read by Mr. Frank A. Rogers before the Western Chemists' Association on the dispensing of proprietary articles, and the discussion to which it gave rise, published in the *P. J.* of May 26, draw the attention of members of the trade to the more prominent evils of this method of prescribing, which seems to have insidiously acquired a supreme ascendancy over the medical profession. Medical men are by no means unaware how disadvantageous to their own interests this ready-made system of prescribing is, for some of them strongly deprecate it, and even assert that they will never prescribe tablets again, yet continue to do so. The fact is, that all customs, when once established and confirmed by continued use, acquire a dominating vitality which the efforts of isolated individuals are powerless to overthrow. A reformation of this kind cannot be suddenly effected at all, and only in a reasonable time by the combined and judicious exertions of those interested in its realisation. Dr. William Murrell, of Westminster Hospital, writing in the *Medical Annual* on “Medical Progress in 1899,” says that—“The younger men in our hospitals have long ceased to regard pharmacology as a paying subject, and have consequently ceased to devote any attention to it. A race of men is growing up who know nothing about drugs or their actions, and who are often incapable of prescribing the simplest mixture.” The *British Medical Journal* of May 26, p. 1,301, in an article on “Incompatibility in Prescribing,” says:—“The decline in the art of prescription writing, now so frequently observed in various ranks of the profession, but especially amongst physicians attached to large hospitals, has frequently been lamented. The increasing prominence given to the study of pathology and bacteriology, and the constant employment in private practice of ready-made preparations of the tablet class, have induced a condition of atrophy of disuse which has blighted the capacity of the average physician to evolve and indite a really good prescription free from technical errors.” The many serious disadvantages to all parties concerned—doctors, chemists, and the public—of the systematic prescribing of tablets call for some combined plan of action in order to bring about a salutary change in this direction.

Bristol, June 18, 1900.

MAURICE L. JOHNSON.

HYDROGEN PEROXIDE IN PERTUSSIS.—Baroux finds the treatment of pertussis by the vapour of hydrogen peroxide to give good results. The peroxide used is of the strength of 12 volumes, 80 Gm. of which is poured upon a clean white linen cloth, 1 metre square, every four hours, the wet cloth being suspended from a line in the middle of a small room in which the patient is confined. It is preferable to have two such chambers, one occupied by day, the other by night. In addition to this he prescribes a mixture of tincture of drosera, aconite and belladonna. He claims that any case of whooping-cough, irrespective of the stage of the disease, may be cured by this treatment in eight days.—*Pediat.*, 9, 432.

ANSWERS TO QUERIES.

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

PLANTS (A. W. H.—43/16).—(1) *Carex vesicaria*, var. *B. involuta*; (2) *C. æderi*; (3) *C. panicea*.

MEDICAL HALL (G. P.—43/19).—There is nothing to prevent the use of the name, but it seems an absurd title for a pharmacy.

BLEACHING BLACK WOOL (J. L. G.—43/21).—Probably the cautious use of solution of chlorinated soda would have the desired effect.

DENTAL POWDER (F. A. H.—43/14).—It appears to be powdered porcelain, as it consists of aluminium silicate, with some iron and traces of magnesium, barium, and calcium.

CRUCIFER (G. C.—43/20).—It is *Bunias erucago*, Linn., a native of Southern Europe. Can you send the lower leaves of the plant? There is no specimen in the Pharmaceutical Society's Herbarium.

FIXING AGENT (T. T. C.—43/17).—Sodium hyposulphite should give satisfactory results. Possibly you have not exposed sufficiently, or there may be something wrong with your fixing bath.

CORN SOLVENT (J. L. G.—43/21).—*Liquid*: Extract of Indian hemp, 2 drachms; salicylic acid, 6 drachms; methylated collodion, 6 fl. oz. Dissolve. *Ointment*: Salicylic acid, 1; resin ointment, 5; benzoated lard, 5. Melt together.

UNIVERSAL HEALING OINTMENT (A. A. M.—43/22).—Yellow wax, 3¼oz.; white wax, 2½oz.; Peruvian balsam, 2oz.; lead plaster, 3¼oz.; yellow resin, 3¼oz.; olive oil, 5oz.; lard, 7½oz. Melt together, and when nearly cold stir in 1 fl. oz. of alcohol, 90 per cent.

SOCIETY OF CHEMICAL INDUSTRY (F. A. P.—43/23).—It is necessary to be proposed by a member to whom the candidate is personally known. The entrance fee is one guinea, and the annual subscription twenty-five shillings. Write to the Secretary, 9, Bridge-street, Westminster, S.W., for the particulars.

LIABILITY TO STAMP DUTY (D. L.—43/25).—The simplest and best way of satisfying yourself upon the point is to send copies of the proposed card and advertisement to the Inland Revenue Department, Somerset House, London, asking for an official opinion as to whether they will render the preparation liable to stamp duty.

DISPENSING PROBLEM (T. D.—42/15).—We cannot suggest any cause for the coloration, and believe nothing has been published which will explain it. We have not been able to reproduce your results with the materials at our command, so perhaps the colour was due to some impurity in one or other of the reacting substances. Have you examined your materials by the official tests?

SOLUTION OF CALCIUM POLYSULPHIDE (J. T.—43/15).—Presumably your solution is intended for use as an insecticide; for that purpose an iron pan will answer perfectly well. The trace of iron present will not materially affect the result. The finished solution should be of a deep orange yellow colour. Cheap iron enamelled pans may be employed if you desire to obtain a purer preparation.

PATENTING OR REGISTERING (H. F. W.—43/24).—It is much less expensive to register a label than to take out Letters Patent. In the latter case you can secure provisional protection for one pound, but three pounds more must be paid within nine months. On the other hand, you can register a trade mark at an inclusive cost of twenty-five shillings. Apply to the Comptroller, Patent Office, 25, Southampton Buildings, Chancery Lane, London, for further particulars.

PRESCRIPTION DIFFICULTIES (F. W.—42/10).—We are unable to offer any opinion respecting the difference between the examiner and examinee. The prescription for the mixture is an obvious instance of chemical incompatibility and should not be dispensed. The ferric chloride will liberate a dangerous quantity of iodine from the iodide, being itself reduced to ferrous chloride. This explains the production of the brown colour referred to in your letter. Substitution of a ferrous salt for the ferric salt must, of course, be subject to approval of the prescriber. With regard to the ointment, perhaps it would have been advisable to dissolve the salt in a little water before mixing with the vaseline.

FERROPRUSSIAN PAPER (T. T. C.—43/17).—Use a bleach-free paper, such as Saxe's or Rive's raw paper; preferably that which goes twelve kilos per ream. This you will obtain from Messrs. Mawson and Swan. Pin the sheet to a drawing board, and make two brushes—a Blanchard and a buckle brush. To make the former take an old quarter plate cutting glass and a piece of swansdown, or well-washed and dried lint, not less than 4 × 4½ inches, double it with the fluffy side outermost, and insert the glass between the folds so that it reaches to within half an inch of the bottom. Then put one or two stout india-rubber bands round the cloth to hold it in position. The buckle brush is made with cotton wool and glass tubing thus:—Take some absorbent cotton, about 4 inches long and 1 inch thick, pass a bit of stout twine round the middle of the wool, and pass the free ends of the string up the glass tube, which should be about ¾ inch bore. Pull the string and wool up the tube until about 1½ inches of the wool projects, then, with a sharp scissors, cut it square across the bottom. The sensitising solutions are composed as follows:—(a) Ammonio-citrate of iron, 96 grains; distilled water to make 1 fl. oz. (b) Potassium ferricyanide, 172 grains; distilled water to make 1 fl. oz. (c) Potassium bichromate, 5 grains; distilled water *q.s.* to dissolve. The ammonio-citrate should be in good scales, which have not been exposed to light. The ferricyanide should be in crystals, free from powder, and it is advisable to weigh two or three grains more than the prescribed quantity, washing the crystals first with a little water, and pouring this quickly away. To coat, mix the solutions in a saucer, apply with the Blanchard brush, then remove all brush marks with the buckle brush, employing a circular motion. Dry as quickly as possible, and operate by gas-light. Dextrin is sometimes added to the solution, but it is preferable to size the paper first with arrowroot starch, 5 grains to the ounce. Store in a tube containing calcium chloride.

Publications Received.

THE RISKS AND DANGERS OF VARIOUS OCCUPATIONS. By L. A. PARRY, M.D. Pp. 196. Price 7s. 6d. net. London: Scott, Greenwood and Co., 19, Ludgate Hill, E.C. 1900. From the Publishers.

LANDBOUW EN MIJNWEZEN IN NEDERLANDSCH OOST-INDIË. Overgenomen en bijeenverzameld uit het Koloniaal Verslag van 1899, Premie van 'De Indische Mercur,' 1900. Pp. 125. Amsterdam: J. H. de Bussy. From the Publisher.

WEST INDIAN BULLETIN: The Journal of the Imperial Agricultural Department for the West Indies. Vol. I., No. 3. Pp. 229-326. Price 3d. Barbados: Issued by the Commissioner (Dr. D. Morris). London: Dulau and Co., 37, Soho Square, W. From the Commissioner.

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LONDON: SATURDAY, JUNE 23, 1900.

DIVIDED RESPONSIBILITY.

A NUMBER of chemists have recently received a circular relating to a granular preparation, in which it is explained that some "phosphate of soda" lately supplied to the maker had been reported by the manufacturers to contain a dangerous percentage of an arsenical preparation. The statement was said to apply to all "phosphate of soda" supplied by the chemical manufacturers from November 15, 1899, to the end of April last. Apparently, some at least of the compound received during that time had also been converted into granular phosphate of soda and supplied to retailers in the ordinary course of business. The firm in question, therefore, requested that all granular phosphate of soda supplied by it should be returned, lest any of the arsenical preparation had entered into it, and that, if any had been sold or otherwise disposed of, it should be traced, obtained, and returned with the utmost despatch. The foregoing particulars are published in the current issue of *Truth*, where the circular referred to is printed in full. In view of the considerable time that appears to have elapsed since discovery was made of the deleterious nature of the phosphate, it seems strange that early intimation of the fact was not made to registered chemists through the medium of the *Pharmaceutical Journal*, so that every particle of the preparation might have been promptly traced and returned, before any mischievous results ensued. A special difficulty of such a case is that a warning circular will probably only be sent to those who do business direct with the firm issuing it. But persons who obtain granular preparations, in small quantities, through middlemen, may, in many instances, remain in ignorance of the possibly mischievous nature of the preparation in question, unless and until something of a disagreeable nature happens, as in the present instance. For, as a result of several cases of arsenical poisoning being reported, the Medical Officer of Health for the Paddington Vestry appears to have become acquainted with the circumstances, and purchases of granular phosphate

of soda have been made of certain chemists in the district by inspectors under the Sale of Food and Drugs Acts. Some of the samples thus obtained are stated to contain arsenic, and on Friday, June 15, application was made to Mr. CURTIS BENNETT (see p. 630), on behalf of the Paddington Vestry, for summonses—which were granted—against two chemists. It is reported that one is to be charged with selling effervescent phosphate of soda containing three and a-half grains of arsenic per pound, and the other with selling a preparation containing eight and three-quarter grains per pound.

It will thus be seen that the position is an extremely serious one for retail chemists: however the matter may be settled finally, they are almost certain to incur some degree of unmerited blame and suspicion. Already, the affair has been commented on in *Truth* and other lay newspapers, so that before many days are past their perhaps too sensational comments on the case will be read all over the country. It will, doubtless, be suggested that the retailer should be properly conversant with the nature of every article that he sells, testing it, if necessary, to assure himself that it is strictly what it professes to be. But, unfortunately, matters are complicated somewhat by the fact that granular effervescent preparations are largely supplied by wholesale dealers as packed goods—bottles of various sizes being supplied ready for sale—and bearing labels with the retailer's name and address printed thereon. That, it may be urged, by critics, is a form of business which should not be encouraged; but, in reply, the wholesaler protests that it is the tendency of the times, whilst the retailer contends that competition compels him to resort to this method, because such articles can be purchased ready packed much more economically than they can be put up by himself. Whether or not those reasons are to be accepted as valid, the fact remains that the custom of purchasing medicinal preparations in closed packages ready for distribution to consumers prevails widely and, as a result, retailers are generally in the peculiar position of being unable to vouch personally for the genuineness of the contents. To open, say, a four-ounce bottle of granular effervescent phosphate of soda, for the purpose of examining the contents, renders that bottle unfit for sale, and it is not surprising to find, therefore, that no such examination takes place as a rule. The retailer usually contents himself with the reflection that he buys from a reputable house, upon whose discretion he can thoroughly rely. And it is only in a case like the present that he is disappointed.

But if the chemist will not protect himself and the public in such matters, or finds himself unable to do so, a remedy must be sought elsewhere. And in looking around for such a remedy one cannot help being struck with the fact that, whilst the retail chemist is legally compelled to comply with regulations as to keeping, dispensing, and selling poisons, such regulations are quite inoperative so far as chemical manufacturers and wholesale dealers are concerned. Some of the latter voluntarily adopt regulations similar to those which are compulsory in the case of every pharmacy, but they constitute the exceptions to the general rule under which manufacturers and wholesale dealers handle the most poisonous substances at the same time and in the same manner as harmless chemicals and drugs. Such a state of affairs is

far from what the public has a right to expect, but there is no illegality involved, and, that being so, there is some danger that more regard may be paid to a saving of trouble and expense than to higher considerations. Pharmacists are especially interested in this matter, and public opinion can do much to remedy the prevailing abuse. If the mistake to which attention has been directed should have the effect of bringing about a drastic reform in methods which admit of a possibility of poisonous substances being confused with innocuous ones, the resulting benefit will be very great. It is imperative in the public interest that all poisonous substances should receive special treatment when stored, manipulated, or distributed—whether in the factory, warehouse, or pharmacy, and a model Poisons Act should make suitable provision for every case. The old cry of "restriction of trade" will doubtless be raised by interested parties if any such measure should be introduced into Parliament, but that can safely be ignored if due consideration be given to the greater safety and freedom from anxiety that must necessarily accrue in the event of such a measure becoming law.

THE LONDON CONFERENCE ARRANGEMENTS.

THE programme for the London meeting of the British Pharmaceutical Conference was finally adopted at a meeting of the Local Committee held on Wednesday, and every member of the Conference should shortly have a copy of the usual pink circular in his hands. The proceedings will begin on the evening of Monday, July 23, when the President of the Conference—Mr. E. M. HOLMES—will hold a reception at the Whitehall Rooms, Hôtel Métropole, London. On the following day the President of the Pharmaceutical Society will welcome the Conference to the Society's House in Bloomsbury Square, and after the delivery of the presidential address the serious business of the meeting will commence, being continued on the following day as usual. Luncheon will be provided on both days at the Holborn Restaurant. On the Tuesday afternoon there will be a garden party at the Royal Botanic Gardens, Regent's Park, and on Wednesday evening there will be a ballad concert, followed by a dance, at the Whitehall Rooms. The excursion on the last day of the meeting will be held on the Thames, from Henley to Maidenhead Bridge, the members and their friends being conveyed from London to Henley by special train, then taken aboard pleasure barges and conveyed down the river. Luncheon and tea will be provided on board, and dinner will be served at Skindle's Hotel, Maidenhead Bridge, the party subsequently returning to town by special train from Taplow. The No. 1 book of tickets, price half-a-guinea, will admit to the reception at the Whitehall Rooms, the luncheons, garden party, concert, and dance. No. 2 book covers the entire expense of the excursion day, the price being half-a-guinea if purchased on or before July 19; after that date the price will be advanced to one guinea. Applications for tickets should be addressed to Mr. WILLIAM WARREN, 24, Russell Street, Covent Garden, W.C. In conclusion, it may be stated that a Ladies' Committee, over which Mrs. MARTINDALE will preside, has been formed to ensure the comfort of lady visitors.

ANNOTATIONS.

RESEARCH IN PHARMACY appears likely to be taken up by the British Pharmaceutical Conference, a proposition to that effect having been placed before the Executive by the President, Mr. E. M. Holmes (see p. 678). The idea seems to be that, as many problems in what may be regarded as pharmacy proper are awaiting solution, a paid worker should be appointed by the Executive to investigate suitable subjects included in the B.P. research list (see *P.J.*, December 30, 1899), the work to be systematic and continuous. With the view of ascertaining what prospect there is of obtaining sufficient pecuniary support for such a scheme, we understand that a limited number of prominent firms and individual pharmacists have been approached, with the result that sixteen subscriptions of the annual value of five guineas have been promised for three years. The eighty guineas per annum thus available for the period mentioned will suffice for the support of one young pharmaceutical chemist, trained in the methods of research, and probably also cover the cost of such materials as he may use, but it has been decided to throw the list open so that means may yet be obtained for supporting other research workers.

THE SUBVENTION OF SCIENTIFIC INVESTIGATION was under consideration in the House of Commons last week, in connection with the vote to complete the sum required for that purpose. The discussion on the subject was chiefly remarkable for the speech delivered by Mr. Balfour, who said that the question of Governmental subvention of scientific investigation was a very important subject, and that there was no doubt this country had, from a traditional policy, lagged greatly behind other nations in this respect. It never occurred to us to do what the Germans, the French, or the Americans did in making certain grants for investigations; and whether we were right or wrong he did not undertake to say. His own personal inclination was rather in the direction of Governmental aid in cases where private aid could not be expected; but at the same time he confessed that he often thought how strange it was that, in a very rich country like ours, there were not some people who—in a difficulty to find other and more profitable investments—were induced to earn glory for themselves by carrying on those investigations with the money that was required. Unless Mr. Balfour was unaware of the fact that one or two people are to be found in this country who endeavour to promote scientific investigation with some of their surplus money—two cases in point being those of Dr. Ludwig Mond and Mr. Henry S. Wellcome—his remark may have been suggested by the reflection that, in the country of Cavendish, Davy and Faraday, the insight and enterprise which lead to such undertakings apparently require to be imported.

THE NEW WELLCOME CHEMICAL RESEARCH LABORATORIES, which are situated in King Street, Snow Hill, E.C., have now been completed and were open for inspection on Monday last, June 18. The original laboratories were established in 1896, the first announcement of Mr. Wellcome's plan being made on the occasion of the dinner given to Dr. Power, at the Holborn Restaurant, London, on July 21, 1896 (see *P.J.* [4], 3, 78). The new premises consist of a handsome modern building, four stories high. On the ground floor are the office of the director—Dr. Power—and the library, the latter being a well-selected one, including all works needed for the special requirements. The laboratories, which occupy the other three floors, are similar in arrangement, being provided with gas and electricity for illuminating and heating purposes, and completely equipped with all the necessary apparatus and appliances for conducting chemical investigations. Telephones on each floor bring the different laboratories into communication with the director's office. In the basement of the building are a combustion furnace and all

the appliances for conducting ultimate analyses, a large electric motor for working shaking and stirring apparatus, a drug mill, a dark room for polarimetric and photographic work, and storage vaults, a small lift serving as a convenient means of transport from the basement to any floor of the building. In every way the appointments of the laboratories have been made as complete as possible, so as to fit them for conducting important investigations in both pure and applied chemistry. The result is one of the most completely appointed establishments in this country for other than what may be termed academic research.

THE "FIRST, OR PRELIMINARY, EXAMINATION" conducted by the Pharmaceutical Society will be held for the last time next month, and all entries for that examination must be in the hands of the Registrar (Mr. Richard Bremridge) by five p.m. on Tuesday next, June 26. Attention is directed to that fact by the Registrar in the advertising columns of this week's Journal, and he also asks us to state that persons who allow the day specified to pass without entering for the examination will have no subsequent opportunity of repairing the omission. The regulations which will apply in the case of persons desirous of obtaining registration as "apprentices or students," and of thus becoming eligible to enter for the Minor or Qualifying Examination after June 26, 1900, will be found in the 'Calendar of the Pharmaceutical Society' for the current year.

THE LAST YEAR OF THE CENTURY appears to be furnishing a series of records so far as pharmaceutical-examination entries are concerned. The *ultima Thule* has no doubt been reached this week. We understand that the entry just closed is phenomenal, though not unexpected, no fewer than 760 persons having notified their intention of presenting themselves for the Minor or Major examination. In London there are 497 Minor and 32 Major candidates; in Edinburgh, 218 and 3 respectively. The arrangements made involve starting the practical work on June 25 in both London and Edinburgh, and continuing at the former place without intermission till July 9. The oral portion of the examination will commence on July 12, and is expected to finish just in time to make room for the Conference meeting in London on July 23.

THE FUTURE OF THE COMPANIES BILL attracts spasmodic attention from time to time on the parliamentary stage, but the general outlook remains unchanged and devoid of a gleam of encouragement. Pursuant to notice, Mr. Thomas (Merthyr Burghs) welcomed the re-assembling of ministers on Thursday, June 14, by asking Mr. Balfour whether the Companies Bill represented the alterations in the law which the Government thought desirable; also whether any further progress was to be made with the measure, and, if so, when. The Leader of the House, in a delightfully naïve manner, replied that he really could not at present name the day for the second reading. A similar reply was made to Sir W. H. Fowler on Monday last, on the debate arising from the motion to give precedence to Government business for the remainder of the Session. The ex-Cabinet Minister gave it as his opinion that if the Companies Bill were not proceeded with this Session it would be a public scandal, and he further stated that there seemed no adequate reason for postponing the matter; it had been before the House of Lords three years, had received the consideration of judges and others for a longer period, and could not therefore be said to be incomplete, and, moreover, there was general assent in commerce and law regarding many of its proposals. Naturally, "party" inspiration figured largely in Sir W. Fowler's remarks, but all the same, there is a very considerable proportion of truth in them. From the formal Ministerial reply to the Opposition, it may be deduced that, a little later on in the Session, a statement will be made of the Bills to be passed and the

"innocents" to be massacred, and that the Companies Bill will be numbered with the "innocents." It is of significant interest to remember in connection with Mr. Balfour's attitude that the medical authorities have already assumed the Bill to be dead for this year. Is it from "information received," as they say in the police courts? Meantime the companies item will grace next Monday's agenda.

THE CONSPIRACY LAW has, so far, been invoked in vain by Boot's Cash Chemists (Lancashire), Limited, in the action brought by that company against certain members of the Printsellers' Association. The latter body, finding that certain non-subscribers to its funds were being supplied by two or three firms with prints at half-price, issued a circular with the object of stopping supplies, as the retail prices were being cut. In consequence of that action, the Association was sued for conspiracy, but on June 17, in the Queen's Bench Division, a motion by the defendants to dismiss the action—on the ground that the statement of claim disclosed no cause of action—proved successful. Mr. Justice Phillimore, in delivering judgment, said the question was whether the combination by several against one for the purpose of depriving him of his trade gave to the person so injured a cause of action. There were some injurious acts which one person might do towards another without committing a crime, and those, when done by several persons in combination, might become criminal. He should hold that all confederacies to prevent a man carrying on his business and earning his livelihood were indictable conspiracies. He thought that if a confederacy in this case, for the motives and purposes alleged in the statement of claim were proved, it would be indictable, and at least equally, if not *a fortiori*, actionable.

IN OTHER WORDS, according to Mr. Justice Phillimore, given a confederacy, the motive and purpose made all the difference. If a number of persons, because of political or religious hatred, or from any spirit of revenge for previous real or fancied injury, combined to oppress a man, and deprive him of his means of livelihood, for the mere purpose of so-called punishment, he thought the sufferer had his remedy. Mr. Justice Bigham, however, thought the intention of the circular complained of was to induce printsellers to refrain from dealing with those who sold to the plaintiffs at low prices. One man was entitled as against all the world to ask another to refrain from doing an act which the other man could lawfully omit to do. It was said that the acts of the defendants were calculated to damage the plaintiffs in their business, and were unlawful and in restraint of the plaintiff's right to trade freely. He did not find in this case that the acts of the defendants were unlawful. A conspiracy existed when two or more persons combined to do an unlawful act, but no conspiracy could give rise to an action unless it violated or threatened to violate the rights of an individual as distinguished from the rights of the public at large. He could find in this case no acts alleged against the defendants which amounted to a violation of those rights, and he therefore came to the conclusion that the statement of claim disclosed no cause of action. To allow such an action to go for trial would cause unnecessary expense, and a waste of the public time. As their Lordships differed, Mr. Justice Phillimore withdrew his judgment, and the action was dismissed, on the ground that the statement of claim disclosed no cause of action.

THE LONDON POST OFFICE is at present in a state of semi-chaos, owing to re-arrangements at headquarters, and, as a result, letters and newspapers are being delayed one or more posts, or sometimes days. The *Times* and other leading papers have protested against the disorganisation which seems to prevail, but it may be some time before matters resume their normal condition, and readers of the Journal who may chance to receive belated copies are hereby informed of the probable cause.

PHARMACEUTICAL SOCIETY.

Library, Museum, School and House Committee.

At the ordinary monthly meeting of this Committee, held on Tuesday, June 19, the following particulars respecting the Society's Libraries and Museums were presented:—

ATTENDANCES.

	Total.	Highest.	Lowest.	Average.
Museum May	601	33		22
Library (May)	540	33	7	20

CIRCULATION OF BOOKS.

	Total.	Town.	Country.	Carriage Paid.
London (May)	126	64	62	12s. 2½d.
Edinburgh (May)	185	143	42	11d.

DONATIONS TO THE LIBRARY (LONDON).

Mr. E. Merck, Darmstadt:—Manual of Materia Medica, 1899.

Mr. J. O. Braithwaite, Chingford:—Steggall's First lines for Chemists and Druggists, 2nd Ed., 1857; Parkinson's Chemical Pocket-book, 4th Ed., 1809; Wurtz's History of Chemical Theory, 1869.

The Wellcome Research Laboratories, London:—Three papers by Dr. Jowett.

DONATION TO THE LIBRARY (EDINBURGH).

Pharmacy Board of Victoria:—Report for 1899.

DONATIONS TO THE MUSEUM (LONDON).

Messrs. Hodgkinson, Clarke and Ward:—Specimens of false stramonium and adulterated stramonium leaves.

TO THE HERBARIUM (LONDON).

Messrs. T. Christy and Co.:—Fresh flower of *Vanilla planifolia*.

Mr. R. J. Mellor, Hemel Hempstead:—Fresh specimens of *Menyanthes trifoliata*, *Orchis latifolia*, and *Eriophorum polystachyon*.

Mr. Lenton:—Fresh specimens of *Echium vulgare*, *Cephalanthera grandiflora*, *Gymnadenia conopsea*, *Habenaria bifolia*, *Ophrys muscifera*.

PURCHASE OF BOOKS.

The Committee authorised the purchase of the undermentioned works:—

Squire, Pharmacopœias of London Hospitals, 7th ed., 1900.

Perkin and Kipping, Organic Chemistry, 1900.

Beilstein, Organische Chemie, latest edition and supplement.

Schmidt, Konstitution der wichtigen Pflanzenalkaloide.

Koch, Die mikroskopische Analyse der Drogenpulver.

BRITISH PHARMACEUTICAL CONFERENCE.

A meeting of the Executive Committee was held at 16, Bloomsbury Square on Wednesday, June 14.

Present:—Mr. E. M. HOLMES (President, in the chair), Dr. Attfield, Dr. Symes, and Messrs. Atkins, Martin, Martindale, Hills, and Harrington (Vice-Presidents), Mr. J. C. Umney (Hon. Treasurer), Professor Greenish, Messrs. Atkinson, Bowen, Bird, Collier, Druce, Peck, Wells, and White, Messrs. Warren and Cracknell (Hon. Local Secretaries), and Messrs. Naylor and Ransom (Hon. General Secretaries).

Letters, expressing regret at not being able to be present, were received from Messrs. Payne and Turney.

The minutes of the previous meeting were read and confirmed.

It was resolved, on the motion of Dr. ATTFIELD, seconded by Mr. J. C. UMNEY, that a letter of condolence be sent to the family of the late Mr. Richard Reynolds, a former President, and one of the founders of the Conference.

It was also resolved, on the motion of Mr. WELLS, seconded by Dr. SYMES, that a letter of condolence be sent to the widow of the late Mr. R. J. Downes, a Vice-President of the Conference.

Mr. WARREN, on behalf of the Local Committee, presented a draft programme of the arrangements for the London meeting.

On the motion of Mr. MARTIN, seconded by Mr. BROWN, and supported by Mr. ATKINS, the draft programme was accepted, and the hearty thanks of the Executive were tendered to the Local Committee for the trouble it had taken in the matter.

APPOINTMENT OF A RESEARCH WORKER.

The PRESIDENT again introduced the question of the proposed appointment of a research worker, the consideration of which was postponed from the last meeting. After considerable discussion the following resolution was proposed by the PRESIDENT, seconded by Dr. SYMES, and unanimously carried:—"That, having promises towards the payment of a research worker, and recognising that the research laboratory of the Pharmaceutical Society of Great Britain is the best place for such work to be carried out, a sub-committee be appointed to confer with the Council of the Pharmaceutical Society, its President, or a Sub-Committee of it, on the subject."

The PRESIDENT announced that he had received promises of a subscription of five guineas per annum for at least three years from each of the following sixteen firms and individual pharmacists:—Messrs. Allen and Hanburys, London; Mr. F. B. Benger, Manchester; Messrs. J. L. Bullock and Co., London; Messrs. Burroughs, Wellcome, and Co., London; Mr. E. N. Butt, London; Messrs. Duncan, Flockhart, and Co., Edinburgh; Messrs. Evans, Sons, and Co., Liverpool; Messrs. Hearon, Squire, and Francis, London; Messrs. Horner and Sons, London; Messrs. Howard and Sons, Stratford; Messrs. Idris and Co., London; Messrs. T. Morson and Sons, London; Messrs. Parke, Davis, and Co., London; Messrs. Ransom and Son, Hitchin; Mr. P. Wyatt Squire, London; Messrs. Wright, Layman, and Umney, London.

The hearty thanks of the Executive were accorded to each of the firms and individuals named, and it was agreed that the list should now be thrown open for further promises of support from all members of the Conference and others interested in the object of the fund.

It was moved by Dr. ATTFIELD, seconded by Mr. MARTIN, and unanimously carried, that a vote of thanks be accorded to the President for the services which he had already rendered in the matter.

On the motion of Mr. NAYLOR, seconded by Mr. PECK, the following gentlemen were appointed to serve on the Sub-Committee to confer with the representatives of the Council of the Pharmaceutical Society on the subject:—The President, and Messrs. J. C. Umney, Druce, Bowen, and Ransom.

MISCELLANEOUS BUSINESS.

A draft list of officers for the ensuing year for recommendation to the annual meeting was considered.

Mr. NAYLOR announced that, owing to failing eyesight, which threatened to terminate in blindness, Mr. Nightingale felt compelled to send in his resignation as Assistant Secretary.

On the motion of Mr. NAYLOR, seconded by the PRESIDENT, the resignation of Mr. Nightingale was accepted with regret, and the deep sympathy of the Executive was accorded to him in his affliction. The Secretaries were authorised to engage Mr. J. Hearn to undertake temporarily the duties of Assistant Secretary.

Mr. WELLS intimated that an official invitation to the Conference to visit Dublin in 1901 would be given at the annual meeting.

ELECTION OF MEMBERS.

The following sixty gentlemen, having been duly nominated, were elected to membership:—J. H. Chin, London; Ed. Jones, London; B. Cockburn, Hawick; P. A. E. Richards, F.I.C., London; H. T. Escritt, London; Jno. A. Heaton, Burnley; S. Roberts, London; F. Davis, London; L. C. Deverell, London; G. Watson Gray, Liverpool; A. H. Dawes, London; G. W. Hatfield, London; John D. Cussons, Ossett; F. Andrews, London; C. W. Turner, Worcester; L. G. Golds, Norwood; C. T. Cornwell, Hanley; J. Cumming, Crewe; W. Stanley Scott, Cocker-mouth; W. Barron, Cheltenham; J. H. Gough, Leeds; Wm. Mair, Edinburgh; R. P. Rees, Down-lais; C. Ridley, Newcastle-on-Tyne; R. M. Ewell, Dover; T. C. Milton, Exeter; L. A. Woodhead, Uckfield; Thos. Macfarlane,

Ottawa; S. E. Lock, Fordingbridge; J. T. Roberts, London; Alfred C. Chapman, F.I.C., F.C.S., London; G. Heuley, Lyme Regis; A. C. Spreckley, London; J. B. Harrison, M.A., F.I.C., Georgetown, British Guiana; J. P. Catford, Liverpool; W. Cummings, Dundee; W. B. Nelson, London; A. R. Smith, Kettering; Chas. A. J. Troughton, Holywood, Co. Down; J. C. McCorquodale, Markinch, Fife; J. H. Nidd, Manchester; J. R. Johnson, Walthamstow, E.; J. E. S. Suddaby, Hull; J. Hearle, London; G. J. Turner, Clifton; A. R. Arrowsmith, London; Richard Pain, London; E. Kemp, St. Leonards-on-Sea; G. F. Forster, London; E. H. Church, Cambridge; A. Deck, F.C.S., Cambridge; M. Charlesworth, Frizinghall; H. A. Potter, London; R. Cranfield, London; Sydney P. Jacques, London, B. S. Campkin, Cambridge; Richard Sturton, Cambridge; A. Frayn, Stonehouse; Alf. Downing, Stonehouse; and Wm. Harrison Martindale, London.

ENGLISH NEWS.

ROYAL SOCIETY'S CONVERSAZIONE.—The second of the two conversazioni held annually in connection with the Royal Society took place at the Society's rooms, Burlington House, on Wednesday evening, June 20. There was a large attendance of distinguished scientists, who were received by the President, Lord Lister, and Mrs. Kempe, the wife of the Treasurer of the Society. The greater part of the exhibits were of a biological or physical character, the remainder representing archaeology and anthropology; there were also several collections of photographs, including a number of photographic and other observations of the total solar eclipse on May 28, 1900, taken under the auspices of the Eclipse Committee of the Royal and Royal Astronomical Societies. Mr. Dunstan showed a living specimen of a poisonous lotus, which has given great trouble to the authorities in Egypt, owing to its injurious effect on horses, sheep, and goats; also dried plants from Nubia, and the new glucoside lotusin, to which the plant owes its mischievous properties. When the plant is crushed with water prussic acid is generated, the glucoside being decomposed into prussic acid, sugar, and a colouring matter, to which the name lotoflavin has been given. Several Japanese books on botany were exhibited by Mr. Gowland, showing that the Linnean system of classification was not introduced into Japan till 1856, and that since then science has gone far in the East, Japanese students having long held their own with the investigators of the West in original biological research. Several practical demonstrations were also given.

PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION.—At a meeting of this Association, held on Friday, June 15, Mr. F. Maitland (President) in the chair, the programme of the annual outing was submitted by the committee and confirmed. Messrs. F. Maitland, C. J. Park, J. D. Turney, F. W. Hunt, W. H. Woods, and J. Cocks were then appointed delegates to the British Pharmaceutical Conference meeting in London, in July next.

THE STRENGTH OF BELLADONNA PLASTERS.—At the City Police Court, Liverpool, on June 20, before the Stipendiary Magistrate, William Budden and Co., trading as the City Drug Stores, 19, London Road, Liverpool, were summoned for selling a belladonna plaster not of the nature and substance and quality demanded. Mr. Cripps, who conducted the prosecution, said the plaster was only one-tenth the strength prescribed by the British Pharmacopœia. On the plaster was the following label:—"These plasters were made with the green alcoholic extract of belladonna, which is not a B.P. preparation. Belladonna plasters B.P., 1898, are made with root extract, and are reddish brown in colour." Mr. Cripps said if a person bought a belladonna plaster he expected to get one. If a belladonna plaster had only one-tenth of the strength

necessary to do a person good it was a swindle. Defendants' manager appeared, and stated that the public would not have the other plasters, but a fine of £5 and costs was imposed.

DEFICIENT SPIRIT OF NITRE.—On Wednesday, June 13, two cases were heard before the North London magistrate, Mr. Chapman, against Isabella Miller, wife of Edward Miller, chemist and druggist, 247, Lower Clapton Road, London, N.E., and Sydney G. H. Long, chemist and druggist, 197, Lower Clapton Road, London, N.E., for selling sweet spirit of nitre which was deficient in ethyl nitrite to the extent of 77 and 34 per cent. respectively. The defence in both cases was that the deficiency was caused by evaporation, and that it was practically impossible to retail the spirit from a stock bottle without deterioration taking place.—It was urged for the prosecution that the British Pharmacopœia allows for loss by evaporation to the extent of 20 per cent. by volume of nitric oxide, or a reduction of 1.75 per cent. by weight of ethyl nitrite, and that any loss of strength beyond that is to the prejudice of the purchaser. It was also stated that the drug should be retailed in small well-stoppered bottles to counteract its tendency to deteriorate.—Mrs. Miller was fined 5s. and 12s. 6d. costs. In the case against Mr. Long, the Chemists' Defence Association defended and called Mr. C. G. Moor, analyst to the Association, to give evidence as to the extremely volatile properties of the drug and the important point that by the act of dividing the sample a loss of between 6 and 7 per cent. might occur. Briefly, Mr. Moor's evidence was to the effect that his analysis of the sample left with Mr. Long agreed with that of the public analyst, while an analysis of a large bottle received from Mr. Long in the same condition as sent out by the wholesale house, showed the same specific gravity as the sample, thus proving that no water had been added. In dividing a portion of the contents of the large bottle as the inspector had done, he found that a loss of between 6 and 7 per cent. occurred during the operation. On receiving the spirit the volumes of nitric oxide yielded by one volume of the spirit were 5.5; subsequently he extracted by means of a pipette an ounce on each of six consecutive days, the results being as follows: 5.2, 5.0, 4.7, 4.6, 4.4 and 3.4 volumes respectively. To check those figures another bottle was obtained from the wholesale firm who had supplied the first bottle; he found on receiving it that it contained 6.8 volumes, and that on June 13 it contained 6.1 volumes, a loss of about 10 per cent. It was also stated for the defence that Mr. Long had done all that was possible to prevent evaporation, and it was submitted that the Vestry was at fault in providing the inspector with a large bottle, as it necessarily entailed a greater loss.—The magistrate said there was no doubt that the article in question was deficient, and the law made defendant responsible; at the same time he had done everything in his power to keep the evaporation at a minimum, for which he was to be commended, the circumstances casting no slur upon him. The case would be dismissed on payment of 12s. 6d. costs.

POISONING BY BELLADONNA.—Marshall Street (38), tool-fitter, living in lodgings in Duke Street, Ashton, suffered from pains in the back and had obtained some medicine, also a bottle of liniment for rubbing purposes. On Saturday, June 9, he swallowed a quantity of the liniment in mistake for the medicine, and died from belladonna poisoning. At an inquest held on June 13 a verdict of "Death by misadventure" was returned.

POISONING BY PRUSSIC ACID.—At Barrow, on June 10, Mary Musson (14), went to the shop of Charles H. Smith, chemist, Dalton Road, Barrow, and asked for a pennyworth of carbolic acid to poison a vicious dog. Mr. Smith is reported to have suggested prussic acid as an easier means of death for the animal, and to have supplied the girl with threepennyworth of the poison, offering to accompany her and administer it. She, however, said her mother and several men who were with her could manage nicely. Then she went home and drank the poison. The local coroner subse-

quently severely censured the chemist for what he described as the reckless and careless manner in which he had discharged his duty. Had he exercised a little common sense the suicide would have been prevented. The provisions of the Pharmacy Act had not been complied with, and it would rest with the police whether a prosecution would follow.

PROSECUTION UNDER SECTION 17 OF THE PHARMACY ACT.—At Barrow Police Court on Monday, June 18, Charles H. Smith, chemist and druggist, Dalton Road, Barrow-in-Furness, was prosecuted by the police under Section 17 of the Pharmacy Act, 1868, for selling poison—to wit, prussic acid—contrary to the provisions of the Act, in a bottle which did not bear his name and address.—The prosecution arose out of the poisoning case reported above, and after hearing the evidence the magistrates fined defendant 10s. and costs.

IMPURE MILK OF SULPHUR.—At Matlock Police Court on Wednesday, June 13, John Henry Lusby, Matlock Bath, described as a drug dealer, was charged with selling four ounces of milk of sulphur which was certified by the county analyst to contain slightly over 50 per cent. of calcium sulphate.—It was stated for the defence that an order was given to a wholesale house, and by an error the impure article was sent. The firm was written to, and they at once replaced the article and took the whole of the responsibility for the error.—Captain Sandys, for the prosecution, said he did not want a conviction against defendant, who had just started in business, but suggested that as the wholesale firm assumed full responsibility they should pay the full penalty of 40s. and costs as compensation, and no conviction be recorded.—The Bench thought the case a very bad one, and ordered £2 to be paid for damages.

ARSENIC IN PHOSPHATE OF SODA.—At Marylebone Police Court on Friday, June 15, an application was made to Mr. Curtis Bennett, on behalf of the Paddington Vestry, for summonses against two chemists for selling a laxative drug, known as effervescent phosphate of soda, which, upon analysis, was found to contain, in one case, $3\frac{1}{2}$ grains and, in the other, $8\frac{3}{4}$ grains of arsenic per lb. It was stated that the Medical Officer of Health had advised the Vestry that, if taken in that contaminated state, the drug was undoubtedly dangerous to life, and liable to produce fatal results. He thought the public should know that, and thus be put on their guard. The summonses were granted.

SCOTTISH NEWS.

EDINBURGH DISTRICT CHEMISTS' TRADE ASSOCIATION.—The annual excursion took place on Wednesday, 13th inst., to the picturesque and romantic district of Aberfoyle. About 120 members and friends left Waverley Station, Edinburgh, by special corridor train at 9 a.m., travelling by Forth Bridge, Dunfermline, Alloa, Stirling, and Bucklyvie, and reaching Aberfoyle about 11.20. The weather, which was dull on starting, had now brightened up, and the day promised sunshine and heat. Before dinner a party drove in magnificent weather along the Pass of Aberfoyle, at the base of Craigmore, to Loch Ard by the Bailie's Rock and Tree, and the famous Cave of Rob Roy. A splendid view was obtained of Loch Ard, which by many is believed to rival in beauty the more famous Loch Katrine. Others visited the Camahlatair Waterfall and other places of historic and scenic interest in the neighbourhood. At one o'clock the company dined in the Bailie Nicol Jarvie Hotel, the chair being occupied by Mr. George Lunan, and Mr. W. S. Glass acting as croupier. After doing ample justice to a sumptuous dinner, apologies for absence were intimated from Messrs. Storrar, Kirkcaldy; Kerr, Dundee; Ayre, Perth; and Ford, Kirriemuir. A characteristically humorous letter of apology from the Bard of Stenhouse-muir, Mr. Alexander Laing, was read by the Secretary. The loyal

toast having been enthusiastically honoured, Mr. David Jamour, Dunfermline, proposed "Success to the Annual Picnic," coupled with the name of the Honorary Secretary, Mr. C. F. Henry, who replied. Mr. David McLaren proposed "Prosperity to Aberfoyle and its local industries," coupled with the name of Rev. Mr. Taylor, minister of the parish. After dinner a large party started to drive by Duchray's Old Castle and the Glasgow Corporation Waterworks viaduct, and round Loch Ard, a distance of fully thirteen miles; but most unfortunately encountered a somewhat sharp thunderstorm, with heavy rain, which marred the day's pleasure not a little. Others visited the parish church, a beautiful modern building built in memory of Mr. Richard Hampson, of Glassert, a retired Manchester merchant prince, who owned the local estate. In consequence of the heavy rain, the large dining hall was converted after tea into a concert room, where several ladies and gentlemen entertained the company with songs and recitations. At 7 p.m. the train started for Edinburgh, which was safely reached about 9.30. The committee had made excellent arrangements for the comfort and enjoyment of the company, and the only undesirable item was the afternoon rain.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION.—The members had a very successful botanical excursion to Colington Dell on Friday last, leaving Caledonian Station by train at 8.30 p.m., and walking back to town. Among plants collected were *Ranunculus acris*, *R. repens*, *R. ficaria*, *Lychnis diurna*, *Stellaria holostea*, *Tilia intermedia*, *Hypericum perforatum*, *H. quadrangulum*, *Acer pseudo-platanus*, *Geranium robertianum*, *Cytisus scoparius*, *Trifolium repens*, *Lois corniculatus*, *Prunus padus*, *Spiraea ulmaria*, *Geum urbanum*, *G. intermedium*, *G. rivale*, *Fragaria vesca*, *Rubus idaeas*, *Rosa canina*, *Alchemilla vulgaris*, *Crataegus oxyacantha*, *Epilobium alpinum*, *Hedera helix*, *Ægopodium podagraria*, *Heracleum sphondylium*, *Chaerophyllum sylvestris*, *Sambucus nigra*, *Asperula odorata*, *Valeriana officinalis*, *V. pyrenaica*, *Taraxacum officinale*, *Arctium lappa*, *Carduus lanceolatus*, *Centaurea nigra*, *Pectasites vulgaris*, *Tussilago farfara*, *Senecio jacobaea*, *Chrysanthemum leucanthemum*, *Fraxinus excelsior*, *Veronica chamædrys*, *Scrophularia nodosa*, *Lamium album*, *Stachys sylvatica*, *Symphytum tuberosum*, *Plantago lanceolata*, *Mercurialis perennis*, *Urtica dioica*, *Ulmus campestris*, *Quercus robur*, *Salix alba*, *Taxus baccata fastigiata*, *Allium ursinum*, *Scilla nutans*, *Dactylis glomerata*, *Lastræa filix-mas*, *Scolopendrium vulgare*, *Equisetum arvense*, etc. It was noted that the cold dry season had greatly retarded vegetation, the ash, for instance, was not yet in full leaf, and official valerian will not be in flower for probably a week yet. Mr. J. Rutherford Hill conducted the excursion.

SALE OF CAMPHORATED OIL.—On Wednesday, June 13, at the Paisley Sheriff Court, Robert Thomas McCowan, chemist and druggist, Paisley, was charged with having sold eight ounces of camphorated oil which was 20 per cent. deficient in camphor.—Dr. William Russell, Paisley, was also charged with selling camphorated oil 45 per cent. deficient in camphor and containing 60 per cent. of cottonseed oil.—Thomas Horne, chemist and druggist, Paisley, was charged with having sold camphorated oil wholly made up with sesame oil instead of olive oil.—Alexander Fraser, chemist and druggist, Paisley, was summoned for selling camphorated oil deficient in camphor to the extent of 30 per cent.—Evaporation was stated to be the cause of the deficiency in the first and the last cases; Dr. Russell pleaded that his assistant had made up the article in question pending a new supply of the proper article; on behalf of Mr. Horne it was submitted that there was nothing to show that sesame oil was prejudicial to the public, or that it had been used with any fraudulent intent.—The Sheriff said that none of the defendants had attempted to defraud the public, still chemists must keep their drugs up to the proper standard.—Each defendant was ordered to pay £1 1s. expenses.

FOREIGN NEWS.

PROPRIETARY ARTICLES' TRADE IN GERMANY.—The demand for proprietary articles has undergone considerable development of late, and the trade in such articles has to a great extent taken the place of the dispensing business. There is now a movement on foot to secure a sufficient and uniform profit to apothecaries selling these articles. It was commenced in Saxony, where the pharmaceutical associations have resolved to fix by their own authority the prices of proprietary articles, the sale of which is restricted to pharmacists in a manner to secure them a profit of 37½ per cent. The manufacturers were applied to, and many of them have allowed the selling prices to be fixed by the pharmaceutical associations. The pharmaceutical corporations of Bavaria and Baden have also followed the example of their Saxonian *confrères*.

EARLY CLOSING IN GERMANY.—From the first of October it will be unlawful for anyone in Germany, except the pharmacist, to keep his shop open after nine o'clock in the evening. The assistant pharmacists had presented to the Reichstag a petition asking that the new law might be applied to pharmacies also, but their suit has not been granted. It is, however, to be expected that the pharmacies will soon spontaneously join in the practice of early closing, their competitors, the druggists, not being exempted from the early closing regulation.

MEDICAL DUEL.—An interesting duel has been fought at Louveciennes between two eminent Paris doctors. The affair did not last more than a minute, one of the combatants being severely wounded in the hand. The circumstances leading up to the encounter are as follows, says the *Libre Parole*:—The "Club Medical" in the Avenue de l'Opéra, which has as members the principal medical men of Paris and the provinces, gives a dinner and a reception on the 7th of each month. Among those present at the dinner on Wednesday evening was Dr. Devillers, an intimate friend and travelling medical attendant of the now exiled Paul Déroulède. The President of the club is Dr. Pozzi, of 10, Place Vendôme, the well-known Senator who, during the sittings of the High Court, voted for the banishment of M. Déroulède. Dr. Pozzi did not attend the dinner, but came to the reception which followed it. As soon as Dr. Devillers saw him he came up to him, and said: "I am glad to meet you. I have not seen you since the sitting of the High Court; but, unfortunately, I cannot congratulate you on what you did there. It is an infamy to have dared to condemn Déroulède, who was acquitted by the jury." "Let us leave all that alone," replied Dr. Pozzi. "We are not here to talk politics," saying which, he walked into another room, followed closely by Dr. Devillers, who said he wanted to tell Dr. Pozzi that his conduct had been unbecoming. He also flung his glove in Dr. Pozzi's face, and after friends had tried in vain to arrange the affair, cards were exchanged and seconds appointed to arrange this "affaire d'honneur," which, according to French ideas, can only have one logical ending—the letting out of over-heated blood. The implement chosen for this operation was the sword, admitting the accomplishment of graceful poses and manœuvres more than the "pistolet" does. Dr. Pozzi, in company with his seconds—Messrs. Ranc and Bérardi, as also his chief de clinique, Dr. Jayle—was the first to arrive at the appointed rendezvous. His antagonist came on the scene half an hour later, accompanied by Messrs. Dumonteil and Beauvais-Devaux. The former was "directeur du combat." It might almost be said that the result was a foregone conclusion, for whereas Dr. Deviller is one of the best known swordsmen of Paris, Dr. Pozzi has never handled a sword for ten years, and at the outset was at a disadvantage. The conditions of the duel were that unstarched shirts be worn, and coat and waistcoat discarded. The points of

the swords being sterilised to avoid accidents, positions were taken up and blades crossed. Then the signal was given for hostilities to commence. Scarce a minute had elapsed ere the combat was ended, for Dr. Devillers sword skimmed clean into Dr. Pozzi's hand, penetrating deeply, and gliding along the bones at a depth of a couple of centimetres. Dr. Pozzi being disabled, the fight was stopped, and "honour satisfied."

SERIOUS EXPLOSION.—Fortune does not smile kindly upon that busy manufacturing quarter of the Paris suburbs known as Saint Denis, for fires seem to be peculiarly epidemic there. Many thousands of francs damage was done there only two or three months ago by an explosion in an oil refinery, and now an explosion has occurred in the sulphur works of Henri Deiss in the Rue du Laudit. This factory consists of three parallel buildings, of which one contained a steam engine, supplying power to the machines in the other buildings. At either end of this building, under the ground level, were two reservoirs filled with sulphur. The workmen at the factory, numbering fifty, went on in two shifts, one night and one day, in order that the work might be continuous. At half-past seven in the morning the boiler exploded, and the fireman, François Lemaire, a middle-aged man, was killed instantly. For a distance of hundreds of yards in the vicinity bricks, etc., showered down. Windows in neighbouring houses were shattered by the force of the explosion. Fire engines were speedily on the scene, and checked the spread of the flames, but the buildings are an utter wreck.

WHATEVER HIS SHORTCOMINGS may be politically, General de Galliffet has scored one point in associating himself with the set purpose to put down with an iron hand the sale of alcoholic liquors in the canteens of the French army. To be denied his "nip of absinthe," that most pernicious of all vile concoctions, goes hard with the French Tommy Atkins; still, General de Galliffet is bent upon doing him out of it, and has prohibited its sale. Wine, coffee, milk, etc., may be had as usual at the canteens, and as the soldiers cannot leave barracks without permission there is a chance that they may yet be weaned off "liquor." The idea is a laudable one, but has not escaped the attention of the vile caricaturist, a special breed of which is indigenous to French soil. Upon one of these sheets is depicted a cow following a regiment of soldiers, and upon the cow's udder are the words, "Canteen Galliffet."

EXTRACTS FROM CONSULAR REPORTS.

THE PRODUCTION OF CACAO IN SAMOA is in its infancy, the value of the export for 1899 being about £240; but it is expected that in the course of a few years cacao will represent the most valuable export and will add appreciably to the general income. According to Mr. J. H. Moore, one of the planters, at the present time there are about three hundred acres of land planted with cacao by the foreign residents, two-thirds of which property is in bearing condition. There has also been a certain amount planted on the native lands, but to what extent has not been ascertained; it is understood, however, that the natives, as well as the foreigners, are now commencing the cultivation of cacao in good earnest in several districts. The quality of the Samoan cacao is said to be of the highest class.

THE EXPORTATION OF SULPHUR from Carthage to Great Britain would increase, it was anticipated, during 1899, but it was found that the whole of the native production could be more advantageously disposed of in the locality, principally in the form of flowers of sulphur for dusting the vines. The total export of sulphur to Great Britain from the district only amounted to 1,880 tons.

THE DESTRUCTION OF CHESTNUT TREES in Corsica, for the production of gallic acid, has drawn a mild protest from the Director

of Customs. In his annual report he directs attention to the large and rapid increase in the exportation of gallic acid—from 2,319,650 kilos. in 1896, to 3,932,088 kilos. in 1897, and to 4,561,532 kilos. in 1898; an increase of 2,241,882 kilos. in two years—remarking that as the chestnut forests constitute one of the riches of the island, it is lamentable to see so large a number of proprietors sacrificing their trees to the exigences of the moment. When it is explained that chestnuts and chestnut flour form the staple food of the peasant in the district where the trees grow, and as the British Vice-Consul at Bastia observes, that the replanting of the trees is not compulsory, the protest of the Director of Customs will be seen to be amply justified.

THERE WAS A GENERAL FALLING OFF in the export of drugs from the Vilayet of Aleppo during 1899. Sesame, poppy, and castor oil seeds fell off by some 507 tons, value £8,158, the total being 755 tons, value £8,457, as against 1,262 tons, value £16,615; olive oil decreased by 172 tons, value £3,970; the latter article—135 tons, value £5,400—was exported mainly from Antioch and Killis, three-fourths of it going to Turkey and Egypt, and one-fourth to France and Belgium. The liquorice trade decreased 6,616 tons in volume, and £40,966 in value—5,248 tons, value £41,984 compared with 11,864 tons, value £82,950—but this is attributed to the fact that the American buyers last year postponed the shipment of a portion of their goods until the spring of this year. The export of albumin and yolk of egg—an industry of the city of Aleppo—fell off by 156 tons, value £7,800—227 tons, value £11,350, against 383 tons, value £19,150—the reason apparently being that a cheaper market has been found at Latakia and Tripoli. The greater part of the albumin and egg-yolk was exported to France, the remainder going to Germany, Austria, and Italy.

THERE WAS AN INCREASE in the 1899 export of almonds and apricot kernels from Aleppo of 73 tons, and in value of £1,840, the total being 260 tons, value £6,975, as against 187 tons, value £5,135; also in the export of opium, viz., 10 tons, value £8,450, as against 3 tons, value £2,460, in 1898. It should be noted, however, that at least seven-eighths of the export was supplied by Malatia, in the province of Kharpoot, and the remaining eighth only from Aleppo. The bulk of the opium was shipped to India, a lesser part was absorbed in Turkey, and a small residue came to France and the United Kingdom. Scammony root increased from 23 tons, value £575, in 1898, to 42 tons, value £1,050, in 1899.

THE IMPORTS OF DRUGS AND CHEMICALS into Japan during 1899 were valued at £328,496, as compared with £413,560 the previous year. The chief item under the above heading is alcohol, the value of the import being £210,405 in 1899, against £275,623 in 1898; other items are caustic soda, £53,272 and £43,152 respectively; potassium chlorate, £42,756, against £64,338; and phosphorus amorphous, £22,063, against £30,447. In aniline dyes and indigo the import was valued at £388,716, compared with £356,216 in 1898.

THE IMPORTS OF CHEMICALS, dye stuffs, and tannin substances from foreign countries and British possessions into the United Kingdom during the month ending March 31, 1900, amounted in value to £666,646, as compared with £744,106, the value of the imports for the corresponding period last year, showing a decrease of £77,460. The imports for the three months ending March 31 were valued at £1,765,505, as against £1,965,872 for the same period last year, or a decrease of £200,367 in value. The March imports of oils show an increase; also for the three months ending March 31, the total value of the imports being respectively £999,229 and £2,662,263, as against £697,645 and £2,108,382 for the corresponding periods in 1899.

ANALYTICAL NOTES.

DETERMINATION OF BISMUTH IN ORGANIC SALTS.—Duyk has proposed the precipitation of bismuth in the form of oxalate. Dietze has applied the process to several organic bismuth salts. 1 Gm. of the salt is heated to boiling with 0.4 Gm. of oxalic acid and 50 C.c. of water, the boiling being continued for five minutes; it is then filtered through a tared filter, washed, dried, and weighed. Bismuth oxalate contains, according to Duyk, 72.06 per cent. Bi_2O_3 ; according to Dietze, 74.12 per cent. The results obtained by the latter were:—

Bismuth benzoate ("about 40 per cent.")	.....	43.49 to 43.53.
" salicylate " " "	.....	39.59 " 39.81.
" subgallate " 55 "	.....	58.12 " 58.24.
" subsalicylicum, Ph.G.III.	.....	62.82 " 62.99.
" tannate ("about 40 per cent.")	.....	41.99 " 42.37.
" valerianate " 73.75 "	.....	77.86 " 78.12.
Dermatol.	.....	48.17 " 48.25.

—*Pharm. Central.*, **30**, 280; after *Südd. Apoth. Zeit.*

FICTITIOUS NUTMEGS.—J. Vanderplankin calls attention to the presence in commerce of spurious nutmegs, composed of a compressed powder mixed with earthy matter. On cutting these nutmegs the absence of vegetable structure is observed, and by heating for three minutes in boiling water they are softened and fall to pieces on rubbing between the fingers. The ash varies from 11 to 18 per cent., while the pure nutmeg only gives 2 to 3 per cent. The adulterated samples are also, in general, heavier. F. Ranwez has analysed various samples of these spurious nutmegs; he observes that in appearance they are similar to the genuine seeds, but the odour and taste are not quite normal. The fictitious nuts, freed from adhering white powder, gave the following figures as compared with the results obtained by Koenig from genuine nutmegs:—

	False nuts.	Genuine nuts.
Moisture.....	11.09	7.38
Ash.....	11.34	2.70
Ash insoluble in HCl (SiO_2)	3.90	—
Concrete nutmeg oil (ether extract) ..	15.42	34.27
Volatile oil.....	1.76	3.05
Cellulose	7.24	9.92

The author obtained the following results in the examination of genuine nuts:—

	3 samples whole nuts.	2 samples pure powder.
Moisture	15.53 .. 14.54 .. 15.47	8.59 .. 9.09
Ash.....	1.27 .. 3.29 .. 2.73	1.78 .. 4.88
Concrete Oil....	31.38 .. 33.40 .. 37.62	39.60 .. 32.02

—*Chem. Zeit. Repert.*, **24**, 31, after *Ann. Pharm.*

DETERMINATION OF URIC ACID AS AMMONIUM URATE.—E. Woerner publishes the following method for the determination of uric acid:—150 C.c. of urine is heated to 40–45° C. in a beaker and 30 Gm. of ammonium chloride is dissolved therein. The precipitate of ammonium urate is filtered, after standing about an hour, in such a manner that the precipitate is first placed on the filter and then the mother liquor passed through. The ammonium urate is now washed free from chloride with 10 per cent. ammonium sulphate solution, and then dissolved on the filter in 1 to 2 per cent. caustic soda solution. The filter is now washed with warm water, and the filtrate and wash water heated until all the ammonia is driven off. The ammonia free solution is now heated in a Kjeldahl flask with 15 C.c. of concentrated sulphuric acid and several crystals of copper sulphate, until the solution becomes bluish green. The cooled contents are then washed into a distillation flask and after the addition of 60 C.c. of 33 per cent. caustic soda solution, the ammonia is distilled off into 25 to 30 C.c. of decinormal H_2SO_4 solution, which is then titrated in the usual manner. Each 1 C.c. of acid used corresponds to 0.0042 Gm. of uric acid.—*Pharm. Zeits.*, **45**, 48, after *Zeits. für Physiol. Chem.*, **29**, 1.

THE PARIS EXHIBITION.

Chemistry and Pharmacy.

One of the most instructive lessons to be learnt from the Paris Exhibition has reference to the development of manufacturing industries in Germany. By comparison with the relative position those industries occupied at the time of the first International Exhibition in 1851, it will be seen that not only has there been remarkable progress, but that in many respects Germany has made a disproportionately greater advance than other countries, and has even become prominent in branches of manufacture which were formerly of comparatively small magnitude in Germany. In no respect is this changed position more conspicuous than in the various chemical industries, some of which have come into existence since the Exhibition of 1851, while others that were then almost exclusively located in this country have since that time been carried out in Germany to such an extent as to offer serious competition with this and other countries, which formerly had almost a monopoly of the trade in certain kinds of produce.

The display of products by which some estimate can be formed of the importance of chemical industry in Germany at the present time will, therefore, constitute one of the chief attractions of the great show, which will soon bring together a multitude of visitors from all parts of the world. When it is remembered that at the close of last century the science by which such gigantic results have been brought about, was then only, as it were, a seedling plant that had been reared in the laboratory of the apothecary, the admiration of its capabilities, which cannot well be avoided, should, in the case of pharmacists, be accompanied by a hearty desire to continue the intimate relationship which then existed between pharmacy and chemistry.

A general description of this part of the Exhibition has been given by Dr. Zipperer in recent numbers of the *Pharmaceutische Zeitung*, and, as a preliminary to more detailed reports on the exhibits relating to chemical and pharmaceutical industries, the following particulars, taken from that source, will serve to give some idea of the manner in which those industries are represented by Germany and by other countries.

The exhibits representing the chemical industries of Germany, as they now exist, have been contributed by a number of firms, who have agreed to abstain from mention of their names as the manufacturers of particular articles, in order to give greater prominence to the display in a national point of view.

The arrangement of these exhibits has been carried out by Drs. E. A. Merck, Laubenheimer, H. Brunck, A. Steche, W. Heraeus, and Messrs. J. Stroof, W. Dittmar, H. Stücklen, under the general direction of Dr. Holtz, and for that purpose a classification under eight heads has been adopted:—

1. Alkali manufactures, salts, artificial manures, etc.
2. Fine chemicals, pharmaceutical products.
3. Materials used in dyeing, calico printing, photography.
4. Pigments, lacs, varnishes, glue, gelatin, etc.
5. Tar products.
6. Artificial dyestuffs.
7. Ethereal oils.
8. Apparatus and appliances for laboratories and factories.

The glass cases and stands containing the articles shown are distributed in the German Court over a superficial area of about 1,050 square yards.

HEAVY CHEMICALS.

In Section 1 the products of the Stassfurt factories occupy a prominent place, together with those representing various stages of the sulphuric acid manufacture, the Leblanc and Solvay processes, as well as the production of cyanides, ammonia salts and superphosphate, phosphorus compounds, chromates, permanganates, barium-, calcium-, aluminium-, and tin salts. In connection with all of these products, the exhibits in this section illustrate the great

progress that has been made in the methods of working, by the introduction of new sources of raw material and by the production of new compounds, such as calcium carbide, compressed gases, etc., which mark the difference between the chemical industry of the present time and that of fifty years ago.

SYNTHETICAL PRODUCTS.

In Section 2 the exhibits are of more especial interest to pharmacists, inasmuch as they comprise the various synthetic and other products that have been introduced for medicinal use during the last ten or fifteen years. Together with these are included the albuminoids, fats and carbohydrates of animal and vegetable origin, as well as other products which are at present chiefly of interest from a scientific point of view, such as the xanthin bases lately obtained by E. Fischer, the new elements extracted from pitch-blende. The objects of pharmaceutical interest in this section have been arranged by Dr. E. A. Merck, who has devoted special attention to the work, and has been assisted by Drs. C. Duisberg, F. Engelhorn, C. Kolbe, and Weller. Besides the salts of alkaloids and synthetic products, some of the organo-therapeutic preparations are shown, but principally those which have been found practically useful. Some very interesting bacterial products are also shown, such as a pure culture of the diphtheria bacillus, Behring's solid and liquid products, Koch's tuberculin, tetanus anti-toxin in solid form, mallein, lepraserum, and germ-free lymph. These exhibits will attract attention also as showing the very great development that has taken place, as the result of German research, in this department. Another class of new products that will attract notice are the food preparations which have been recently introduced under the names of somatose, tropon, etc. These are at present almost entirely manufactured by German firms.

HISTORICAL DISCOVERIES.

Closely connected with the exhibits of Section 2 are a number of specimens in two cases, which occupy a position near the centre of the court. They are chiefly of historical interest, as marking the progress of chemical science during the nineteenth century. This group has been arranged by Dr. H. W. Wichelhaus, at the request of the German Chemical Society, and it serves to illustrate, in ten sections, the progress of chemical discovery and the consequent improvements made in various branches of chemical industry—relating to the production of pigments, photographic preparations, matches and explosives, lighting materials, paper-making, perfumery articles, pharmaceutical preparations, dyeing materials, natural and artificial. One of the earliest discoveries of the nineteenth century is represented in the collection by a specimen of morphine, which bears the label, "Discoverer, F. Sertürner, 1811," with a reference to the paper on the subject then published in Gilbert's 'Annalen der Physik und Chemie,' 55, 61, *et seq.* Next in order of date is a specimen to illustrate the German discovery of artificial ultramarine by C. G. Gmelin in 1828, and also the same discovery claimed to have been previously made by L. Guimet at Lyons in 1826.

Other specimens illustrate various discoveries made by German chemists during the century, to the number of upwards of two hundred, and in the case of dyeing materials they are accompanied by samples of dyes or printed fabrics, which serve to show the application for which the several products are suitable.

RECENT TECHNOLOGICAL RESEARCH.

In Sections 3 and 4 the exhibits illustrate progress in several different branches of chemical industry, such as the production of formalin, fluorine salts, rare oxides for incandescent gas burners, glycerin, lubricating oils from petroleum, etc., artificial perfumes, photographic and Röntgen ray materials, which mark some of the discoveries at more recent periods.

CHEMISTRY OF DESTRUCTIVE DISTILLATION.

Sections 5 and 6 are especially devoted to the illustration of results following from the chemical investigation of the different

kinds of tar and from the study of the general chemistry of destructive distillation.

In their economic relations and effects those results have been manifold and very important, one of the latest—the artificial production of indigo—is now being developed by the Badischen Anilin and soda Fabrik with every prospect of success.

ESSENTIAL OILS AND ALLIED BODIES.

Section 7 contains specimens of ethereal oils, etc., and the various materials employed for their preparation; also the oils used in medicine and perfumery, as well as the synthetic products discovered within recent years and applied for the same purposes. One of these products—ionone—discovered by Tiemann, and now largely used as a substitute for the natural violet perfume, is exhibited in Section 3.

APPARATUS.

In Section 8, which occupies a considerable portion of the court, all kinds of apparatus and appliances for laboratory operations and for use in factories are exhibited. Among the more recent novelties is the air-liquefying machine of Dr. Linde, which will be kept working to give visitors opportunity of witnessing its capability and of observing the remarkable characters of atmospheric air in a liquid form. Pharmacists will be interested in the machines for making compressed tablets, exhibited by C. W. E. Lindörfer, Strassburg, and by Fritz Kilian, Berlin. The platinum retorts for concentrating sulphuric acid, exhibited by W. C. Heraeus, of Hanau; the acid pumps and other appliances, exhibited by Plath and Piepmayer, of Cassel; the acid-resisting evaporating pans, exhibited by Baron de Dietrich, of Niederbronn, in Alsace, and by the Mannheim Iron Foundry and Machinists, bear testimony to the enormous development of chemical industries in Germany; they also show that the incidental requirements which have thus arisen have been very efficiently provided for in the immediate vicinity of the various factories.

MISCELLANEOUS.

The British Section does not offer anything like such a complete representation of the chemical and pharmaceutical industries of the country as that given in the German Section. Some of the large alkali makers have exhibits. Macfarlane, Howard, and Smith exhibit opium and cinchona alkaloids and their salts, but otherwise there is little more than soap and perfumery.

In the Russian Section petroleum products are conspicuous, together with platinum vessels, candle and paper making, while pharmacy is represented by the exhibits of R. Koehler, of Moscow, and A. Poehl, of St. Petersburg.

In the Austrian Section the principal exhibitors are the Chemical and Metallurgical Association at Aussig, the Chemical Works at Hruschau, where the manufacture of alkalis, chlorine, etc., is being carried out by the electrolytic method. The ceresin and fat industry is represented by Wagenmann and by Sarg. Pharmaceutical products form part of the exhibits, and Ch. Olszewski exhibits the apparatus constructed by him for liquefaction of gases in 1884 and 1890.

The chemical industries of Hungary are represented in a separate section, chiefly by the exhibits of Nobel's Dynamite Factory at Poszony, and pharmacy by the exhibits of several makers of specialties.

The Italian Section is chiefly remarkable for the exhibits of essential oils and perfumes.

The Belgian Section is still too incomplete to admit of description, and the exhibits representing Spain, Roumania, Denmark, Holland, and the United States do not offer much of interest beyond perfumery and tobacco.

The French Section contains a much larger number of exhibits than that of any other country. Chemical industries are represented by the Société de St. Denis and the Usines du Rhone, by the Usine de St. Gobain, the Société de Goemons, and others, too numerous to particularise, while the number of exhibitors of pharmaceutical products is still larger, and will offer abundant material for more detailed description.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Guaiaci Lignum.

GUAIACUM WOOD or LIGNUM VITÆ is obtained from the stem of *Guaiacum officinale*, Linn. (N.O. Zygophyllaceæ), and *G. sanctum*, Linn., two evergreen trees which grow to a great height—the first in Hayti, Jamaica, and other parts of the West Indies, while the second occurs in Cuba, the Bahamas, etc. The trunks of the trees consist chiefly of a dark heartwood, in which brown zones alternate with darker olive-green or nearly black ones; it is surrounded by a narrow ring of yellowish sapwood and a grey or ash-coloured bark. The wood of *G. sanctum* is smaller than that of *G. officinale*, and is said to be paler and less dense. After the trees are felled, the bark is removed and the heartwood cut into logs or billets for export. The wood is used for medicinal purposes in the form of chips, turnings, or raspings. It possesses stimulant, diaphoretic and alterative properties, which depend upon the presence of resin; the wood is used in the preparation of Liquor Sarsæ Compositus Concentratus.

CHARACTERS.—Guaiacum wood should be dark greenish-brown in colour, dense, hard, and so heavy that it sinks in water. Any lighter, pale yellow chips or turnings consist of the sapwood, and should be rejected. The taste of the heartwood when chewed is acrid, owing to the presence of resin, which also causes it to give off a somewhat aromatic odour, recalling that of benzoïn, when heated.

TESTS.—Guaiacum wood contains a dark resin which gives a deep blue colour when treated with oxidising agents, so that an alcoholic tincture of the heartwood assumes a blue colour on the addition of a dilute solution of ferric chloride.

NOTES.—The distinctive characters of guaiacum wood are its dark green colour, great weight, and acrid taste. When examined with a lens the medullary rays are seen to be straight, narrow, and closely approximated; the vessels are distinct, usually single, and arranged in concentric zones. Resin is present to the extent of 20 to 25 per cent. in the heartwood, but only about 3 per cent.—and that of different composition—occurs in the sapwood.

Guaiaci Resina.

GUAIACUM RESIN is obtained from the stem of *Guaiacum officinale*, Linn., or *G. sanctum*. It may exude in tears spontaneously or after deep cuts have been made in the stem or branches, but it is chiefly extracted by the aid of heat. Billets about three feet long are bored longitudinally with an auger, and one end of each is then placed on a fire, the heat of which causes the resin to flow out of the boring at the other end. Or, the wood may be reduced to chips or sawdust and boiled in a solution of common salt, the resin being skimmed off as it rises to the surface. The resin in tears is the best, containing less insoluble matter than the masses; that extracted by boiling the wood is most inferior in quality. The resin possesses the same properties as the wood, but in much greater degree; it is used in the preparation of Mistura Guaiaci, Pilula Hydrargyri, Subchloridi Composita, Tinctura Guaiaci Ammoniata, and Trochiscus Guaiaci Resina. The dose of the resin is 5 to 15 grains.

CHARACTERS.—Guaiacum resin may occur in rounded tears about 25 Mm. in diameter, but is usually seen in large, dark-coloured masses, often more or less covered with a greenish powder. It is brittle, breaking with a clean, glassy fracture, and thin splinters are transparent, their colour varying from yellowish-green to reddish-brown. The latter is the natural colour of the resin prior to oxidation taking place. The powdered resin is greyish, but becomes green on exposure to light and air, as the result of oxidation. The taste of the resin is slightly acrid, and its odour when warmed is somewhat balsamic, recalling that of benzoïn.

TESTS.—Guaiacum resin is easily identified by its behaviour with oxidising agents, a solution in 90 per cent. alcohol assuming a deep blue colour on the addition of a dilute solution of ferric chloride. The colour is destroyed by reducing agents, but restored by oxidising agents.

NOTES.—The distinctive characters of guaiacum resin are the greenish powder with which it is usually more or less covered, its peculiar odour and taste, and the varying colours it exhibits when splinters are viewed by transmitted light. The resin consists chiefly of guaiaconic, guaiaretic (guaiacinic), and guaiacic acids. All three have been considered to be probably condensation products from tiglic aldehyde and guaiacol. The first is amorphous, constitutes about 70 per cent. of the resin, and produces the blue colour with oxidising agents. Guaiaretic and guaiacic acids are crystalline, as is also guaiac yellow, the colouring matter of the resin. Another constituent, distinguished as beta-resin, does not appear to differ greatly from guaiaconic acid in composition. By dry distillation, guaiacum resin yields guaiacene (the aldehyde of tiglic acid), guaiacol (pyrocatechin methyl ether), creosol, and pyroguaiacin. Guaiacum resin in tears leaves about 1.5 per cent. of residue—gun, vegetable debris, etc.—when dissolved in strong alcohol; the masses may leave from 7.5 to 25 per cent.

Hæmatoxyli Lignum.

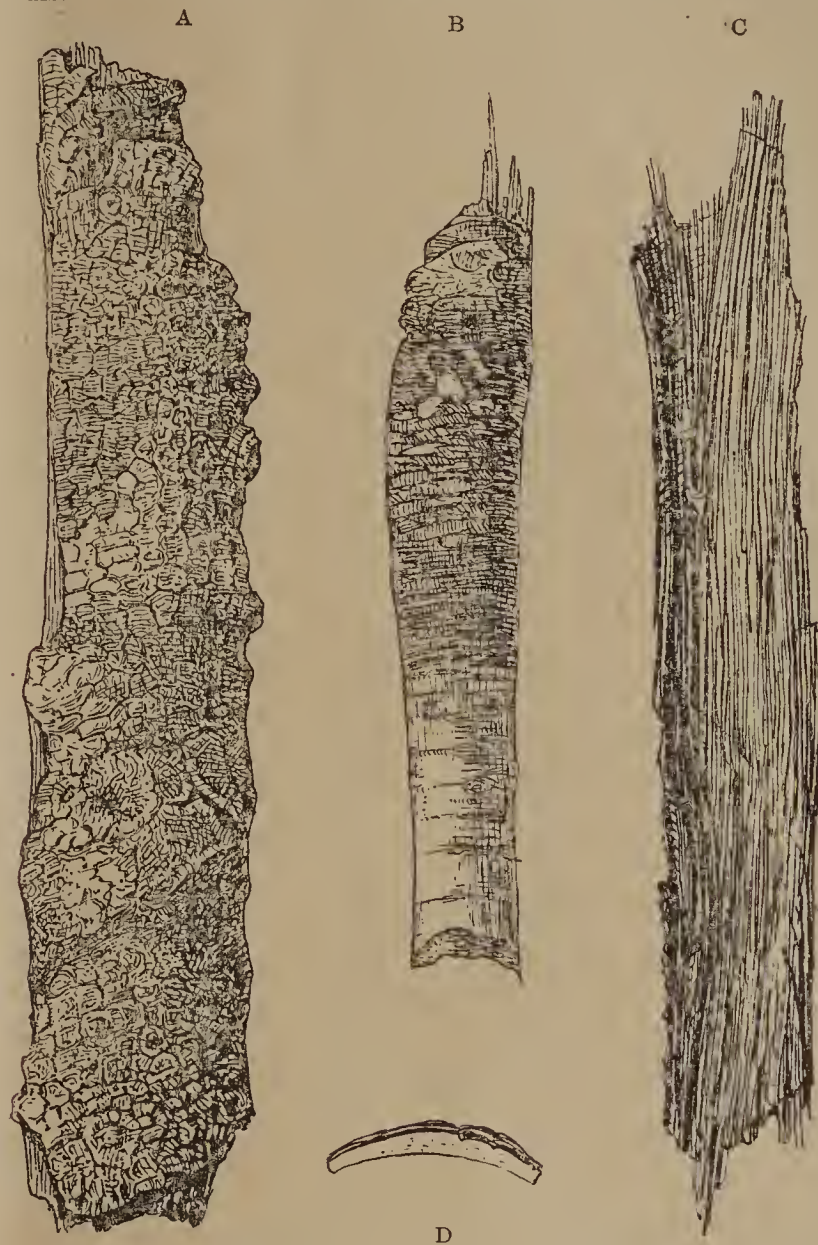
Logwood is obtained from the stem of *Hæmatoxylon campechianum*, Linn. (N. O. Leguminosæ), a tree of medium size, indigenous to Campeachy, Honduras, and other parts of Central America, but naturalised in Jamaica and other West Indian islands. The heartwood alone is used, being exported in logs or billets, from which the bark and sapwood have been removed. It is usually seen in chips or coarse powder, which has mostly been prepared as a dye-stuff by being exposed in large moist heaps and fermented. When required for medicinal use, however, care should be taken to secure logwood which has not been fermented; it has then a sweeter taste and is more astringent. Logwood is employed in medicine for its antiseptic and astringent properties, and is used in the preparation of Decoctum Hæmatoxyli.

CHARACTERS.—Logwood is hard, compact, and heavy, dull orange to purplish red externally, and reddish-brown internally, the colour varying with the proportion of colouring matter present. A transverse section of the wood exhibits narrow and closely approximated medullary rays, also narrow concentric dark zones alternating with paler ones in which the presence of colouring matter is less evident. The chips or coarse powder should be unfermented, the taste then being sweet and astringent, owing to the presence of hæmatoxylin and tannin respectively; the slight and somewhat agreeable odour, recalling that of violets, is probably due to the presence of a trace of volatile oil. When chewed the wood colours the saliva dark pink or violet, a similar colour being imparted by logwood to dilute aqueous solutions of caustic alkalies.

NOTES.—The distinctive characters of unfermented logwood chips are their reddish-brown colour and the violet coloration they impart to alkaline solutions. The colourless hæmatoxylin—a crystalline body which is present in logwood to the extent of about ten per cent.—is oxidised by alkalies to hæmatein, which forms dark reddish-brown plates with a yellowish-green lustre and is soluble in alkaline solutions, a blue or reddish liquid resulting. The same change is brought about by the fermentation of logwood; the chips darken in colour and the hæmatein formed causes patches of a dark beetle-green lustre to make their appearance on the surface. Hæmatoxylin (hæmatin), when pure and unoxidised, occurs in colourless crystals, which have a sweet taste, resembling that of liquorice, without bitterness or astringency, and are feebly antiseptic. The crystals tend to become yellowish or of a yellowish-rose colour on keeping, and may, as oxidation proceeds, become bitter, acrid, and slightly astringent, owing doubtless to the formation of hæmatein. Other constituents of logwood are tannin, resin, and a trace of volatile oil.

Hamamelidis Cortex.

HAMAMELIS or WITCH HAZEL BARK is obtained from *Hamamelis virginiana*, Linn. (N.O. Hamamelidaceæ), a shrub indigenous to the United States and Canada. The plant attains a height of about ten feet, and bears leaves and edible fruit resembling those of the common hazel. The bark should be collected in the spring and dried. It possesses astringent and hæmstatic properties, and is used in the preparation of Tinctura Hamamelidis.



HAMAMELIS BARK.—A, Outer surface of bark with cork attached; B, ditto^o with cork partly removed; C, inner surface of bark; D, transverse section through A. All natural size.

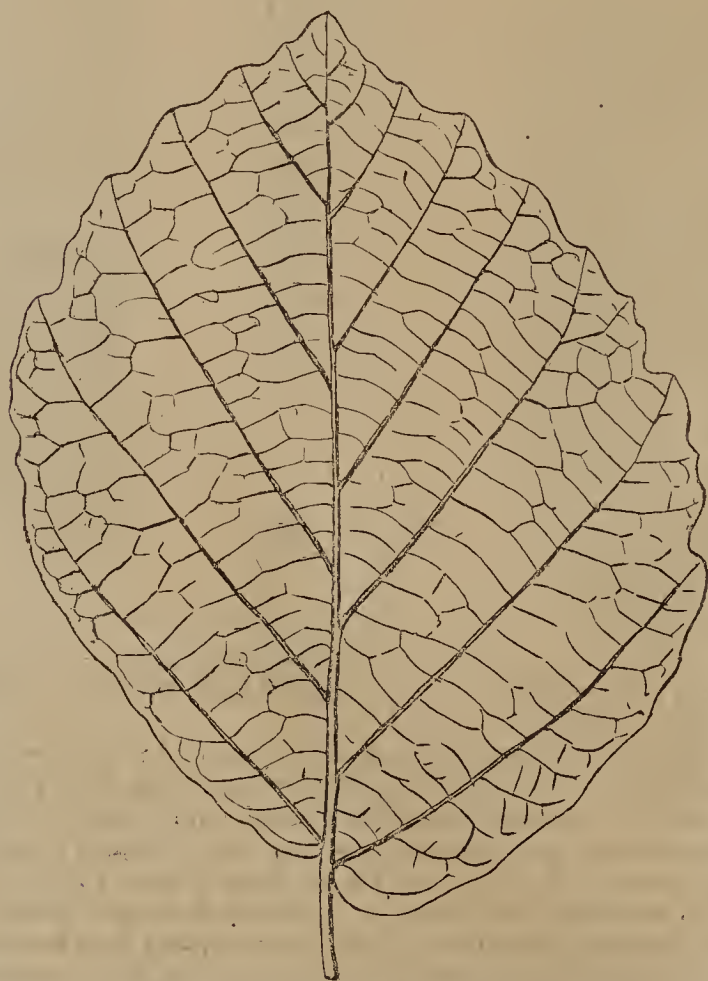
CHARACTERS.—Hamamelis bark occurs usually in thin channelled or curved pieces about 1.5 Mm. thick and varying from 0.5 to 2 Dcm. long. They are sometimes covered with a smooth silvery grey or ash-grey cork marked with transverse lenticels; in older pieces the cork is darker in colour, fissured and scaly. Frequently, however, the pieces of bark are free from cork, the smooth reddish-brown cortex being then exposed and exhibiting under the lens slight transverse striations. The inner surface of the bark is pale reddish-pink in colour and finely striated longitudinally, small portions of dense white wood with numerous fine medullary rays being frequently found adhering to it. The cork and cortex break with a short fracture, but that of the inner portion of the bark is coarsely fibrous, the bast tending to separate into laminæ, owing to the presence of numerous tangentially elongated groups of bast fibres. A smoothed transverse section of the bark exhibits those groups of bast fibres and a dark narrow cortex, the latter separated from the bast by a pale tangential line of sclerenchymatous cells; in some pieces of bark those sclerenchymatous cells may form the outer layer, owing to the

removal of much of the cortex, in addition to the cork. The bark has no marked odour; its astringent taste is due to the presence of tannin.

NOTES.—The distinctive characters of hamamelis bark are its pinkish colour, pale grey but not glossy cork, and the line or ring of sclerenchymatous cells. Oak bark has a silvery, glossy bark, and is usually of a brownish colour; willow bark has a dull greenish-brown cork, is usually striated on the outer surface, and does not exhibit a line of sclerenchymatous cells. The most important constituent of hamamelis bark is tannin, of which it contains about 6 per cent.; gallic acid, resin, traces of bitter and pungent principles, volatile oil, etc., are also present. The tannin is partly crystalline—hamamelitannin—and partly amorphous. The powdered extract known as “hamamelin” is a mixture of substances.

Hamamelidis Folia.

HAMAMELIS or WITCH HAZEL LEAVES are obtained from *Hamamelis virginiana*, Linn., both fresh and dried leaves being employed. They are usually collected in the autumn and occur in commerce in a somewhat indifferent state of preservation, being frequently discoloured, broken, and pressed together into more or less compact masses. Like the bark, they possess astringent and hæmostatic properties. The fresh leaves are used in the preparation of Liquor Hamamelidis, but Extractum Hamamelidis Liquidum is prepared from the dried leaves; the liquid extract enters into the composition of Unguentum Hamamelidis.



HAMAMELIS LEAF.—Under surface, showing veins and veinlets. Exact size.

CHARACTERS.—Hamamelis leaves are from 7 to 15 Cm. in length, dark green or brownish-green on the upper surface and paler on the under surface. They are broadly oval in outline, obtuse at the apex, and have a sinuate margin. Towards the base the lamina becomes narrowed and oblique; it is also slightly heart-shaped and shortly stalked. The leaves are pinnately veined, the veins being more prominent on the under surface. The lateral veins, which run direct from the midrib to the margin, are practically the only ones that can be seen on the upper surface. In the angles formed by the lateral veins branching or stellate hairs may usually be found, being more frequent on young leaves. The

slight odour of the leaves is not characteristic; their astringency is due to tannin and the presence of some bitter principle is also indicated by the taste.



HAMAMELIS LEAF.—Upper surface, showing lateral veins. Exact size.

NOTES.—The distinctive characters of hamamelis leaves are the sinuate margin, the lateral veins running direct to the margin, and the branching or stellate hairs. Very young leaves are brown in colour and densely hairy. The drug contains tannin, gallic acid, a bitter principle and a trace of volatile oil. On distilling either fresh or dried leaves with water or dilute alcohol some decomposition appears to take place, as the distillate possesses an odour differing from that of the leaves, owing apparently to the formation of some aromatic body. The official liquid extract also contains a trace of protocathechuic acid. The name “hamamelin” is given to a powdered alcoholic extract of the leaves or bark, that prepared from the leaves being the more efficacious.

Obituary.

FRYER.—On June 8, Charles Hart Fryer, Dispenser, Holborn Union Infirmary, Highgate, N. Aged 46. Owing to incorrect information having been supplied, the name of Mr. Charles John Fryer, Chemist and Druggist, of Wandsworth Road, S.W., was inadvertently included in the Obituary column last week, instead of that of Mr. C. H. Fryer. Sincere apologies are hereby tendered to Mr. C. J. Fryer for the error which, it is trusted, has not resulted in any serious inconvenience.

KERR.—At Panama, on May 18, suddenly, from yellow fever, William Alexander Kerr, “La Esperanza” estate, Salvador, Central America. Aged 25. The younger son of Charles Kerr, pharmaceutical chemist, Dundee.

KNIGHT.—On May 13, Jesse Knight, Chemist and Druggist, Fenton (Staffs). Aged 35. Mr. Knight was a life member of the Pharmaceutical Society, and had been connected with the Society as an Associate and latterly as a member since 1889.

NEWBY.—On May 22, Richard Irving Newby, Chemist and Druggist, Truro. Mr. Newby had been a member of the Pharmaceutical Society since 1869.

Pharmacy and the Allied Sciences.

A REVIEW OF CURRENT WORK.

BROMOFORM
POISONING.

An instance of the danger due to the separation of bromoform from an aqueous vehicle on standing, even when suspended by means of tragacanth, is afforded by the case communicated by C. E. Stokes to the *British Medical Journal*, for June 2 (p. 1340), in which two children nearly lost their lives after taking each a dose of whooping-cough mixture, which chanced to be the last in the bottle. After vigorous medical treatment, including the practice of artificial respiration in each case for an hour and a half, both patients were saved.

ALUMINIUM
PHOSPHIDE.

Fonzes-Diacon has succeeded in obtaining the combination of phosphorus and aluminium by igniting, by means of a magnesium ribbon, a mixture of amorphous phosphorus and powdered aluminium, in the molecular proportions of the formula P_2Al_2 . Even better results are obtained by employing a cartridge of agglomerated aluminium and barium dioxide to start combination of the mixture of aluminium and phosphorus. When this is done in a covered crucible, a friable black mass is obtained, containing a central cone of pure yellowish aluminium phosphide. This body is likely to prove useful as a source of pure phosphoretted hydrogen, that gas being liberated in large volumes when the phosphide is treated with water. It is not spontaneously inflammable, but ignites on contact with a flame. From the low atomic weight of aluminium, the yield of the gas from a given weight of the phosphide is large. Aluminium forms similar combinations with sulphur, selenium, arsenic, and antimony, and all these compounds, when treated with water, give the respective hydrogen gases in a state of great purity.—*Comptes rend.*, 130, 1314.

ETHER TEST
FOR

SCAMMONY RESIN.

P. Guigues finds that the solubility of scammony resin in ether is not, as is generally supposed, a simple and reliable test of its purity, since the same sample of resin varies greatly in solubility with ethers from different sources. He finds that the chief cause of these discrepancies is the presence of alcohol and of water in the ether. Thus, scammony resin that was soluble in ether, sp.g. 0.735, containing 15.5 per cent. of 98 per cent. alcohol, was much less soluble in absolute ether; while in a sample of pure ether, containing only 0.6 per cent. of water, 23.8 per cent. of the same resin was undissolved. Marked discrepancies were also noted in the solvent power of different specimens of ether having the same sp.g., 0.720, and free from either impurity, but of different origin. Not only does the quality of the ether affect the solubility of the resin, but also the quantity of the solvent employed. Thus after a clear saturated solution of scammony resin in ether is obtained, it precipitates, in most cases, on the further addition of the solvent.—*Journal de Pharm.* [3], 11, 529.

KALAGUA,
A KOLA
SUBSTITUTE.

From its effect as a stimulant on the digestive system of animals, Hendrickx and Coremans consider that *Theobroma kalagua* is likely to prove a useful substitute for kola and cocoa. Experiments conducted with the dried leaves given to various herbivorous domestic animals, in the form of an electuary, in the dose of 1 gramme to each 70 kilos of body weight, give evidence of its powerful stimulating effect on the processes of nutrition. It has a distinct diuretic action, but it is without influence either on the heart, the respiration, or the temperature, nor does it possess any antiseptic properties.—*Schweiz Woch. für Pharm.*, 38, 526.

LITHIUM
IN
PLANTS.

Herr E. Tschermak finds lithium to be a much more widely diffused element in the vegetable kingdom than has hitherto been supposed. It was detected chiefly in the leaves, the finer portions of the stem, the flower, and the fruit.—*Zeitsch. Landw. Vers.-Wesen Oesterreich*, 2, 560.

NEW SULPHO-
PHENYLATES.

J. Baldacinni has prepared the sulpho phenylates of cadmium, lithium and magnesium; all three combinations give, when pure, the characteristic reactions for the metals and the acid. The cadmium salt may find useful application in eye diseases, while lithium sulphophenylate is recommended as an antiseptic uric acid solvent, and the magnesium compound as an anti-putrefactive purgative.—*Oesterr. Zeits. für. Pharm.*, 54, 99.

KOSAM
SEEDS.

Kosam seeds, the product of *Brucea sumatrana*, a remedy for dysentery, are the subject of long articles in the *Revue des Cultures Coloniales* (vol. 6, pp. 97, 129, 193). Heckel and Schlagdenhauffen deal with the botanical source and description of the drug as well as its chemical composition, and show that it is not a new remedy for dysentery, as has been stated by Dybowski. Indeed, the Abyssinians have used it for this purpose from time immemorial. Mongeout has shown that the stem and root barks are preferable to the seeds for internal administration, owing to the large amount of fat present in the seeds, which delays digestion and hinders the action of the drug. Dybowski later maintains that the drug constitutes a new remedy for dysentery inasmuch as experiments recently conducted by Bertrand and Physalix demonstrate that the activity of the drug is not due to the quassin found by Schlagdenhauffen but to a glucoside, which Bertrand has named kosamin.

ALBUMIN OF
STRYCHNOS
SEEDS.

Em. Bourquelot and J. Laurent find that the horny albumin of the seeds of *Strychnos ignatii* and of *Strychnos nux vomica* contain the same carbohydrates, mannane, and galactane, as the leguminous seeds already examined by them, but that the proportion of galactane is remarkably high; this is notably the case in *nux vomica*, so that crystalline galactose may be easily obtained by the hydrolysis of its albumin, the yield being greater than that obtained from lactose, the source from which this sugar has hitherto been prepared.—*Comptes rend.*, 130, 1411.

RADIOLARIA
FROM THE
UPPER CHALK.

W. Murton Holmes, in a paper recently communicated to the Geological Society, describes some radiolaria contained in the cavities of two small flints which were thrown out of the new cutting between Coulsdon Station and the new Merstham tunnel on the L. B. and S. C. Railway. They were probably derived from the zone of *Holaster planus*. After treatment with hydrochloric acid, the material yielded silicified casts of foraminifera as well as radiolaria. The surface of the radiolaria is so much altered by corrosion that specific identification is in most cases impossible. Twenty genera have been recognised, and the organisms appear to belong to 41 species of these genera. A list of the radiolaria is given, accompanied by a short description of each form, and four new species are described. The *Discoidea* appear to have the predominance, and the species of *Dictyomitra* come next in numerical order.

MERCURY
CHLORO-
SULPHIDE.

When a dilute aqueous solution of mercuric chloride is precipitated with a solution of calcium polysulphide the resulting white precipitate obtained is not, according to F. Bordroux, a polysulphide of mercury, but a chlorosulphide having the constitution $Hg_2S_5HgCl_2$. It is very stable at ordinary temperatures, but is slowly decomposed by light.—*Comptes rend.*, 130, 1398.

TESTS FOR ARSENIC.

BY DR. B. H. PAUL AND A. J. COWNLEY.

Though absolute purity is a condition rarely attainable in regard to any material, whether it be a natural or manufactured product, the unsuspected presence of a foreign substance in any article may be a source of considerable inconvenience, or even of danger. In no case is that consideration of greater importance than in regard to articles employed for medicinal purposes. Hence the desirability of exercising such a control of the quality and character of those articles as is provided for by the tests prescribed in pharmacopœias for ascertaining that they come up to required standards of purity. Neglect of those precautions may sometimes be attended with no more serious consequence than that of misleading even academic professors to erroneous conclusions as to the chemical convertibility of one substance into another, as in the alleged conversion of brucine into strychnine or of cinchonine into cinchonidine, and, more recently, of phosphorus into arsenic; but some of the possible impurities of articles used for medicinal purposes may be of a deleterious character, and, more especially in such cases, the greatest care should be taken to ensure the utmost attainable approximation to official standards of purity. Such standards are necessarily relative and are established from consideration of a variety of circumstances applying to particular instances.

Arsenic, from its poisonous character, requires corresponding care to be exercised in the testing of articles which may be liable to contain it as an impurity. Consequently, methods for readily and accurately ascertaining that such articles are practically free from arsenic are worth the attention of those whose business it is to guarantee the purity of articles employed for medicinal purposes. The tests for arsenic given in the British Pharmacopœia are of very unequal value and applicability, and some fuller indications on those points would have been very useful. Thus, for instance, the test which depends upon the formation of arsenous sulphide by treatment with sulphuretted hydrogen is quite useless in many instances, and in many others it would be very likely to mislead unless the precipitate could be obtained in sufficient quantity for further testing and identification as arsenous sulphide.

Some years ago, when attention was directed to the occurrence of arsenic in glycerin, it was pointed out that a fluid drachm of that substance—an ordinary dose—might contain a quantity of arsenic making it equivalent to a dose of such a potent preparation as Fowler's solution. The test since introduced into the British Pharmacopœia should prevent any possibility of such impure glycerin being used medicinally, for its application is capable of affording evidence that the arsenic in glycerin, which satisfies that test, does not amount to more than 1/250,000th part instead of 1/5,000th part, as was frequently the case formerly.

Among the methods of detecting small quantities of arsenic, those known as Reinsch's test and Marsh's test will give satisfactory indications with skilful manipulation and when suitably applied; but much depends upon those conditions and the exercise of discrimination by the operator. Thus, for instance, in Reinsch's test, which consists of boiling a solution of the suspected substance, strongly acidulated with hydrochloric acid and a piece of bright copper foil, the presence of a minute amount of arsenic may be easily overlooked, or rendered doubtful, if the sublimation of the arsenic from the copper foil is not successfully carried out. Some of the directions given in books for conducting this test are also of questionable utility, as, for instance, repeatedly washing the copper foil and finally drying it over a Bunsen flame before the sublimation, might more likely lead to a negative result than a confirmatory one, except when the quantity of arsenic was very considerable.

Marsh's test is certainly a very valuable means of ascertaining the presence of arsenic in small amounts; but the statements made as to its capability in that respect are questionable, if they are not altogether exaggerated. It must be remembered that only part of the arsenic present in the substance tested is converted into arseniuretted hydrogen and that the quantity of material operated upon

cannot be very large. Then the decomposition of the arseniuretted hydrogen, so as to form a mirror at the heated portion of the tube through which the evolved gas is passed, is only partial in any case, and the absence of a mirror may be consistent with the presence of 1/100th of a milligramme of arsenic in the quantity of substance operated upon. If that were 10 grammes the amount of arsenic would be one in a million, and the result obtained would not be very conclusive either way, for in order to obtain a distinctly recognisable mirror in the heated tube a quantity of arsenic much less than 1/10th of a milligramme would probably be insufficient.

The reduction of arsenical compounds in Bettendorf's test, by solution of stannous chloride in hydrochloric acid and the consequent separation of arsenium as a dark-coloured precipitate, is the test relied upon to indicate practical freedom from arsenic in the German Pharmacopœia; but the conditions there directed to be observed in order to obtain an indication of practical absence of arsenic from such a substance as glycerin or sodium phosphate are not given in the British Pharmacopœia.

Gutzeit's test, as modified by Siebold, and described under the head of glycerin in the British Pharmacopœia, appears to be very much more delicate than any other, but it is at present open to some suspicion as regards its positive indications, since sulphuretted hydrogen or phosphoretted hydrogen might produce the same kind of yellow stain upon the mercurial paper as arseniuretted hydrogen. A minute trace of sulphur compound capable of being reduced by nascent hydrogen under the conditions of the experiment might produce an effect that would simulate that due to the presence of arsenic and thus lead to an erroneous conclusion. Whether in testing phosphates there may not be a similar source of error as a consequence of reduction and formation of phosphoretted hydrogen is uncertain, though it is not an inconceivable possibility.

But, however much the positive indications obtained with Gutzeit's test may be open to question as proof of the presence of arsenic in minute proportions, a negative result with that test may very safely be taken as evidence that the article tested is practically free from arsenic, and as that is precisely the evidence required in regard to articles employed for medicinal purposes, this test of Gutzeit's is one of great utility, especially as it can be applied very readily. In testing glycerin according to the directions given in the British Pharmacopœia, a negative result would mean that the two cubic centimetres of glycerin tested did not contain the least quantity of arsenic that is capable, under the conditions, of producing a faint yellow stain upon the mercurial paper within fifteen minutes. That quantity may be taken to be about one-hundredth of a milligramme, so that the glycerin would thus be shown to contain not more than one part of arsenic in 250,000 parts.

Applying the test to sodium phosphate that had been supplied as a chemical reagent for analytical purposes and might, therefore, be expected to be chemically pure, one gramme of the salt gave such a dark stain to the mercurial paper that no estimate could be formed of the amount of arsenic present according to that indication. From further experiments with smaller quantities and comparison of the results with those given by known quantities of arsenic, the amount of arsenic thus indicated was estimated to be one in 2500 of the salt tested, or 2.8 grains in the pound. Several other articles tested in the same manner gave results which might be regarded as indicative of the presence of arsenic. Among these were syrupy phosphoric acid, sodium bicarbonate, effervescent sodium sulphate, but in all instances the yellow stain was not produced within fifteen minutes and only after the lapse of several hours. Hence the amount of arsenic indicated as present in the articles tested could be regarded as in any case less than would count as objectionable impurity and, in addition, the uncertainty existing as to the precise meaning of very faint indications with this test would warrant their being ignored.

The use of iodine to counteract the disturbing influence of sulphur compounds in using Gutzeit's test has been recommended by Siebold, and though the addition of iodine does sometimes make a difference in the result obtained within fifteen minutes, it is questionable whether the interference due to sulphur can be counteracted in that way. As the reaction is one of reduction, any sulphur oxidised by addition of iodine might be expected to come again to its original condition under the influence of the nascent hydrogen continuously evolved.

In cases where, by the application of this test, a faint yellow stain is produced with one or two grammes of the substance tested, the safest plan is to have recourse to Marsh's test as a control of the questionable result.

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PRARMACOPŒIA NOTES.

BY J. CLOWER, NORTHAMPTON.

Suggested Improvements in Processes.

LINIMENTUM AMMONIA.—The formula of the new B.P. yields a softer soap than that of the 1885 B.P. The latter was very troublesome and frequently required thinning by addition of very dilute ammonia in order to make it pour from a bottle. The newer preparation is not readily poured from a bottle after being made a week or two. The suggested improvement merely adds 1 oz. of water to about 16 ozs. of the liniment, thus:—

Take of

Almond oil.....	4 oz.
Olive oil	8 oz.
Solution of ammonia	4 oz.
Distilled water	1 oz.

Mix the oils, add $3\frac{1}{2}$ ozs. of the liquid ammonia, shake well, mix the remaining $\frac{1}{2}$ oz. liquid ammonia with the water, add and shake.

The liniment improves by keeping, that is, it gets whiter without becoming thick. Why not order the oils by weight?

LINIMENTUM CAMPHORÆ.—Why not weigh the oil? Thus, taking twenty times the B.P. quantities and using a pottle bottle of 6 pints or so capacity:—

Camphor in flower, $1\frac{1}{4}$ lb. (20 oz., if preferably so written).
Olive Oil, $4\frac{1}{2}$ lb. (a pint weighing 1 lb. 2 oz.).

If the camphor is lumpy it may be powdered gently in a mortar, then by shaking up with the oil twice or thrice daily complete solution soon occurs. No loss of camphor by heat. It is surprising to read so many convictions against registered chemists for deficiency of camphor. Are there any statistics as to loss, if any, by keeping in the ordinary way?

UNGUENTUM HAMAMELIS.—Possibly this formula has been altered in reprints of the B.P., but I have not seen any notice of the same in the Journal. To make a pound requires some time and much trituration, then part of the fluid readily oozes out. Patients complain of smarting on application. Of course, the wool fat is overloaded with fluid, and on recognising this a batch was prepared by using anhydrous wool fat (adepts lanæ), with excellent results.

Suggested Re-insertions in the B.P.

TINCT. ZINGIB. FORT.—This preparation is omitted from the 1898 B.P. This is surprising when strong preparations of several drugs are additions to the work, and used for making the weaker preparations. Also it is what we have sold as "Essence of Ginger" for years, and must be made whether in the B.P. or not.

LIQUOR AMMON. ACET. CONC.—This preparation ("fortior" it was called in the 1885 B.P.) undoubtedly keeps better than the diluted one, and will always be used by surgeons doing their own dispensing. It was very convenient in xii. = zi., and should be re-introduced. Or, if thought preferable, a 1 to 7 formula might be given by using some glacial acetic acid.

FRUIT ESSENCES AND FLAVOURS.*

BY G. WEINDEL.

PINEAPPLE ESSENCE.—A ripe, but not too soft pineapple, weighing about 500 Gms., is mashed up in a mortar with Tokay 200 Gm. The mass is then brought into a flask with water 500 Gm., and allowed to stand two hours, alcohol (90 per cent.), 400 Gms. is then added, and the mixture distilled until 700 Gms. of distillate have been collected; cognac, 300 Gms. is then added to the distillate.

APPLE ESSENCE.—30 fresh ripe apples are peeled thin and the peel thus obtained, about 350 Gms., is covered with alcohol (90 per cent.), 1,000 Gms., and water 2,000 Gms., and allowed to stand for 24 hours. 1,250 Gms. is then distilled off, and vanillin, 10 Cgms., bitter almond water, 50 Gms., added to the distillate. This may be coloured with 10 drops of saffron tincture.

SWEET ORANGE ESSENCE.—25 large oranges, about 500 Gms., are thinly peeled, and the finely cut peel macerated for 24 hours with alcohol (90 per cent.), 1,000 Gms., and water, 3,000 Gms.; 5 drops of lemon oil and 10 drops orange oil are added, and 2,000 Gms. distilled off. The distillate is allowed to stand for eight days and is then filtered. Vanillin, 0.05 Gm., is dissolved in the filtrate, and two drops saffron tincture, and caramel tincture 3 Gms., added.

BANANA ESSENCE.—12 bananas are peeled, the thick peel sliced, and macerated with Burgundy, 300 Gms.; cognac, 200 Gms.; alcohol (90 per cent.), 300 Gms.; water, 1,000 Gms.; 1,000 Gms. distillate is now recovered, and saffron tincture, 3 drops; and coumarin, 10 Cgms., added.

PEAR ESSENCE.—40 muscatel or bergamot pears, are peeled, and the peel, about 430 Gms., macerated with alcohol (90 per cent.), 1,000 Gms.; Moselle wine, 250 Gms.; water, 2,000 Gms., for six hours; and then 1,500 parts distilled off. To the distillate, which may be coloured a faint green, coumarin, 5 Cgms., and sweet orange oil, 5 drops, are added.

BITTER ALMOND ESSENCE.—Bitter almond water 16 Gms.; alcohol (90 per cent.), 18 Gms.; water, 12 Gms.; rose essence, 1 Gm. Mix.

BISHOP ESSENCE.—Tincture of bitter orange, 30 Gms.; aromatic tincture, 3 Gms.; bitter almond water, 3 Gms.; orange flower water, 20 Gms.; alcohol (90 per cent.), 50 Gms.; water, 100 Gms. Distil off 100 Gms., and colour with caramel.

CARDINAL ESSENCE.—Green orange peel, 10 Gms.; unripe orange, 4 Gms.; cloves, 0.5 Gm.; cinnamon, 0.5 Gm., are macerated for five days with alcohol (90 per cent.), 50 Gms.; water, 80 Gms., to which is added bitter orange oil, 4 drops; lemon oil, 1 drop; bitter almond water, 5 Gms.; 100 Gms. is then slowly distilled and coloured with caramel.

CINNAMON ESSENCE.—Cinnamon, 10 Gms., is macerated for five days with alcohol (90 per cent.), 70 Gms.; water, 70 Gms.; and 100 Gms. distilled off; this is coloured with caramel.

CHAMPAGNE LEMONADE ESSENCE.—Vanilla essence, 1 Gm.; celery essence, 5 Gms.; woodruff essence, 1 Gm.; cognac, 4 Gms.; Burgundy, 2 Gms. Mix.

LEMON ESSENCE.—25 medium size lemons are peeled, and the finely-cut peel macerated for 24 hours with alcohol (90 per cent.), 1,500 Gms.; water, 3,000 Gms.; lemon oil, 10 drops; sweet orange oil, 5, are then added; 3,000 Gms. distilled off. This is set aside for eight days and filtered. Vanillin, 10 Cgms., is added, and the product coloured with tincture of turmeric, 60 drops; saffron tincture, 4 drops; caramel tincture, 60 drops.

STRAWBERRY ESSENCE.—Fresh dry strawberries, 750 Gms., are pulped in a mortar, and then put into a retort with Tokay, 200 Gms.; cognac, 200 Gms. Then add vanilla 1.5 Gms.; alcohol (90 per cent.) 300 Gms.; water, 500 Gms. This mixture is allowed to stand for an hour in the warm, and 1,000 Gms. is then slowly distilled over, and coloured light red.

* From the *Pharmaceutische Zeitung*, 44, 750.

CLOVE ESSENCE.—Cloves, 15 Gms., are macerated for five days with alcohol (90 per cent.), 70 Gms.; water, 70 Gms. Distil 100 Gms.; colour with caramel.

RASPBERRY ESSENCE.—Fresh raspberries, 200 Gms., are pulped in a mortar, allowed to remain for two days at a temperature of 20° C., and then mixed with water, 100 Gms. 50 Gms. is then distilled off, and alcohol (90 per cent.) 25 Gms., in which 0.01 vanillin has been previously dissolved, is then added to the distillate.

GINGER ESSENCE.—Ginger, 100 Gms., is macerated for five days with alcohol, 90 per cent., 600 Gms.; water, 800 Gms. The whole is then put in a retort and 1,000 Gms. distilled off and coloured with caramel.

MELON ESSENCE.—Two or three large ripe melons peeled, and the finely cut peel macerated for three hours with alcohol (90 per cent.), 1,000 Gms., and water, 2,500 Gms.

ORANGE FLOWER ESSENCE.—Orange flower water, 100 Gms.; alcohol, 90 per cent., 50 Gms.; water, 50 Gms.; rose essence, 20 Gms.; lemon oil, 2 drops; orange oil, 1 drop. Mix.

PEACH ESSENCE.—20 ripe peaches are stoned and bruised in a mortar. The kernels are made into a paste with water, 200 Gms. After half-an-hour the mixed pulp is placed into a retort; water, 600 Gms.; alcohol, 90 per cent., 400 Gms.; and 1,000 Gms. distilled off. To the distillate, coumarin, 0.1 Gm.; orange flower water, 100 Gms.; orange oil, 5 drops, are added, and the mixture coloured with saffron tincture, 5 drops; safflower tincture, 3 Gms.

QUINCE ESSENCE.—25 ripe quinces are peeled, and the fine cut peel allowed to stand in a retort for two hours with water, 500 Gms., alcohol (90 per cent.), 300 Gms. is then added, and 500 Gms. distilled off. To the distillate, coumarin, 0.5 Gm.; vanillin, 0.1 Gm.; bitter almond water, 25 Gms.; lemon oil, 5 drops; citronella oil 2 drops; saffron tincture, 3 drops, are added.

GREENGAGE ESSENCE.—30 fresh ripe greengages are stoned and bruised in a mortar, the kernels are also made into a paste with water, 200 Gm. After 30 minutes both are mixed in a retort with water, 600 Gms.; alcohol (90 per cent.), 400 Gms., and 1,000 Gms. distilled off. Vanillin, 0.05 Gm.; bitter almond water, 20 Gms.; lemon oil, 5 drops, are added. Colour green.

ROSE ESSENCE.—Rose oil, 1 Gm.; alcohol (90 per cent.), 70 Gms.; water, 30 Gms. Mix and colour rose tint.

VANILLA ESSENCE.—Vanillin, 1.5 Gm.; alcohol (90 per cent.), 700 Gms.; water, 300 Gms.; turmeric tincture, 30 drops; caramel tincture, 20 drops. Mix

ORRIS ESSENCE.—Finely-sliced orris root, 500 Gms., is macerated for 3 days with alcohol (90 per cent.), 500 Gms.; water, 800 Gms., then 1,000 Gms. is distilled off. Vanillin, 0.5 Gm.; coumarin, 0.02 Gm., are dissolved in distillate.

WALNUT ESSENCE.—500 bruised green walnuts; cloves, 2 Gms.; cinnamon, 5 Gms.; mace, 1 Gm.; are macerated for four days in alcohol (90 per cent.), 750 Gms.; and water, 500 Gms. Another 500 Gms. of water is then added, and 1,000 Gms. distilled off: to this is added bitter almond water, 100 Gms., and the mixture coloured deep green.

WOODRUFF ESSENCE.—Bruised tonka beans, 100 Gms.; alcohol (90 per cent.), 480 Gms.; water, 140 Gms., are macerated for 7 days, water, 400 Gms., is added, then 700 Gms. is distilled; mixed with orange flower water, 50 Gms., and coloured green.

LEMON WINE.—The fine cut peel of 4 to 5 lemons is treated with sherry, 1,000 Gms.; cognac, 300 Gms.; and filtered after 24 hours. To the filtrate add orange flower water, 50 Gms..

PINEAPPLE WINE.—A pineapple of about 500 Gms. and one quarter of a vanilla pod are cut up and macerated with port wine, 1,300 Gms.; cognac, 200 Gms.; allowed to stand two days filtered without strong pressure.

ORANGE WINE.—Two blood oranges are stuck with cloves, and the whole fruit is then covered with Burgundy, 1,000 Gms.;

cognac, 300 Gms.; alcohol (90 per cent.), 200 Gms., and filtered after standing for four days.

ARTIFICIAL ORANGE JUICE.—Tartaric acid, 2 Gms.; citric acid, 80 Gms.; water, 300 Gms.; lemon essence, 10 Gms.; orange essence, 50 Gms.; caramel, 0.2 Gm.; mix.

ARTIFICIAL LEMON JUICE.—Citric acid, 10 Gms.; phosphoric acid, 1 Gm.; water, 40 Gms.; lemon essence, 50 Gms.; mix. These juices mix clear and bright, have a pleasant odour and taste, and do not become mouldy in less than three to four months.

FROTH HEADING.—(1) Quillaia bark, 5, is covered with water, 15, allowed to stand for three hours, and then heated for four hours on a water bath. It is now filtered, the filtrate evaporated to 8, and glycerin, 2, added. (2) Saponin, 5, are dissolved in water, 80, and alcohol (90 per cent.), 20, added.

THE OFFICIAL PROCESSES FOR THE ASSAY OF IPECACUANHA, BELLADONNA, AND NUX VOMICA.

BY F. C. J. BIRD.

II.—Belladonna (Continued from p. 534).

Emplastrum Belladonnae.—This preparation, according to the Pharmacopœia, contains 0.5 per cent. of the alkaloids of belladonna root. The absence at the time of publication of the Pharmacopœia of any tried processes for the determination of alkaloid in a substance presenting such analytical difficulty as belladonna plaster probably accounts for a statement of official strength alone appearing, the provision of a means of accurately verifying the alkaloidal percentage of the preparation having been left to future investigation. An inspection of the formula for belladonna plaster shows that no loss of alkaloid is assumed to occur during manufacture, and, provided that the liquid extract be carefully evaporated and excessive heating avoided, this assumption is quite correct; indeed, there is often a slight gain in strength owing to evaporation during the mixing of the warm ingredients.

A reliable process for the assay of belladonna plaster, B.P., has been already described in the *Pharm. Journ.* [9], 4, 146, where full details will be found. The plaster is dissolved in a mixture of chloroform and glacial acetic acid, and decomposed with dilute sulphuric acid. The sulphate of lead having been removed by filtration, the chloroform is separated from the aqueous liquid, the former being washed with a little dilute acid, and the latter, which contains the alkaloid, treated in the usual manner by shaking out with chloroform, re-agitating with acid, and extracting a second time with chloroform. A number of experiments have been made with the view of shortening this process by finding some way of obtaining the alkaloid in a pure condition without resorting to the second extraction with chloroform, but so much foreign matter passes with the alkaloid into the first chloroformic solution that the gravimetric and titration figures often differ by as much as 25 per cent. or more. The impurity, however, is so little coloured that it does not interfere with the changes of the indicator during titration, and if the weight of the residue be disregarded the titration figure may be accepted as correct whenever the assay is merely wanted for confirmatory purposes. But the superior analytical value of results in which weight and titration are in close agreement cannot be too strongly insisted upon, so that in all important cases it is better to carry the process through to the second extraction.

As very little alkaloid accompanies the oleic acid, resin, etc., in the chloroformic layer of the filtrate from the lead sulphate, the second washing with dilute acid recommended in the process may always be omitted, and traces only of alkaloid are retained in the lead sulphate precipitate.

A sample of belladonna plaster, B.P., carefully prepared with a liquid extract testing 0.75 per cent., yielded by the process referred

to above 0.51 per cent. of alkaloid, and another portion of the sample, independently assayed by Dr. S. Rideal, who used the same process, gave 0.512 per cent. The method is only intended for the assay of plaster made according to the Pharmacopœia or similar formula.

Extractum Belladonnae Alcoholicum (B.P.).—The presence of milk sugar in alcoholic extract of belladonna does not interfere to any serious extent with the application of the modified B.P. process for the liquid extract, referred to on page 532, to the assay of this preparation. Owing to the somewhat syrupy nature of the solution formed by the dissolved lactose, the separations are a little sluggish, and it is always advisable to force the whole of the liquid by air pressure through cotton wool placed in the neck of a separator (see page 176), a procedure which is also advantageous and which effects a considerable saving of time when working the modified B.P. process for the liquid extract.

Process (modified B.P.).—Alcoholic extract of belladonna, B.P., 7.5 Gm.; water 10 C.c. Triturate in a small mortar to a uniform liquid, transfer to a separator and rinse the mortar with more water, using 50 C.c. in all. Add diluted sulphuric acid, 10 C.c.; chloroform, 20 C.c.; and continue the process as given on page 532.

As might be expected, this method possesses the disadvantage that with certain samples the alkaloidal residue cannot be obtained in a sufficiently pure condition without resolution in acid and a second shaking out with chloroform.

The employment of a carbonated alkali in place of ammonia for the liberation of the alkaloid offers advantages in several directions, more particularly when the non-alkaloidal constituents of the preparation of the drug under assay possess emulsifying properties themselves, or are capable of forming compounds of that nature. Ammonia dissolves in most immiscible solvents, and in doing so carries with it much saponifiable and resinous matter, thus often rendering the first alkaloidal extraction unduly impure. The immiscible solvent, too, is generally soluble to a slight extent in a dilute aqueous ammoniacal liquid, especially if alcohol be present, and this fact distinctly interferes with the complete removal of the last traces of alkaloid. On the other hand, an alkaline salt like potassium carbonate when dissolved in adequate proportion in the aqueous layer furnishes a fluid of high specific gravity, which with a light immiscible solvent not only separates readily, but also precipitates saponified bodies, thus obviating all tendency to emulsification. Further, the action of the immiscible solvent is facilitated on account of the very sparing solubility of the alkaloid in a strong saline solution, and the immiscible solvent itself being practically insoluble more complete extraction of the alkaloid is possible.

Ammonia is selected in the alternative process for the liquid extract (page 533) because of the ease with which it dissolves the whole of the water-precipitable constituents, forming a clear, heavy liquid, which separates instantly. In this case carbonate presents no advantage.

A 1 in 2 (w/v) solution of carbonate of potassium separates instantly and completely from the special solvent recommended for belladonna. A solution of this strength is used for washing the first ethereal extract in the assay processes (to be subsequently described), as it removes but the faintest trace of alkaloid, the amount present in the washings being hardly capable of detection by delicate alkaloidal reagents. A stronger solution (1½ in 2) removes no alkaloid whatever, but the washing out of the coloured impurities is not so complete.

In general it will be found that when a carbonated alkali has been employed to set free the alkaloid in the first stage of an assay process, water agitated with the immiscible solvent containing the alkaloid will remove very heavy traces of the latter, and it therefore follows that in those instances in which displacement of residual carbonate solution by a little water is recommended

care must be taken to avoid any agitation of the water and ethereal liquid.

The washing with half-saturated brine in the assay of belladonna root (see page 533) may with advantage be repeated a second or even a third time should the brown colouring matter appear to be incompletely removed by the first treatment.

The selective properties of the solvent recommended for belladonna (amylic alcohol, ether and chloroform) are markedly evident during the extraction of belladonna leaves, in which process, by reason of the large proportion of chlorophyll present, etc., the ethereal solution becomes of an intense green colour. On washing with solution of carbonate of potassium a small quantity of a brown substance is removed, and the ethereal liquid, which changes to a very pure green, yields on agitation with dilute acid an almost colourless solution of the alkaloidal salt.

None of the carbonate processes are liable to emulsification. They have all been verified by being applied to the analysis of preparations of known strength, and the results have come out almost identical with the calculated figures, rarely exceeding 1 per cent. below the actual amount present. When compared with the adaptations of the modified B.P. process, referred to on page 532, a larger yield of alkaloid has been obtained.

For the reasons already given, the absolute extraction of all alkaloid, by a *simple* process, from galenical preparations of such complex composition as those under consideration is a matter of extreme difficulty. Under ordinary conditions traces will always remain, principally in the first impure mother liquor, and if an immiscible solvent has been used to remove fatty bodies from acid solution, in that immiscible solvent. Other sources of loss have to a great extent been obviated in the processes described. Whilst it would probably be quite possible to devise methods which would ensure the extraction of absolutely the whole of the alkaloid, it would be at the expense of inconvenient complication, and as long as an analytical process does not involve an error greatly exceeding 1 per cent. below the truth, it may be considered sufficiently accurate for all the practical purposes of pharmacy.

It sometimes happens when ammonia has been used as the precipitant in the final extraction, that the chloroformic layer exhibits a milky appearance and refuses to immediately separate in a clear and bright condition. The addition of a few C.c.'s of a saturated solution of ammonium carbonate followed by reagitation of the contents of the separator rarely fails to remedy this, and at the same time there is generally a slight gain in the purity of the alkaloidal residue.

ALTERNATIVE PROCESS FOR ALCOHOLIC EXTRACT OF BELLADONNA—

Alcoholic extract of belladonna, B.P. 7.5 Gm.
Solution of potassium carbonate (1 in 2) 20 C.c.

Place the solution of potassium carbonate in a separator, add the extract of belladonna, warm gently and shake until dissolved. Then add—

(Solvent) Amylic alcohol 3 vols. }
Chloroform 1 vol. } 20 C.c.
Ether 4 vols. }

Agitate vigorously, separate and extract again with three successive quantities of—

Solvent 10, 10, and 5 C.c.

Wash the mixed ethereal liquids three times with successive quantities of—

Solution of potassium carbonate (1 in 2) 5, 2 and 2 C.c.

Reject the aqueous washings, displace the last portions with 1 C.c. of water added without agitation, then extract with—

Normal sulphuric acid 4 C.c. }
Water 6 C.c. }

Separate and repeat three times with—

Water 3, 3 and 3 C.c.

Render the mixed acid liquids alkaline with—

Solution of ammonia q.s.

and shake out the alkaloids four times in succession with—

Chloroform 10, 5, 5, and 5 C.c.

Evaporate the mixed chloroforms in a tared dish on a water bath, dry below 100° C. to a constant weight, weigh and titrate as directed in the Pharmacopœia.

Strong Alcoholic Extract of Belladonna, 3.0 per cent.—A solid alcoholic extract of belladonna root prepared without milk sugar, and containing 3.0 per cent. of total alkaloid is convenient for making methylated liniment. It can be assayed by either of the processes described under ext. belladon. alcoholic., 2 Gm. being taken for the determination. The extract, having been weighed in a small tared dish, is rubbed to a smooth cream with a small quantity of water. The liquid is then transferred to a separator, the dish rinsed with more water, 40 C.c. being used in all, and the process continued as for the liquid extract (p. 532 and P.J. [4] 8, 432).

A purer residue and higher figures may be obtained with potassium carbonate. The following are the details of the process:—

Strong alcoholic extract of belladonna root . . .	2 Gm.
Potassium carbonate.....	10 Gm.
Water.....	15 C.c.

Triturate the extract and potassium carbonate with a little of the water to a smooth cream in a small mortar. Transfer to a separator, rinsing out the mortar with the remaining water, and add

(Solvent) { Amylic alcohol	3 vols. }	20 C.c.
{ Chloroform	1 vol. }	
{ Ether	4 vols. }	

and continue the process as described under ext. belladonnæ alcoholicum, B.P., p. 691.

The only comment necessary here is that the final chloroform on first separating occasionally exhibits a milky appearance, which, however, disappears at once on the addition of a little saturated solution of ammonium carbonate and re-agitation of the liquids. The difference between weight and titration by this process does not usually exceed one or two milligrammes on a 0.060 Gm. result.

Linimentum Belladonnæ, B.P.—No mention is made in the Pharmacopœia of any percentage of alkaloids required to be present in this preparation, but it is obviously half the strength of the liquid extract and should therefore contain 0.375 per cent. of the alkaloids of belladonna root.

The modified B.P. (acid extraction) process, p. 532, used for the liquid extract, answers well for the assay of this liniment, the camphor being easily removed from the acidified liquid by the preliminary washing with chloroform. Take 10 C.c. of the liniment, dilute with 40 C.c. of water, and proceed as for the liquid extract. The yield of alkaloid obtained will probably be from 2 to 3 per cent. below the amount actually present in the preparation, but slightly higher than could be expected from any application of the official analytical method.

Tinctura Belladonnæ B.P., on evaporation to a low bulk and subsequent treatment by the analytical process employed for "Extractum Belladonnæ Liquidum," is required by the Pharmacopœia to yield not less than 0.048, nor more than 0.052 Gm. of alkaloid from 100 C.c. of tincture. This preparation of belladonna is notable as being the only one in which a definite variation is permitted from the standard alkaloidal strength, which latitude may have been allowed on account of some uncertainty at the time of compilation of the Pharmacopœia as to the combined effects of the precipitation which occurs in mixing the tincture and, during the analysis, of the heat of evaporation and preliminary removal of alcohol on the percentage of alkaloid indicated by the final titration.

The comparatively large quantity of tincture required for an assay and the amount of alcohol present effectually prevents the adoption of any simple shaking out process for the determination of the alkaloid. Several modifications of processes were tried with the object of avoiding evaporation, but there was always a loss of alkaloid, and evaporation, in this instance, appears inevitable.

PROCESS.

Tincture of belladonna B.P..... 100 C.c.

If necessary, add tartaric acid to faint acid reaction, and evaporate on a water bath to 30 C.c. Transfer to a separator, and rinse the dish with

Diluted sulphuric acid 7 C.c.

Extract the mixed acid liquids twice with successive quantities of Chloroform..... 14 and 7 C.c.

Wash the mixed chloroform with

Diluted sulphuric acid..... 1 C.c. }
Water..... 4 C.c. }

and return the washings to the separator. Render the liquid alkaline with

Solution of ammonia q.s.

and shake out three times in succession with

Chloroform 7, 7, and 7 C.c.

Evaporate in a tared dish, dry, weigh and titrate as directed in the Pharmacopœia. This alkaloidal residue frequently exhibits a difference between weight and titration of 15 to 20 per cent. A purer residue may be obtained by extracting with acid and shaking out the alkaloid a second time with chloroform, which lowers the impurity to from 3 to 5 per cent. The results by this process are from 2 to 3 per cent. below those by the alternative method.

ALTERNATIVE METHOD FOR TINCTURA BELLADONNÆ, B.P.

Tincture of belladonna B.P..... 100 C.c.

Faintly acidify with tartaric acid, if necessary, and evaporate on a water bath to 13 C.c., transfer to a separator, rinsing the dish with Water, 2 C.c. Add Potassium carbonate, 10 Gm., and

(Solvent) { Amylic alcohol 3 vols. }
{ Chloroform..... 1 vol. } 20 C.c.
{ Ether 4 vols. }

and continue the process as described under "alternative process for the assay of liquid extract of belladonna," on page 533, using ammonia, and, if necessary, solution of ammonium carbonate for the final liberation of the alkaloid.

Only traces of alkaloid can be detected in the mother liquors from the different stages of this alternative process for the tincture, and the residue is of a high degree of purity.

Unguentum Belladonnæ, B.P.—In a note appended to the B.P. formula for this preparation it is stated that "100 parts of this ointment should contain 0.6 part of the alkaloids of belladonna root," but, possibly, for a similar reason to that suggested under emplastrum belladonnæ, no indication is given of any method by which the alkaloidal content can be verified.

On the score both of simplicity and convenience it appeared desirable to ascertain if a direct shaking out method could be adopted in this assay. Two processes were found to be available, one based on the acid extraction, and the other on the potassium carbonate method. They both answer well, and, in this instance also, the latter invariably gives the higher figures.

PROCESS.

Belladonna ointment, B.P. 10 Gm.
Benzol 20 C.c.
Water 10 C.c.
Diluted sulphuric acid 7 C.c.

Melt the ointment in a small dish, pour into a separator, rinse the dish with the water and acid, add the benzol and agitate vigorously. Separate the benzol, and wash the aqueous layer twice with successive quantities of

Benzol 10 and 10 C.c.

Warm the mixed benzol washings with

Diluted sulphuric acid 3 C.c. }
Water 3 C.c. }

agitate well and separate. Shake a second and third time with

Water 10 and 10 C.c.

Reject the benzol and return the acid liquids to the separator. Then make alkaline with

Solution of ammonia q.s

Shake out with three successive quantities of
 Chloroform 10, 10, and 10 C.c.
 adding if necessary
 Saturated solution of ammonium carbonate *q.s.*
 Wash the mixed chloroforms with
 Water 3 C.c.
 Solution of ammonia 10 drops. }
 Solution of ammonium carbonate 2 C.c. }

Evaporate in a tared dish, dry below 100° C., weigh and titrate as directed in the Pharmacopœia.

Although ether can be employed in place of benzol, the latter is preferable, as it is cleaner in working and the separations are sharper. As a final check upon this process, a sample of belladonna ointment was carefully made with a liquid extract testing 0.75 per cent. of alkaloids, and the total weight adjusted so that the sample of finished product should contain exactly 0.6 per cent. On analysis by the foregoing method it yielded a residue showing about 14 per cent. of impurity, but indicating by titration the presence of 0.585 per cent. of alkaloids. The same sample assayed by an alternative method, details of which are given in the following paragraphs, came out at 0.6 per cent.

(To be continued.)

THE SALE OF FOOD AND DRUGS.

FOOD AND DRUGS: A MANUAL FOR TRADERS AND OTHERS. By CHARLES JAS. HIGGINSON. Pp. xvi. and 179. 2s. 6d. net. Effingham Wilson, 11, Royal Exchange, E.C.

It is perhaps not altogether a kind or beneficial proceeding to encourage the "man in the street" to be his own professional adviser, for one can only say of the majority of the publications issued for the purpose of persuading him to dispense with experts that they are really little less than humbug and little more than delusions and snares. The legal handy-books published by Effingham Wilson, however, are, generally speaking, not to be classed with the pernicious variety that mar good citizens by transforming them into bad amateur lawyers, and the latest addition to the Royal Exchange—a Food and Drugs Manual—may be commended as a carefully-compiled and clearly-expressed digest of facts relating to the sale of food and drugs quite worthy the close attention alike of vendor and purchaser, retailer and consumer. To the former a *résumé* of the law relating to adulteration has become an absolute essential—a protective necessity; whilst to the ordinary member of the general public such a work should prove instructive in so far as it reveals how particularly zealous the Legislature has been in protecting him from swallowing sophisticated substances, liquid and solid, alimentary and pharmaceutical.

The manual now in question is a consolidation of the three Food and Drugs Acts (1875, 1879, and 1899) and the Margarine Act of 1887, and, as might be expected, there is rather more margarine and food in the book than drugs. It is illustrated by extracts from judicial decisions, and is addressed more especially to traders, though the epitomiser—C. J. Higginson, barrister of the Inner Temple—modestly suggests a wider application by adding the words "and others" to his title-page. The codification of piecemeal legislation is a very trying task, more particularly with statutes of the kind now in force for the restraint of adulteration—nothing is easier in the progress of such work than to fall into error, whereas few things are more difficult than the detection of a fault when committed.

On the whole, Mr. Higginson may be congratulated on the manner in which he has performed his work, and the admirable summary of the general effects of the 1899 Food and Drugs Act, with which the manual opens, is not the least successful or valuable of his efforts to guide the dealer in foods or in drugs, in spite of the fact that a trivial error of date is to be noted on the very first line. Naturally, there is room for criticism, but the defects from the pharmaceutical point of view are, perhaps, rather those of arrangement than of matter. If Mr. Higginson had dealt in a somewhat fuller manner with the relations of the Acts to the sale of drugs—

giving, for instance, a separate chapter or division to the subject as it affects chemists and druggists, registered persons could have more heartily welcomed the publication. As it is, the items of special moment to the calling that are recorded are by no means prominent, whilst several points of doubt and difficulty of constant occurrence in pharmacy and badly needing a little forensic elucidation are overlooked altogether. It is true that the chief decisions of the courts on cases under the Acts are generously sprinkled throughout the book, and might furnish material for very useful study by the legal mind, but laymen are apt to find them somewhat perplexing, for it is extremely difficult to detect the true inwardness of the position when a bare record is given of cases in which the defendant in *A versus B* is convicted for what is held in *C versus D* to be no offence. The determining circumstances effecting the differentiation in two such cases are essential, but they are rarely, if ever, given.

The beeswax, camphorated oil, and arsenical soap cases are mentioned, but nothing is recorded of cases turning upon the labelling of substitutes for Pharmacopœia articles or of those involving questions as to the proper division of samples where medicinal substances are put up in small containers. The use of preservatives and colouring admixtures is just touched upon, but no guidance is offered, nor, perhaps, in the present unsettled state of the law, could any be expected; the only comfort offered is the information that a Departmental Committee is engaged in investigating the subject. But these are blemishes rather than defects, for it must be remembered that the pharmaceutical portion of the Food and Drugs Acts is very much like the chapter on snakes in the legendary account of the fauna of Iceland, whilst the clauses dealing with drugs lack definition, and, indeed, invite a variety of interpretations. Moreover, Mr. Higginson is not a chemist, and is doubtless unacquainted with the special nature of the business of a chemist and druggist.

The manual is very thoroughly indexed, and possesses a good deal of virtue in its tail, for, in addition to the statutes *in extenso*, there are printed in an appendix the Local Government Board's General Orders relating to margarine factories and to the qualifications and appointment of analysts, the latter of which may be worth the perusal of pharmacists. Altogether, the manual may be profitably added to the reference library of the careful and conscientious chemist.

PROCEEDINGS UNDER THE PHARMACY ACTS.

Illegal Sale of Poisons.

Pharmaceutical Society v. Brownrigg.

At the Sheriff Court House, Linlithgow, on Saturday, June 23, 1906, William Brownrigg, assistant in the drug shop of Dr. Alexander Stewart, Uphall, was charged at the instance of the Pharmaceutical Society with selling laudanum and Budden's Balsam to the Society's officers on April 28 last.—Mr. Peter Morison, jun., S.S.C., Edinburgh, appeared for the prosecutor.—Accused pleaded guilty to both offences, and made a long explanation, alleging that he was a registered medical student acting under the supervision of Dr. Stewart, and he had written to Mr. Bremridge saying he did not know he was committing an offence. In reply to the Sheriff, he admitted that Dr. Stewart was not present when he sold the poisons, and was very angry when he heard what had happened. He was not thinking about it being an offence when he sold the poisons, his only object being to sell as much as possible and show a good cash return when the doctor came back. He had been born and brought up in the drug trade, and expected soon to be a qualified medical practitioner.

Mr. Morison said he had to ask the full penalty for both offences. The accused, in reply to a direct inquiry by Mr. Hill, claimed to be a registered chemist at the time he sold the poisons. Mr. Hill said there was no Brownrigg on the Register as being a chemist in Uphall. Accused then said the address on the Register would be

Liverpool. He was registered in 1884. In consequence of this claim the Registrar made inquiry, and found that the John Brownrigg, Liverpool, the only person of the name on the Register, was a very old man, and not the accused at all. In reply to an inquiry, accused wrote a letter to the Registrar stating that he was a registered medical student, and did not know that he came under the Act. But for this delay, consequent on the accused's claim to being registered, this case would have been before the Court along with the last case. The statement to Mr. Hill was quite contrary to the statement in the letter to Mr. Bremridge, and from his own admissions it was quite evident that accused was well aware that he was committing an offence in selling poison.

The Sheriff: Are you any relative of the John Brownrigg of Liverpool?

Accused: Yes, your worship. I am his son.

The Sheriff said: I am inclined to impose the full penalty in this case. Technically, there are two offences, and that would be £10. But in respect that both poisons were practically sold at the same time, and virtually to the same party, with the consent of the prosecutor I will impose the full penalty of £5 for the first offence and admonish accused in respect to the second offence. The costs will be £1 5s. 6d., making a total of £6 5s. 6d. I grant warrant to point in the event of non-payment.

Accused said he could not pay. He supposed Dr. Stewart would have to see to it.

There was no appearance for Dr. Stewart, and the penalty was not paid.

POLITICAL GOSSIP.

THE PUBLIC SCANDAL which, according to Sir Henry Fowler, threatened to leave an indelible stain upon the reputation of the present Administration has been averted, for on Tuesday last the unexpected happened, and the Companies Bill passed its second reading. Thus the conjectures and calculations of lay politicians have been wholly and entirely falsified and frustrated. Hardly a living creature outside the House of Commons contemplated the possibility of progress being made with the Bill this Session; indeed, there is good reason for believing that Ministers themselves did not until recently entertain any very sanguine hopes in that direction; but in spite of all signs and portents of fierce and unyielding opposition to the measure, its principle was adopted after a mild debate of three hours in a House that very narrowly escaped a "count-out"! The Government must certainly be congratulated on having skilfully engineered a pre-arranged opportunity. Naturally, the chief features in the changed situation are the remarks of Mr. Ritchie in reference to Clauses 2 and 3, indicative of his attitude towards the pharmaceutical and professional aspect of the company question, and the observations of Mr. Balfour, revealing an intention to press on the Bill in a vigorous manner. So far as Mr. Ritchie is concerned, he has consistently maintained from the very first that the Lord Chancellor's additions are not germane to the Bill, and from the signs of assent with which his reiteration of that statement was received on Tuesday night, the majority of the members of Parliament think with him. Consistency is not largely cultivated in Parliamentary circles, but pharmacists may be reminded that in almost every case where the Pharmaceutical Council has approached Departments of the State or Officers of the Crown, from the sitting of the Departmental Committee in 1895 down to the completion of the labours of the House of Lords' Select Committee last year, the official view expressed has always been that the proper remedy for a defect of the Pharmacy Act is an amendment of that Act. It follows, therefore, that the President of the Board of Trade is not likely to support the retention of the clauses by the Standing Committee on Trade to which the Bill now stands committed, and that his colleagues will no doubt give effect to his implied advice to delete them. Should this assumption of the course of events prove accurate, the line of policy enunciated by the Council in March will have been

consummated without the necessity for any active pharmaceutical fighting.

EXPEDITIOUS PRUNING is evidently Mr. Balfour's conception of what the Standing Committee on Trade should undertake in regard to the Bill, for he estimated two days as the period requisite for the Committee's labours, basing his remarks on the very favourable reception of the measure on Tuesday. If this estimate be correct, a fortnight or three weeks should see the question transferred to the House of Lords again, and it is interesting to speculate as to what may happen if the pharmaceutical clause should be dropped by the Commons. Will Lord Halsbury, having regard to the public danger arising from companies being outside the jurisdiction of the Pharmacy Act, re-insert it? And if he should do so—which, if he adhere to his public utterances, he seems bound to do—what action can the Pharmaceutical Society take to preserve its interests? The position is even now somewhat delicate, and may possibly become more intricate, but it happens rather fortunately that the Law and Parliamentary Committee is specially charged to consider it *de novo*, with the advantage of three new advisers. It is expected that there may be something to report to the Council at its meeting next Wednesday. By that time the members of the House to be added to Grand Committee for the Consideration of the Bill may have been appointed, and it may be possible to furnish them with an official *communiqué* of the Council's views on the subject.

WHAT HAS BECOME of the opposition to Clause 2, which was expected to be brought about by the Secretary's circular of March 8 last to local secretaries? Not a single ordinary member who took part in the Companies Bill debate on Tuesday had a word to say about it! Yet it is common knowledge that some 300 M.P.'s. were asked to oppose the clause or to object to it in some form or other. Are they conserving their energies for a later stage, or must it be admitted that by comparison with the enormous financial interests involved the pharmaceutical aspect of the case is of infinitesimal importance? Any average person who thoughtfully reads the report of the debate must be struck with the fact that by the side of the national—nay, Imperial—importance of the main principles involved in the Companies Acts and the present Bill, the cry of the pharmacist must appear to statesmen as the "trouble of ants in the gleam of a million million of suns."

AMENDMENTS for the Standing Committee on Trade in respect to the Companies Bill are already flowing in. On Wednesday—before the date of meeting was fixed—Mr. Harwood (Bolton) notified that he will move for the insertion of the word "dentist" after the word "druggist" in Clause 2, lines 23 and 25, and for the deletion of the word "dentist" from Clause 3—quite a novel variation of anti-professional tactics. Mr. Galloway (S.W. Manchester) has also notified an alteration for the benefit of corporate bodies usurping professional practice. He proposes that Clause 3 shall not come into operation until January 1, 1903. This gentleman, it will be remembered, was with difficulty persuaded that the Pharmacy Acts Amendment Bill of 1898 was not an attempt to extend an already powerful monopoly!

MR. BEGG'S Amendment Bill has been dropped now that the Government is in earnest in dealing with Companies; the Cheap Trains, Street Noises, Jurors' Expenses, Bank Holiday Amendment, and Weights and Measures Bills have followed or preceded it into oblivion.

THE CHAMBER OF COMMERCE at Huddersfield has petitioned the House for alteration of the Companies Bill. Amongst other things it objects to is Clause 3, which is subtly represented to be calculated to put an end to the system at present very generally adopted at hydrophathic establishments where the medical attendant is a salaried officer of the company. The Huddersfield traders also protest against the Pharmacy Act being applicable to companies.

FACTS AND FANCIES.

BY AN ORDINARY PHARMACIST.

The Conference Arrangements.

Though my pink circular has not yet come to hand, I take it that I shall be quite in order in assuming that the editor was officially inspired last week and in forthwith applying for the books of tickets I shall require. Apparently, it is anticipated that there will be a rush for the excursion tickets, and, as I gather that the accommodation will be somewhat narrowly limited, it would appear desirable to make early application for those. The capacity of the pleasure barges and of Skindle's Hotel is, I imagine, none too great, and the number of persons who can be comfortably arranged for is probably much smaller than the number of those who would like to be present. Any reasonable number of persons can be accommodated at the Whitehall Rooms or the Royal Botanic Gardens, but Thames pleasure barges and river-side hotels are not built with the idea of entertaining a very large number of people at one and the same time. Those who wish to attend, therefore, should apply early for tickets, and be careful not to ask for an unreasonably large number, as it may happen that others will be equally desirous of taking part in the last day's festivities.

The Latest Poison Scare.

Arsenic in effervescing sodium phosphate appears distinctly out of place, but it may be doubted if the crude phosphate is ever entirely free from that noxious impurity. Nothing, however, like eight or nine grains of arsenic in the pound should ever be possible in the purified article, and it would seem to indicate gross carelessness on the part of someone if such a proportion were found to be present. Rumour has been busy, as usual, in supplying far-fetched explanations of the matter, but I think it is safe to discard the extreme suggestion that sodium arsenate was accidentally mixed with some phosphate, owing to an assumed lack of system in the manufacturer's storage arrangements. It is much more probable that the crude phosphate operated upon has contained more arsenic than usual, and that the manufacturers have depended upon recrystallisation to purify the salt sufficiently. If, however, the arsenic were present in the form of sodium arsenate, that compound would probably crystallise out with the sodium phosphate. The check that is obviously required in such a case is that the crude phosphate should be tested for arsenic, and, if that impurity be present in any appreciable quantity, the recrystallised salt should be specially examined before any of it is sent out to wholesale or retail dealers in chemicals for medicinal use. That does not appear to have been done in the present instance, and the result is not one which pharmacists generally will regard with equanimity.

Unreasonable Delay.

A strange feature in the case is the unreasonable length of time that has been allowed to elapse before "the trade" was properly notified. The chemical manufacturers involved acknowledge that they have been supplying sodium phosphate which probably contained arsenic, from the middle of November until the end of April last. Presumably, therefore, the presence of the poisonous impurity was detected nearly two months ago, but we ordinary pharmacists were not informed of the existing serious state of affairs until last week. I find that warning circulars were sent out by the manufacturers of granular preparations to some of their customers early in May, but that notification was not general, and was useless so far as most retail chemists were concerned. What ought to have been done, and done promptly, was for the chemical manufacturers and granulators to send such particulars to the *P. J.* and other trade journals as would have enabled the conductors of those organs to put all retailers on their guard at the earliest possible moment, in addition to sending carefully-worded circulars to all their cus-

tomers and supplying printed warning slips for insertion in the monthly prices current issued by all wholesale druggists and druggists' sundriesmen. No words could be too strong to express condemnation of the "policy of hush" which has apparently been adopted, and the probability is that a very heavy price will have to be paid by all the manufacturers concerned before the matter is allowed to sink into oblivion, if ever that stage is arrived at. Though the pharmacist recognises that his position is to stand between the public and possible dangers that may arise from the careless handling of poisonous substances, he has the right to expect that those who supply him with the articles he dispenses should at least supplement his efforts by exercising a thorough supervision over all that goes on in their establishments.

Research in Pharmacy.

According to the official organ, research in pharmacy "appears likely to be taken up" by the British Pharmaceutical Conference, but little credit, seemingly, being given to that body for what it has attempted to do in the past by making grants to research workers and, it may be added, by holding annual meetings at which the results of original investigations can be presented and discussed. But what follows in the paragraph from which I quote shows that no such slight is intended, as it is made clear that the proposed novelty is not the mere encouragement of research, but the suggested appointment of a paid investigator to work systematically and continuously at the solution of problems in what used to be known as the "Blue List." In regard to this matter, by the way, a good deal of nonsense was published by the *C. & D.* last week. It appears to be assumed by that organ that the decision of the B.P.C. Executive to support Mr. Holmes' proposal was due to the supposed unsatisfactory nature of Mr. Carteighe's reply to Mr. Butt at the special general meeting of the Pharmaceutical Society, held a few weeks ago. But it is quite beside the question to insinuate anything of the kind or to state that "well-informed members of the Conference Executive feel that the Pharmaceutical Society is not able to give all the pharmaceutical assistance that the General Medical Council requires." The real reason why Mr. Holmes' scheme was not adopted at the outset is, I am credibly informed, because the scheme, as originally presented, did not commend itself to the Executive. Important modifications were subsequently introduced, notably one substituting the words "research worker" for "research scholar," and by skilfully avoiding some very thin ice, Mr. Holmes at last succeeded in inducing his colleagues to assent to the general principle that, having promises of sufficient pecuniary support, the B.P.C. should endeavour to promote research in pharmacy directly. But that "research worker" has not yet been appointed.

Magnesia and Shot.

What has poor Mr. Carteighe been doing to the leader-writer of the *C. & D.*, who keeps up such a persistent policy of pin-pricks with regard to the pharmaceutical Nestor? Our former leader for fourteen years is blamed—directly or by implication—in one and the same editorial in the Cannon Street organ (1) for what is euphoniously described as "the mess that the Pharmaceutical Council had made of the Bloomsbury research scheme"; (2) for not welcoming with open arms an American chemist who happens to be earning his livelihood in London and thus supplanting a Britisher; (3) for the decision of the B.P.C. Local Committee not to ask to be received by the Lord Mayor or the Chairman of the London County Council; and (4) for endeavouring, in some mysterious way, to prevent the President of the Conference receiving the honour which is his due. It is not clear what all the trouble is about, but perhaps Mr. Carteighe has omitted to arrange for an extra guest at one of his dinner-parties, or to strive in some other way to propitiate the would-be presiding genius of British pharmacy. Anyhow, the fuss that was made last week was quite

irrelevant, and if there is one person more than another who desires to be saved from his "friends," it ought to be Mr. E. M. Holmes, to whom so much that is published in the article referred to must be distasteful in the extreme.

The Law and Conspiracy.

I see it is reported that Mr. Justice Bigham thinks a conspiracy exists "when two or more persons combine to do an unlawful act." If that be so, what a pity it is that Mr. Justice Bigham and others of his way of thinking were not on the bench when the case of the London and Provincial Supply Association was before the courts. If ever there was an instance of two or more persons combining to do an unlawful act, such a case surely exists when seven persons without the necessary legal qualification combine to do what only individuals holding that qualification are legally entitled to do. It is true that by a legal fiction the seven individuals, by combining, place themselves outside the penal clauses of the Act which prevents them, as individuals, doing what they wish; but none the less the seven have combined to do what constitutes an act that would be illegal if done by any one of them. That kind of combination, according to Mr. Justice Bigham, amounts to a conspiracy, and surely such a conspiracy "violates or threatens to violate the rights of an individual as distinguished from the rights of the public at large"—the condition which that learned judge lays down as essential if a conspiracy is to give rise to an action.

Trivialities v. Serious Business.

Life is too short to take all one's critics seriously and, though I am honoured by his attention, I fail to see that I need say anything about the latest effusion of the Scottish member of the Pharmaceutical Society who is so fond of burying his opinions in an opposition trade journal, beyond expressing regret that he, of all people, should prefer to bolster up existing anomalies rather than remove them. The present is no time for petty squabbling or hair-splitting, and my Scottish critic would turn his talents to better account if he were to sit down and write something that might influence the Grand Committee on Trade, to which I see the consideration of the Companies Bill has now been submitted. Mr. Ritchie, I note, is satisfied that Clauses 2 and 3, "or something analogous to them," would effect a beneficial alteration in the law, but he sticks to his opinion that those provisions are not really germane to the Bill. However, he has left it for the Committee to decide whether the clauses should be proceeded with, or struck out and relegated to "some other Bill at some other time." In other words, the President of the Board of Trade is of opinion that the carrying on of pharmaceutical or medical practice by companies requires the attention of the Legislature, though not necessarily in connection with a Companies Bill. If, however, that point is to be dealt with in the Bill, Clauses 2 and 3, "or something analogous to them," will suit Mr. Ritchie and, presumably, other members of the Government. Wherefore, I would suggest that the time is about ripe for pharmacists to make it clear that they have serious objections to Clause 2 and will have none of it. After it is dropped, we shall be quite prepared to consider "some other Bill," though always, of course, keeping a watchful eye on the Lord Chancellor, who may be tempted to re-insert Clause 2 when, if ever, the Companies Bill reaches the House of Lords.

Touting for Pupils.

Why cannot the Council of the Pharmaceutical Society do something to keep Galen Place clear of touts, who worry candidates up for examination by thrusting advertisements of certain proprietary schools into their hands? A student-friend had the prospectus of one such institution with a high-sounding name given to him in this way a few days ago, but it does seem to be stooping unnecessarily low to seek to get business in the manner indicated. Perhaps a hint to the policeman on beat would stop the nuisance.

PHARMACEUTICAL SOCIETY.

SCHOOL OF PHARMACY EXAMINATIONS.*

Session 1899-1900. Elementary Course.

CHEMISTRY.

1. A substance on analysis has the empirical formula CH . 0.195 gramme introduced into a Victor Meyer apparatus, heated in boiling sulphur, expelled a quantity of air which measured 28 C.c. at 0° and 760 Mm. What is the most probable formula of the substance?
2. How would you determine the volume of a small solid by means of Nicholson's hydrometer? Give a numerical example to illustrate your answer.
3. What facts may be brought forward to prove that water is a compound substance? What volume of hydrogen would be produced (measured at 91° and 380 Mm.) when 3 grammes of water are entirely decomposed by an electric current?
4. Give a description of the following substances; what are their formulæ? and state what happens when they are treated with a solution of caustic soda:—Chromyl dichloride, aldehyde, phosphoric anhydride, chloral hydrate, chlorine.
5. Describe the methods employed for the preparation of chloroform. What are the usual impurities in chloroform that render it unfit for use as an anæsthetic; how may they be tested for, and how is it that they are present in the chloroform?
6. State in detail the action of the following substances on carbon dioxide, gas:—Lime water in excess; a small quantity of lime water; heated sodium; heated carbon; heated sodium carbonate; also state as fully as you can the action of cold and of pressure on carbon dioxide gas.

PRACTICAL CHEMISTRY.

1. Determine the specific gravity of the sulphuric acid in bottle A. Having determined the specific gravity, calculate from the following table whether it is stronger or weaker than N sulphuric acid:—

Supposing

Sp. Gr.	Per cent. H_2SO_4 .	Sp. Gr.	Per cent. H_2SO_4 .
1.014	= 2.3	1.060	= 7.2
1.022	= 3.1	1.067	= 8.0
1.029	= 3.9	1.075	= 8.8
1.037	= 4.7	1.083	= 9.7
1.045	= 5.6	1.091	= 10.6
1.052	= 6.4	1.100	= 11.5

Determine by means of the sulphuric acid the strength of the sodium carbonate solution in bottle B.

2. There are two substances in box A. Find out what they are.

BOTANY (A).

Not more than Four Questions are to be answered.

1. Give some account of the phenomena known as heliotropism, and point out the advantages afforded to the plant by this form of sensitiveness.
2. Describe the manner of the formation of the vacuole in a vegetable cell. How does the vacuole aid in the life of the cell?
3. Give an account of the composition and structure of the cell wall. What changes in constitution are known to occur as cells increase in age?
4. Give an account of the different modes of branching which are met with among flowering plants. Upon what does the formation of a branch system depend?
5. Give a sketch of the general lines of classification of plants adopted in England. Describe the main divisions of the Spermatophyta.

BOTANY (B).

Not more than Four Questions are to be answered.

1. Give an instance of the localisation of some special sensitiveness in some part of a plant. Explain how the possession of this property benefits the plant in question.
2. What is sclerenchyma? Describe the structure of the cells composing it and explain its purpose. Give an account of its distribution in the rhizome of a fern.
3. What is periderm? Describe the structures which enter into its composition, and show how it contributes to the formation of a bark of a tree.
4. What is phyllotaxis? Describe the varieties which are met with among flowering plants.
5. Compare the following pairs of Natural Orders, and draw the floral diagram characteristic of each:—

Ranunculaceæ.	Compositæ.
Rosaceæ.	Umbelliferae.

PRACTICAL BOTANY.

1. Make a microscopic preparation to show the structure of A. Mount it in glycerin. Leave with it a lettered sketch calling attention to its distinctive features.
2. Identify and briefly describe the microscopic preparations B, C, D.
3. Comment on the morphology of E, F, G.

* The time allowed for each paper was three hours. The papers marked A were given to part of the candidates, and those marked B to the remainder.

MATERIA MEDICA.

1. Two varieties of Rhatany root are official. Describe them, pointing out how they may be distinguished from one another. Give the botanical source, natural order, and habitat of each. Which is to be preferred, and why?
2. What is the morphological nature of liquorice root, nutmeg, Iceland moss, soap bark, cousoo, hops? Adduce evidence in support of your assertion.
3. How may the following drugs be distinguished from one another: oak bark from willow bark; henbane seed from poppy seed; Socotrine aloes from Barbadoes, aloes; foxglove leaves from first biennial henbane; Brazilian ipecacuanha from Carthagenia; hemidesmus root from sarsaparilla; Chinese star anise from Japanese?
4. Write a short essay on guttapercha.

PHARMACY.

1. Describe and explain the official process for making Extractum Ergotæ; compare it with that for Extractum Ergotæ Liquidum and Tinctura Ergotæ Ammoniateda. Bearing in mind the active constituents of ergot, to which process would you give preference, and why?
2. What is the best method of concentrating weak percolates? Give reasons for your selection. Describe and sketch the apparatus you would use for quantities of about half a gallon.
3. Describe the processes of levigation and elutriation. Give two examples of each.
4. How would you proceed to prepare 2 ounces of glyco-gelatin pastilles, each of which shall weigh about 15 grains and contain $\frac{1}{2}$ grain cocaine hydrochloride?

PHARMACY.—PRACTICAL DISPENSING (A).

Dispense the following prescriptions, label, wrap, and address each to yourself:—

1. R Acid. carbolic. gr. j.
Pulv. capsici gr. j.
Ext. nucis vom. gr. $\frac{1}{2}$.
Ol. menth. pip. gtt. $\frac{1}{2}$.
Ft. pil. j. Mitte xij. Varnish. Sig. Cap. j. nocte maneque per hebdomada.
2. R Extract. ergotæ gr. iij.
Ft. supp. Mitte iv. Use one occasionally.
3. Infus. caryopb. ζ ss.
Sodii bicarb. gr. x.
Acid. arsen gr. $\frac{30}{100}$.
Bis die sumend post jentaculum et post prandium. Mitte ζ vj.
4. Potass. bicarb. gr. x.
Creosoti gtt. j.
Ol. menth. pip. gtt. j.
Spt. amm. ar. m. v.
Aquæ ad 3ij.
Ter die. Mitte ζ iv.

PHARMACY.—PRACTICAL DISPENSING (B).

Dispense the following prescriptions, label and wrap each, and address to yourself:—

1. Bismuth subnit gr. iv.
Podophyll. gr. $\frac{1}{2}$.
Hydrarg. perchlor. gr. $\frac{1}{10}$.
Acid. arsen. gr. $\frac{30}{100}$.
Ext. nucis vom. gr. $\frac{1}{5}$.
Ft. pil. Sumat j. bis die post cib. ad vices vj.
Mitte xij. Pearl coat.
2. R Sodii salicylat. ζ j.
Quininae phosp. gr. xij
Aq. ad ζ iv.
Ft. mist. Cap. ζ ss ter in die post cibos.
3. R Acid. gallic. gr. ij.
Ext. bellad. gr. j.
Ft. supp. Mitte v. Sig. "The Suppositories."
4. R Paraffin. liquid.
Paraffin. moll. aa 3ij.
Liq. potass. ζ j.
Spt. Amm. Ar. ζ j.
Aquæ ad ζ iv.
Fiat mistura. Cap. partem sextam si opus sit.

Obituary.

CLEMENTS.—On June 21, Charles Frederick Clements, Chemist and Druggist, Sheerness. Aged 28. Mr. Clements was a member of the Pharmaceutical Society.

DAVIES.—On June 20, David Sidney Davies, Pharmaceutical Chemist, Bayswater, W. Aged 34. Mr. Davies was a member of the Pharmaceutical Society.

FITZHUGH.—On June 15, of enteric fever, at the Imperial Hospital, Deelfontein, Civil Surgeon Richard Truman Fitzhugh, M.B. London, only son of R. Fitzhugh, Pharmaceutical Chemist, Nottingham.

WILSON.—On June 20, George Wilson, Chemist and Druggist, Wolsingham. Aged 56.

LETTERS TO THE EDITOR.

Medicated Waters.

In the *P. J.* of April 28 last, page 437, different methods of preparing medicated waters are compared, the following conclusion being formed:—"All the evidence is in favour of the method depending upon impregnation of and filtration through cotton. . . the same result was noted (in testing the waters) in the case of medicated waters prepared by agitation with cold water." Of course, the cotton method is not new. Some years back I prepared several waters by it with success, but one batch resulted in little odour and taste of the oil, proving that great care was necessary in packing the wool (with which the oil had been triturated) tightly in the neck of the funnel. The wool process was abandoned as decidedly uncertain. Since then I have shaken the oils with warm water, having the idea that warmth is necessary to break up the oil globules. If shaking with cold water really answers as well I should be pleased to know it. A useful fact brought out in the notes is that kieselguhr or talc are preferable to magnesium carbonate or calcium phosphate as filtering agents. Many of these waters prepared by the shaking process require no filtering except through a plug of absorbent wool, which is easily done each time the shop bottle is replenished from the stock.

Northampton, June 25, 1900.

J. CLOWER.

The Examinations.—A Suggestion.

The proposal of the Council to consider the name of the qualifying examination of the Pharmaceutical Society, which shall entitle those who pass it to be registered as chemists and druggists, leads me to offer a suggestion. Everyone who has had the training of youths knows the great difference there is in their mental capacities, manual dexterity, and taste in artistic display, as shown by the neatness with which a bottle of medicine, a box of pills, suppositories, lozenges, or similar article is put up, wrapped and made ready for delivery. In the acquisition of knowledge there are indications of the same want of power to assimilate the facts in every department, and whilst one youth easily masters the descriptive words in botany and seems quite at home in the subject, another finds it most difficult to learn, though easily mastering the symbols and characters of chemical science; both may be untidy and lack the neatness which a West-end pharmacist would like, whilst another, though not a genius in one particular science, is a good all-round student and particularly neat and methodical in his work. It is on this account that I find it difficult to believe that all the rejected candidates for the Minor examination during the past twelve months are incompetent and I would ask the Council to consider whether it is feasible to allow the examiners to give certificates of merit of first, second, and third class, making the "Pass Examination" a thoroughly practical one so far as it applies to our business; but when a candidate shows superior training and knowledge of analytical chemistry, microscopic manipulation, urine analysis, or extra quickness, neatness and care in dispensing, the examiner can indicate the fact by awarding a certificate accordingly. If a candidate wished to obtain a higher class certificate he might be allowed to present himself for a further examination at the end of three months on payment of a small fee. None of these certificates should supersede the Major, but they should be signed by the chairman of the examiners before whom the candidate appeared, and by the Registrar of the Society, and be numbered and registered. They would be of great service to the holder, as evidence of his abilities, and to the pharmacist as a guide in the engagement of an assistant.

Leeds, June 26.

EDWIN YEWDALL.

Percentage Solutions.

May I be permitted to point out that the paragraph headed "Percentage Solutions" in the *P. J.* for June 16, quoted from the

American Druggist, is an excerpt from a paper by myself, read before the Public and Poor Law Dispensers' Association of London a short time since. Although the conductors of the *American Druggist* have thought fit to publish the bulk of the paper in full, they have removed the portion in question, and published it as emanating from themselves, although using my verbiage exactly. To me this is a small matter, but it serves as an illustration how some journals use matter without acknowledgment.

London, June 22, 1900.

FREDERICK DAVIS.

* * Since publishing the note referred to by Mr. Davis, the *American Druggist* has explained that the paragraph was inadvertently omitted from its report of his paper.—[Ed. P. J.]

Assistants' Salaries: A Suggestion.

It might prove an item of interest to many readers of the Journal—especially those who are engaged as assistants, qualified and unqualified, and, indirectly to apprentices—if some means could be devised for obtaining reliable and periodical information as to the different rates of pay ruling in different parts of the country. I understand that much higher wages are paid in England, particularly in the southern and central counties, than in Scotland. If such is the case, what is the cause? Is the expense of living greater in these parts, or are the profits made by employers larger than in Scotland, thus enabling better wages to be paid, or is it due to a more liberal spirit in the masters. We chemists seem to be much behind other trades in knowledge of such matters relating to our welfare. In many trades—take that of an engineer or carpenter, for example—the wages ruling in different towns seem to be well and almost universally known among the individual members of the trade. Among our craftsmen it is different. If one asks a commercial traveller, who hails from, say, London or Liverpool; what the average wages paid in those towns are, or in others in which he is constantly doing business, he either tells one that he does not know, or pretends not to know, but says that he only put the employee into touch with the employer, but knows nothing of the average wages paid in these towns. When advertising for assistants masters almost invariably invite the applicant to state the wages he requires. Why is this? Is it in the hope of getting assistants to ask for a smaller salary than might otherwise be paid if a wage was offered? At any rate, I think this method of procedure tends to keep wages lower than they might be. How many qualified men have at present got the wage of an average carpenter or engineer, calculated per hour worked? Can nothing be done by united action to improve matters? Some readers of the Journal, perhaps, may be in a position to furnish or obtain the information sought, or make suggestions for obtaining the same. If such news could be procured a small space in the Journal might be devoted to this quite as appropriately as to reports of the drug markets, and would be as interesting to many of the readers of the Journal.

June 25, 1900.

"LABOR" (36/9).

A University Degree in Pharmacy.

Great Britain has long been behind all Continental countries in granting recognition to pharmacy as a subject worthy of study for a university degree. It is probably this fact which induces our brethren on the Continent to sneer at British pharmacy as mere shopkeeping, unlearned by any trace of learning or science. There would now appear to be a chance that the grievance may be remedied. It has been stated that the new Birmingham University contemplates conferring the degrees of B.Sc. and D.Sc. in the department of pharmacy. It is also thought that the authorities might be induced to grant the degrees on terms not necessarily involving residence at Birmingham to pharmaceutical chemists already registered as such, just as the Universities of Oxford and Cambridge grant the D.P.H. to registered practitioners who comply with the conditions. If, therefore, British and Irish pharmacists have any wish to remove the stigma that their calling is considered unworthy of a degree in any of the universities of the Empire, it

is surely necessary that they should take steps to have the reproach removed. The meeting of the Conference would seem a very fitting occasion for pharmacists to come together and present a petition to the latest university to give them an opportunity of obtaining a degree in subjects pertaining to their calling.

J. C. McWALTER, D.P.H., L.R.C.S.I., etc.

Dublin, June 26.

ANSWERS TO QUERIES.

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

SPIRITINE (W. B. W.—43/30).—The composition of the preparation is unknown to us.

FLOWERS (K. C. B.—43/27).—A, *Galium uliginosum*; B, *Polygala vulgaris*; C, *Linum catharticum*; D, *Trifolium minus*.

GUNPOWDER (W. B. W.—43/29).—Presumably, because of the tendency to oxidation, and consequent risk of explosion.

SEM. PSYLLIUM (W. C.—43/28).—They are the seeds of the fleawort, *Plantago psyllium*, which is common in Southern Europe. The seeds contain mucilage and are used as an aperient medicine.

RETOUCHING MEDIUM (F. W. S.—43/32).—(1) Dissolve sandarac 1, shellac, 6, and mastic, 6, in ether, 120, then add benzol, 20; or, (2) dissolve amber, 1, in benzol, 40. In either case filter or allow to stand until clear.

SMOKING (H. L. H.—43/33).—(1) We do not think so; (2) it will be inadvisable to take it except on a physician's advice. Why not gradually reduce the quantity, from day to day, or only indulge after meals?

DELIVERY OF JOURNAL (G. N.—36/4).—Your letter, which should have been addressed to the Secretary of the Pharmaceutical Society, was not received until Friday morning, several hours after all the copies of the Journal had been despatched. Any delay in delivery last week was doubtless due to the cause mentioned at page 677 of last week's issue.

BELLADONNA POISONING (J. P. T.—43/34).—You will find numerous cases recorded in back volumes of the *Pharmaceutical Journal*, the *Lancet*, and the *British Medical Journal*; also in standard works on toxicology, which can be referred to in the Society's Library. Half a grain is the smallest known fatal dose of atropine for an adult.

DENTAL POWDER (H. J.—43/40).—It appears to be a preparation of zinc oxide, such as is mixed with syrupy phosphoric acid to make osteo-plastic cement. A powder of that kind can be prepared by adding strong nitric acid to the oxide, stirring until the reaction is complete, heating until red vapours are no longer given off, and afterwards raising the mass to a white heat. It is then allowed to cool gradually and finely powdered.

ESSENCE OF RENNET (W. W.—44/1).—Dried calves' stomachs, preserved with salt, are used in Forret's process (see *P. J.*, August 1, 1896, p. 112). Cut three such stomachs into small pieces and macerate for about an hour, with frequent stirring or shaking, in a solution of 5 oz. of salt in 50 oz. of water. Strain through muslin and repeat maceration, etc., twice with the same quantity of brine, then dissolve $\frac{3}{4}$ oz. of boric acid in the mixed strained liquors, add 15 oz. of rectified spirit, and filter.

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LONDON: SATURDAY, JUNE 30, 1900.

ARSENICAL CONTAMINATION.

THE alleged discovery of considerable proportions of arsenic in a medicinal preparation that may be considered as belonging to the class of domestic remedies is calculated to excite some serious reflections. If the statements that have been made in regard to this matter should be substantiated at the public inquiry, which may be expected shortly to take place, it would appear that neither the Arsenic Act nor the provisions of the Pharmacy Act relating to the retail sale of poisons are adequate to effect the objects for which they were intended. Outside the scope of those enactments there appear to be possibilities of public safety being imperilled in various ways, and among others by the sale of medicinal articles which are not included in the schedule of statutory poisons. Another disquieting reflection is suggested by the possibility that retailers of, presumably, harmless preparations might be innocently and unconsciously exposed to serious risk. The preparation of many articles used for medicinal purposes is now so much carried out on a large scale, that to some extent the practice of pharmacy has been transferred to large manufacturers or wholesale druggists, and retailers will require to take suitable means for ensuring the quality of articles supplied to them. In that respect the standards and definitions of the Pharmacopœia acquire great importance, and it is somewhat strange to find that among other directions for standardising, etc., the possibility of sodium phosphate being contaminated with arsenic seems to have been overlooked.

The sulphuric acid used as a chemical agent in a great variety of manufacturing operations is, perhaps always, made from pyrites and as that material generally contains more or less arsenic, there is an obvious probability that the products of such operations may be more or less

contaminated with arsenic. That such might be the case with sodium phosphate does not appear to have been recognised by the authorities charged with the preparation of the British Pharmacopœia; for though in reference to many articles of the official materia medica, from acetic acid to zinc valerianate, arsenium is indicated as an impurity to be tested for, that is not the case in regard to sodium phosphate and several other salts which would naturally be much more likely to contain arsenic. A similar oversight on the part of chemical manufacturers may have been, in some way, the cause of the alarm recently created by the discovery that a familiar laxative preparation containing sodium phosphate gave indications of the presence of arsenic as a contamination. The information obtainable as to this occurrence is at present too slender to admit of any positive expression of opinion; but there is some reason for thinking that the alarm may have been to a great extent exaggerated and premature. Ordinary sodium phosphate no doubt does contain a minute amount of arsenic, and in the German Pharmacopœia a specific test is given for ascertaining that the proportion of arsenic is not too great to be disregarded. If the absence of directions for applying such a test in the British Pharmacopœia can be taken as showing a belief that the presence of arsenic was not to be expected in sodium phosphate, its discovery in that salt may have been somewhat startling at first sight.

The foregoing remarks must not be understood as applicable to such minute proportions of arsenical contamination as would be practically unobjectionable, but to amounts so considerable as those mentioned when applications were made at the Marylebone Police Court for proceedings against sellers of effervescent sodium phosphate. From three and a-half grains to eight and three-quarter grains of arsenic in a pound of that preparation would correspond to an arsenical contamination of the sodium phosphate used in making it that would be far in excess of an allowable limit. It will be interesting, therefore, to learn on what evidence those serious charges are founded. For as stated, they convey the idea that a full dose of one of the samples of effervescent sodium phosphate—half-an-ounce—would contain more than a quarter of a grain of arsenic, or more than four times the maximum medicinal dose of arsenous oxide (one-fifteenth of a grain), while the other sample would contain nearly twice the maximum dose of arsenous oxide. Consequently, the sodium phosphate used in making these preparations would have contained in one instance 17.5 grains in the pound ($= \frac{1}{400}$ th), and in the other 7 grains in the pound ($= \frac{1}{1000}$ th). Having regard to the doses, therefore, the preparations made with them would be decidedly dangerous and, in future, it will be imperative to ascertain that the sodium phosphate employed for medicinal purposes is practically free from arsenic. Probably a limit of one part in one hundred thousand would be sufficient for the purpose, or 0.07 of a grain in the pound; but evidently provision will have to be made in the Pharmacopœia to prevent this dangerous contamination of sodium phosphate from being overlooked. If GUTZEIT'S test is adopted for that purpose, one-tenth of a gramme of the salt should give only a very faintly visible yellow stain to the mercurial paper.

ANNOTATIONS.

THE COMPANIES BILL has at last been read a second time in the House of Commons, and was referred on Tuesday last to the Grand Committee on Trade. Referring to Clauses 2 and 3, Mr. Ritchie said there were some provisions in this Bill which were not in the original Bill, and some of them had given rise to a very considerable amount of discussion and a very large amount of opposition. One of those clauses dealt with the sale, etc., of drugs, and the other with the carrying on of medical practice by a company. He supposed he had received representations with regard to those provisions that numerically outnumbered by one hundred-fold those referring to any other provision in the Bill, both for and against. He was bound to say, however, that he did not think those provisions were really very germane to the Bill. He had no doubt that provisions something analogous to the provisions contained in the Bill would be a very beneficial alteration of the law, but he was bound to say they were not in a proper place in a Bill amending the Companies Act, and if they were to be dealt with it would be much better they should be dealt with in a separate Bill rather than introduced in the Bill before the House. However, it would be for the committee to decide whether or not they should be proceeded with, or struck out of the Bill and relegated to some other Bill, to be brought forward at some other time. In reference to this matter, readers will be gratified to learn that the Law and Parliamentary Committee of the Pharmaceutical Society is taking prompt steps to deal with the matter, and members of the Society are warned to be ready to take action in connection with the Bill at very brief notice.

THE MEMBERSHIP OF THE SOCIETY IN SCOTLAND is now, according to Mr. Peter Boa (see p. 704), higher than at any former period, the number of members being 583, as against 570 in 1899 and 412 in 1898, prior to the passing of the last Pharmacy Act. As the total membership of the Society is 5,541, it would appear that rather more than 10 per cent. of the members are resident in Scotland. But the total number of registered chemists, according to the latest Registrar's Report, is 15,595, of whom Mr. Boa assumes about 1,400 to be in Scotland, so that "the trade" is proportionately better represented by the Society in Scotland than in England and Wales. As Mr. Boa puts it, the membership in Scotland is about 42 per cent. of the registered chemists and druggists, and, as compared with the number on this side of the border, about 10 per cent. better. That is a very good record, so far as it goes, and the members generally will share Mr. Boa's gratification that the chemists of Scotland support the Society so well, the more especially as he is convinced that they do so with the intention of increasing the prestige and honour of the body to which they belong, and not for simply local purposes.

MR. GILMOUR'S REMARKS (see p. 707) on the same subject are also of great interest. He asked how the Society can be strong in Scotland, or how can it be made better, with a membership of only 583 out of 1,400. The bulk of the existing prejudice against the Society, as he points out, has its origin in ignorance, a great many persons having the idea that the Society ought "to do something" for them—something which it is not doing—and that until that something is done they are justified in refusing to join the Society. The same class of individual exists largely in England and Wales, and, unfortunately, as in Scotland, the something to be done is never specified by the dissentients. It is difficult, therefore, to avoid attributing their refusal of support to anything but pure selfishness. They are willing to benefit to an unlimited extent by anything the Society has done or may yet do, but they may be expected to remain outside the ranks indefinitely, accepting all the benefits that come to them in the natural course of events without paying for any.

THE QUALIFYING EXAMINATION of the Pharmaceutical Society was last week shown to have been entered for by a record number of candidates, seven hundred and fifteen persons having announced their intention of presenting themselves for the examination, in London or Edinburgh. The "First" or Preliminary Examination of the Society is having its discontinuance celebrated by the establishment of a similar record, more than a thousand individuals being anxious to secure registration as "apprentices or students" under the expiring arrangements. Those who fail on this occasion—a large proportion, it is to be feared—will, of course, be unable to re-enter for examination on payment of a reduced fee, as formerly; they must begin anew, as it were, and attempt to pass one of the examinations referred to at page 67 of the 'Calendar' of the Pharmaceutical Society for the current year. After passing that they must pay a registration fee of two guineas to the Pharmaceutical Society before becoming eligible to enter for the Minor Examination.

THE DISTRIBUTION OF POISONS of all kinds is, beyond question, best left in the hands of persons who may be expected to exercise a proper discretion in the performance of that function, even to the extent of declining to supply them in cases where they consider such a course desirable. Registered chemists do exercise such discretion, and they are accustomed to regard the sale of scheduled poisons as a professional function rather than a mere trading transaction. Limited companies, on the other hand, exist simply for the sake of earning dividends, and, as has previously been pointed out in these columns, the managers or assistants of such companies are not free to exercise their discretion in regard to the sale of poisons. Their business is to sell as much as possible—whether the substance be poisonous or not—and the effect of allowing companies of unqualified persons to deal in poisons, even though the actual sellers are qualified, is to increase the danger to the public in a most insidious manner. A Pharmacy Act case reported in this week's Journal (see p. 693) affords proof that the position here stated is not an exaggerated one. The defendant is the unqualified assistant in a drug shop belonging to a medical man, and pleaded guilty to a charge of illegally selling scheduled poisons. In extenuation of his offence he said he did not consider the question of his action being an offence against the Pharmacy Act; his "only object" in conducting the business was "to sell as much as possible and show a good cash return when the doctor came back!" That is precisely what may be expected to happen in the case of limited companies, whether the assistants be legally qualified or not, their duty being, above all else, "to sell as much as possible and show a good cash return." But that does not conduce to public safety.

TRULY, THE WAR IS INSATIABLE, observes a writer in the *Daily Chronicle*, who says he knew that most trades were affected by the calling out of the reserve, but it had not occurred to him before that the Army Medical Corps drew so many of its recruits from the "chemist's shop." But the particular recruits that the newspaper man heard about appear to have been drawn from a large West-end drug store and not from a "chemist's shop," though the individual imparting the information is reported to have said that "it isn't often a chemist's assistant can afford to be independent." He may be right in describing it as "a wretched business," considering the cost of the training, but it is not quite accurate to say that one pays nearly as much to qualify as a chemist as to become a doctor. The young man behind the counter appears to have impressed the *Daily Chronicle* paragraph-writer, for the latter thinks it is a pity that young man is in a "chemist's shop," and expresses the opinion that he ought to be in a Bernard Shaw play.

PROFESSOR OLIVER LODGE, who has been appointed Principal of the University of Birmingham, is a distinguished physicist. According to the *Times*, he was born at Penkull, Staffordshire, in 1851, and has held the Chair of Experimental Physics at Liverpool since 1880, practically since the establishment of the University Col-

lege there. In 1887 he was elected a Fellow of the Royal Society, and in the following year the University of St. Andrews conferred upon him the honorary degree of LL.D. He has been an examiner for London University and for the Science and Art Département. Professor Lodge was originally destined for a commercial career, but early showed a strong bent for experimental physics. He took his D.Sc. degree at London University in 1877, and has devoted himself largely to the study of electrical phenomena, his experimental work in connection therewith having resulted in several notable discoveries. His researches concerning the alternating character of lightning and other discharges, and the propagation of electro-magnetic waves, have been especially interesting. His contribution to the practical utilisation of wireless telegraphy has been considerable, and his discovery that metals cohere readily under electrical influence opened up a train of experiments which produced the most sensitive detector of electric waves known. He has pursued other branches of the problem of signalling across space in co-operation with Dr. A. Muirhead.

THE PRICE OF GAS in London has been raised to an outrageous extent by the Gaslight and Coke Company, and Professor Silvanus P. Thompson writes to the *Times*, pointing out that the remedy obviously is that, either by private or municipal enterprise, there should be created a public supply of non-illuminating gas. That, he states, can be supplied profitably at less than two shillings per thousand cubic feet, or at half the price to which illuminating gas has now been raised. Though only half the price, it will be equally good for propelling gas-engines and for supplying gas stoves. There will be nothing to prevent any consumer of it from using it to heat the mantles of incandescent lights, or any other thing that he desires to heat. Neither need he be debarred from himself manufacturing in his own house an illuminating gas from the non-illuminating by enriching it by means of naphthalin ("albo-carbon") or other hydrocarbons.

MEMBERS OF THE PHARMACEUTICAL SOCIETY residing abroad are naturally unable to receive official communications from headquarters so promptly as those who reside in Great Britain, and a correspondent directs attention to what he regards as a "flagrant anomaly," that certain members are "disfranchised by living away." He has been induced to write by receiving a letter from a member resident in India, who points out that he did not receive his voting paper for the recent Council election until twelve days after the time when it ought to have been returned. In the circumstances, he thinks it is a mistake and a waste of postage stamps to issue voting papers to members residing at such a distance from home, and the person to whom he addresses his letter thinks "a remedy is very simple and urgent." We doubt if any such remedy is possible, and a little explanation may put matters in a clearer light for the benefit of the member who writes from far-away India. It was formerly the custom, as regulated by a Bye-Law, to send voting papers to all persons entitled to vote and residing in Great Britain, but not to those residing abroad. Some years ago, however, it was decided that, though it was physically impossible for members residing in the Colonies, India, etc., to record their votes, there was no reason why they should not be kept fully conversant with all that was taking place in connection with the Society of which they were supporters. Accordingly, the Bye-Law was altered and voting papers have since been sent to every member entitled to vote, whether residing in Great Britain or not. But it must not be overlooked that they were originally sent with the object of conveying information only, not with any idea that the recipients would be able to record their votes. Difficulties of time and space seem to offer insuperable obstacles to that being done in the case of places so far from home as India or any of the Colonies. At the

same time, any really "simple" remedy that can be suggested may be expected to receive full consideration from the Council, and now is the time to deal with the matter whilst revision of the Bye-Laws is actually proceeding.

THE SALTERS COMPANY RESEARCH FELLOWSHIP, which is tenable in the Research Laboratory of the Pharmaceutical Society, again becomes vacant this year, and applications for it are now invited in an official notice published in the advertisement columns of this week's Journal. The subject of the Fellowship is chemistry considered especially in its relation to pharmacology. The Fellowship is of the annual value of one hundred pounds, and, though nominally tenable in the Society's Laboratory for one year only, it may be renewed under certain conditions. The Fellowship is not limited to pharmaceutical chemists and members of the Society, and applications must be sent in writing to Professor Collie, 17, Bloomsbury Square, London, W.C., so as to be received by him not later than Saturday, July 7.

AS AN HERBARIUM PRIZE, a silver medal is annually offered to student-associates of the Pharmaceutical Society who are under the age of twenty-one years, for the best herbarium, containing not more than a hundred and fifty specimens, collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man, between January 1 in one year and July 1 in the year following. Should there be more than one collection possessing such an amount of merit as to entitle the collector to reward, a second prize, consisting of a bronze medal, and also certificates of honour, will be given at the discretion of the Council. Collections for this year's competition must be received by the Registrar of the Society not later than Monday, July 2.

THE NUMBER OF CLINICAL THERMOMETERS EXAMINED at Kew during 1899 was 16,020, a decrease of 1,942 on the preceding year. The number rejected on account of excessive error, or for other reasons, was 149, a decrease of 24. It is noteworthy that, according to the report of the Kew Observatory Committee for the year ending December 31, 1899, the percentage of rejections—0.96 and 0.93 in 1898 and 1899 respectively—was very low in both years. The Kew Observatory, which has hitherto been managed by a Committee, has now been incorporated with the National Physical Laboratory, for the establishment of which Parliament has voted a sum of money, but the work will continue to be carried out by the existing staff, subject to the control of the Executive Committee, which is nominated by the Royal Society and includes six members of the late Committee. A director is to have sole control and direction of the National Physical Laboratory, and of the work done within it. Mr. R. T. Glazebrook, F.R.S., has been appointed to that office.

THE CONFERENCE ENTERTAINMENT FUND now exceeds four hundred pounds, but we understand that another hundred pounds will probably be required to cover the expenses of the programme which has been arranged. The Hon. Secretary, Mr. William Warren, 24, Russell Street, Covent Garden, W.C., will therefore be glad to receive promises of further subscriptions. The first list of subscriptions was published in the *Pharmaceutical Journal* for March 3 last (p. 236), a second list will be found in this week's issue, and if London pharmacists who have not yet sent in their names will do so forthwith, it should be possible to publish within the next week or two a third list, which will bring the total to the desired amount. The pink circulars are being sent out this week, and applications for tickets should be sent in without delay. They may be addressed either to Mr. Warren, as above, or to his Honorary co-Secretary, Mr. H. Cracknell, 17, Craven Road, London, W.

ENGLISH NEWS.

BOTANICAL EXCURSION.—On Saturday, June 16, the students attending the School of Pharmacy, Bloomsbury Square, held a botanical excursion in the Caterham district, the party being conducted by Mr. Horrell, starting from Charing Cross at 9.24 a.m. On arriving at Caterham a start was made in the direction of Godstone, by way of the hills, and in a short time a very fine spot was found, where the party gathered a great number of specimens, including *Paris quadrifolia*, *Orchis muscifera*, *O. maculata*, *Listera ovata*, *Cephalanthera grandiflora*, *Gymnadenia conopsea*, and *Poterium sanguisorba*. Lunch was partaken of on the summit of a hill, whence lovely views were obtained, stretching beyond Reigate and Dorking to the west, and a greater distance to the east. The ground was a carpet of *Helianthemum vulgare* and *Thymus serpyllum*, while *Orchis pyramidalis* was scattered here and there. But of greater interest to pharmacists was a huge clump of belladonna in full flower, and fine specimens of *Bryonia dioica* growing on the bushes. Some enthusiasts dug up a huge root, which has since been presented to Professor Greenish. The party then separated, some proceeding straight to Godstone, others through Bletchingley and Nutfield to Redhill. On the way some fine aconite plants were seen growing in a garden. The gardener was indignant at its being called aconite, "That was *Delphinium formosum*. Aconite was a yellow flower, blossoming in February (*Eranthis hyemalis*). He had worked there twenty years, with forty men under him, and he ought to know." The entire party assembled at the Godstone Hotel at 4.30, where tea was provided, afterwards journeying back to Caterham, and thence to London, arriving about eight o'clock, having spent a most enjoyable and profitable time.

CHEMISTS' ASSISTANTS' ASSOCIATION (LONDON).—The following is the list of officers for the new session:—President, J. A. Dewhirst, Ph.C., F.C.S.; Vice-Presidents, J. Evans, Ph.C., H. Hymans; Hon. Vice-President, F. W. Gamble, Ph.C.; Hon. Secretaries, A. F. Goode, Ph.C. (literary), A. Latreille (financial); Hon. Treasurer, C. J. Strother; other members of Committee, W. N. Ellis, J. Fothergill, Ph.C., H. A. Martin, C. Morley, Ph.C., G. E. Pearson, J. W. Peck, Ph.C., T. M. Taylor, Ph.C.

SHEFFIELD COLLEGE OF PHARMACY.—On Thursday, June 21, some of the students of this College, accompanied by the Principal, went by train to Manchester for an educative outing, the first place visited being that of Messrs. Woolley, Sons, and Co., Limited, Victoria Bridge. The party were conducted over the five-storey building by Mr. Lane, and among the multitudinous array of goods stored there only a few are mentioned—rare chemicals, very poisonous ones, kept in locked cupboards in large jars and in 1oz.-1lb. bottles for wholesale. One room with shelves full of coated pills of their own manufacture. In others men were fashioning the steels for trusses, afterwards to be padded and covered by dextrous women for infants to largest size to order. Then on to glass bottles of every kind. A visit to the firm's analytical laboratory for checking chemicals on the premises before going out, also for bacteriological work for customers. A few of the less familiar apparatus were explained by Mr. Duncan. Floor three was devoted entirely to the leaves, roots, barks, gums, in their dried form and in powder, stored in 500 capacious bins—in all, about fifty tons. No one could fail in materia medica with experience in the dry room. On the second floor a large array of surgical, physical, and photographic appliances met the eye, and the students were shown by Mr. Twiney many interesting apparatus. One microscope, £21, of Watson's make, and another of £15 were examined *scrutim*. Some excellent short beam balances were seen. On this floor were the manager's and staff's offices and counting-house for over fifty clerks. Two directors—Mr. James Woolley and Mr.

Johnstone—were introduced to the Principal. On the first floor were receiving and despatch departments, also the town and export counters—the whole a busy scene. In the basement were stored 10,000 gallons of B.P. galenicals, and 5,000 gallons of oils, and two fireproof vaults provided with sprinklers. The fire hydrants have 2,000 gallons of water in reserve. Rows of tinctures, syrups, liquors, ointments, in alphabetical order; eighty gallons each of liq. morphin., liq. hyd. perchlor., forty gallons liq. strychninae, etc., were kept in locked-up compartments, each with keys kept on an indexed board. The visit to the manufacturing department at Cheetam had to be deferred, owing to other engagements. Mr. Lane was cordially thanked for his able guidance through the well-ordered buildings. The students next visited the renowned chemists, Jewsbury and Brown, who devote the whole of their energies to the manufacture of aerated waters and their celebrated tooth paste. One of the partners, Mr. Bardsley, kindly took them round. The preparation of syrups (a fine art with this firm), the brewing of ginger beer, preparation of cordials, syphon-filling—being the first in England to fill syphons. The laboratories are in charge of Mr. Kirkby, Ph.C., ably seconded by Mr. Lionel Stones. Mr. Kirkby is Lecturer in Pharmacognosy at Owens College. A feature in the manufacturing plant is that no filtered water comes in contact with lead in any form, only grain tin being used. The syphon tops are made of the same material. The firm make their own syphon cases. Orders were being executed for as far remote as Central Brazil. The manufacture of the tooth paste was witnessed. The whole building was noted for being scrupulously clean throughout. In the evening the chemists' exhibition in St. James's Hall was visited. The model pharmacy by Messrs. Evans, Sons, and Co., Liverpool, engaged the most attention. A most enjoyable half-day was made by the students.

NORTH OF ENGLAND SCHOOL OF CHEMISTRY AND PHARMACY.—The students of this establishment, accompanied by the Principal, Mr. F. R. Dudderidge, F.C.S., and Mr. J. S. Hill, Demonstrator, went on a botanical excursion to Morpeth on Saturday, June 16. The hot-houses and gardens of Mr. Edward Hopper, were visited in the forenoon, his choice collection of rare and valuable orchids and other exotics exciting great admiration. After lunch the party proceeded along the banks of the River Wansbeck to Newminster Abbey, and thence through the woods to the village of Mitford, a large variety of wild flowers being gathered on the way. On the homeward route calls were made at the gardens of Mitford Castle and Spital Hill, where many beautiful specimens of vegetation were inspected, great interest being shown in some mistletoe growing upon an apple tree. On the return to Morpeth the party was entertained to a substantial tea by the Principal, after which Mr. F. E. Schofield presented the prizes gained in the recent school examination to the successful candidates, and addressed a few kind and well-chosen words of encouragement and advice to the students. The first prize—'Walker's Physical Chemistry'—was gained by Mr. J. W. Patterson, and the second—'Aldous' Physics'—by Mr. H. Longstaff. After the usual votes of thanks the nurseries of Mr. Mathesen claimed attention, thus concluding a long and thoroughly enjoyable day.

IMPERIAL COLLEGE OF PHARMACY.—On Friday, June 22, the students of this College spent a profitable and pleasant afternoon, under the direction of their principal, Mr. Frederick Davis, in the Geological Museum, Jermyn Street, Piccadilly, the metals, their ores and extraction being the object of the visit, and subsequently the making of steel and the tempering processes were minutely traversed; the extraction of sulphur and its allotropic modifications; carbon, its allotropism, and the cut models in glass of the historic diamonds, together with the Nicol prism of calcite, and the beautiful polished specimen of malachite proved attractive and interesting; the "emetic cup," the ancestral and family aperient pill giving the students an insight *re* pharmacy in its pre-elegant bygone days.

A TRADEMARK CASE.—On Tuesday, June 26, Mr. Justice Farwell, in the Chancery Division, had before him an application by the Formalin Hygienic Company, Limited, to register the word "Formalin" as a trademark. The matter came before the Court on an appeal from the Comptroller, who had already refused the application.—The applicant's case was that a 40 per cent. solution of formic aldehyde, manufactured by the Chemische Fabrik auf Aktien vormals E. Schering, of Berlin, was first placed on the English market by Messrs. A. and M. Zimmermann as sole agents for Messrs. Schering, in 1892, under the name "Formalin," which name was registered in Germany as a trademark. It was then sold for the purposes of disinfection and general antiseptics. The applicant company was formed in 1897, and acquired all the rights of sole agency from Messrs. Schering for the sale of their manufacture of "Formalin." The applicants applied the word "Formalin" to various other articles besides the 40 per cent. solution, such as "Dry Formalin," or Paraform; "Normal Formalin," a weak solution for domestic use; "Formalin Powder," "Formalin Gelatine," and "Formalin Soap." There was also a lamp, in which paraform is burnt for disinfecting purposes, called the "Formalin Lamp."—Drs. Rideal and Passmore and Mr. Bevan deposed that the word "Formalin" *per se* conveyed no meaning to the chemist upon his hearing it for the first time.—Mr. Hughes, Q.C., and Mr. Ward Coldridge appeared in support of the application; the Attorney-General (Sir Robert Finlay, Q.C., M.P.) and Mr. Ingle Joyce appeared for the Comptroller.—Mr. Justice Farwell, in dismissing the application, held that it was a fatal objection to it that it was not made by the proprietors of the article in question. He was convinced on the evidence that the word "Formalin" had never in England represented to the trade at large or to the public any manufacture of any particular individual. He held that there had not as a fact ever been acquired in England any such association of the name "Formalin" with the manufacture of the German company or of Schering as would entitle either of them to say that it connoted their manufacture and nothing else. The application failed, and would be dismissed with costs.

DESTROYING SYPHONS FOR THE PEWTER.—At the Bath City Police Court on Saturday last, Frederick Henry Fry, 3, St. Anne's Place, Dolemeads, was summoned for wilful damage to sixteen glass syphons, the property of Messrs. Brook and Co., to the value of £2. Mr. Mawer (Bristol) prosecuted on behalf of the Bristol and District Bottle Exchange Association. The defendant smashed the syphons with the object, he said, of getting the pewter tops to sell. In Court he said a servant at Weston gave them to him.—Defendant was sentenced to fourteen days' imprisonment with hard labour.

UNSATISFACTORY SEIDLITZ POWDERS.—The recently-published quarterly report of Dr. Alfred Hill (Analyst for the City of Birmingham) contains a lengthy reference to seidlitz powders. Dr. Hill states that during the three months he analysed five samples. Four white powders of one contained from fourteen to twenty-two grains of tartaric acid, instead of thirty-eight grains, as directed by the B.P. Four blue powders in the same sample contained from 116 to 137 grains, instead of 160 grains; each powder on the average contained thirty-nine grains of Rochelle salt, instead of 120 grains, while the cheaper ingredient, bicarbonate of soda, was in excess, fifty-eight grains being present instead of forty. The powders were wrong, both in quantity and quality, and were very unevenly divided. What made the matter worse was that each pair of powders was labelled as follows:—"Caution to the public.—Thousands of boxes of a common imitation of the genuine seidlitz powders are being sold by unprincipled traders for the sake of extra profit. We guarantee all our powders to be genuine. (Signed) —." The vendor, who, as Dr. Hill points out, was not a qualified chemist, was fined £10 and 9s. costs, there having been a previous conviction for adulterated glycerin. Dr. Hill re-

marks that, considering the scandalous nature of the offence, the fine does not appear to err on the side of leniency. Six samples were purchased under the Pharmacopœia name of effervescent tartarated soda powders. The white powders of one sample contained from thirty to forty grains of tartaric acid, instead of thirty-eight grains; while the blue powders were practically correct in composition.—A fine of £1 and 10s. costs was inflicted. The blue powders of the remaining nine samples were very uniformly divided, thirty of the thirty-six powders being within five grains of 160 grains—the proper amount. One powder contained 147 grains only, and five had from 166 to 169 grains. In each case the bicarbonate of soda and Rochelle salt were present in the proper proportions, or nearly so. The tartaric acid in the white powders was not so well divided. One paper contained thirty-three grains, six from forty-one to forty-three grains, one had forty-four grains, one forty-five grains, and the remaining twenty-five papers contained thirty-six to forty grains of tartaric acid. Six samples of Friar's Balsam received were all of satisfactory quality. They contained from 16.9 to 18.5 grammes of solid matter per 100 cubic centimetres, and had a specific gravity of 0.893 and 0.902.

SALE OF CAMPHORATED OIL.—On Wednesday, June 20, William Tonkinson, grocer, Stafford Street, Wolverhampton, was charged at the local police court with selling camphorated oil not of the nature, substance, and quality demanded, it being certified to contain 38 per cent. of mineral oil instead of olive oil.—For the defence it was stated that the oil was purchased by the defendant in 1897 before camphorated oil was included in the B.P.; but the magistrate pointed out that the article in question was retailed after the inclusion of camphorated oil in the new edition of the Pharmacopœia. Defendant had, however, acted innocently in the matter, and little harm had been done; still, he must be more careful in future. On payment of the costs of the case the summons would be dismissed.—On Friday, June 15, John V. Lewis, grocer, was summoned at the Blackwood (Mon.) Police Court for selling as camphorated oil a substance containing no olive oil and deficient in camphor to the extent of 74.6 per cent. Eli Marshall, wholesale dealer, was summoned under the Merchandise Marks Act for applying a false description to the article with intent to defraud.—It was stated on behalf of the defendant Lewis that in 1897 he bought a quantity of the oil at the Grocers' Exhibition in London, each bottle being stamped as "prepared in strict accordance with the British Pharmacopœia." For the defendant Marshall it was stated that about the time the oil was bought certain things having come to the notice of the firm the managers were dismissed.—The magistrates decided not to convict the defendants, but ordered Lewis to pay three guineas costs and the court fees, and Marshall to pay five guineas costs and the court fees. Lewis's costs were paid by Mr. Marshall.—At Kingston Police Court, on June 14, Mary Robinson, 9, St. Mary's Road, Surbiton, was charged with selling camphorated oil 60 per cent. deficient in camphor; also with selling camphorated oil 75 per cent. deficient in camphor.—In the first case the label of the bottles bore the words, "Campholeum, formerly known to the public as camphorated oil. P. H. Galloway, M.P.S., qualified chemist by exam., Walworth, London, S.E."; in the second case the words on the label were "Camphoric, formerly known as camphorated oil. Packed by Samuel Dodman, London, S.E. Established 1881." The latter article was stated to contain mineral oil, and both were described by the prosecution as heartless adulterations at the expense of the poor, who chiefly purchased them, but for whose purposes they were useless. The terms "Campholeum" and "Camphoric" had been devised since camphorated oil had been included in the B.P. In reply to the Chairman the Inspector said it was too late to prosecute the persons who supplied the articles, but, if convicted, defendant could proceed against them.—Fines of 1s. with 19s. costs on each summons were inflicted.

SALE OF MAGNESIA.—At Belper Police Court, on Thursday, June 14, Eugene Walters, shopkeeper, Crich, was summoned for selling magnesia not of the nature and quality demanded, magnesium carbonate having been supplied.—Fined 5s. and £1 2s. costs.

OVERDOSE OF LAUDANUM.—An inquest was held at Sheffield on Thursday, June 21, concerning the death of James Barlow (77), head of the firm of James Barlow and Son, razor and scissor manufacturers, Sheffield.—From the evidence it appeared that on the previous Monday evening deceased purchased an ounce and a-half of laudanum at the shop of Mr. G. T. W. Newsholme, High Street, stating that he required it for outward application. On Tuesday morning he was found in his bedroom suffering from poisoning, death occurring early on Wednesday morning. It was stated that deceased had on other occasions taken laudanum, but for what purpose was not known.—The jury returned a verdict to the effect "that deceased died from an overdose of laudanum administered by himself, but there was not sufficient evidence to show for what purpose he had taken it."

POISONING BY SPIRIT OF SALT.—Thomas Carter (48), glass beveller, was admitted to the Queen's Hospital, Birmingham, on Sunday morning, June 24, suffering from the effects of poison. It was stated that he had swallowed some spirit of salt. He died during the day.

SUICIDE BY PRUSSIC ACID.—An inquest was held at Westminster on Monday, June 25, relative to the death of David Sidney Davies (34), pharmaceutical chemist, of Craven Road, Bayswater, W. From the evidence it appeared that deceased had been in ill-health for several months past, and had worried a great deal about his business not making satisfactory headway. He was in no financial difficulties, but on Wednesday, June 20, while in Hyde Park, he swallowed the contents of a bottle of prussic acid. He was immediately taken to St. George's Hospital, death occurring on the way.—A verdict of "Suicide during temporary insanity" was returned.

IRISH NEWS.

DR. BURNES, M.P.S.I., proprietor of the Queen Street Pharmacy, was prosecuted under the Shop Hours Act, at the Dublin Police Court on June 22, for failing to exhibit in his establishment the notice as to hours of work, required to be on view according to the Statute. A fine of 10s. and 10s. cost was imposed. Mr. Thomas Coulter, trading as Checketts and Co., chemists, was similarly summoned, and was fined a corresponding amount.

MESSRS. BEWLEY AND DRAPER, LIMITED, chemists and druggists, Mary Street, Dublin, last week summoned a Birr trader named Lowry for an infringement of their rights by using bottles embossed with their name. The defence was a plea that complainants did themselves what they complained of. A fine of 1s. and costs in each of four cases was imposed upon the defendant.

TRENCH'S REMEDIES.—In the Queen's Bench Division, Dublin, before the Lord Chief Baron and Judges Andrews and Johnson, the case of Mr. John Townsend Trench, a bankrupt, came on for hearing on an application by Mr. T. B. C. Hardman for a new trial. The case had been previously before the Court in February last, and it related to the sale by Mr. Trench to Mr. Hardman of the Medical Remedy Business known as "Trench's Remedies," carried on by the bankrupt in South Frederick Street, Dublin. Mr. Hardman had acted as solicitor for Mr. Trench for a considerable time, and after the adjudication in bankruptcy the assignees alleged that the sale of the business to Mr. Hardman was fraudulent and void, as against the creditors of the bankrupt. Certain issues had been submitted to the jury, and they found

that the assignment to Mr. Hardman of the business had been executed with intent to "defeat, delay, and hinder" the creditors of Mr. Trench. Mr. Hardman now applied to have these findings set aside on the ground that there was no evidence to sustain them. When the case was half-way through, counsel announced that a consent had been entered into between the parties by which the findings of the jury, which were challenged by Mr. Hardman, would be set aside, the proceedings on the charge and discharge to be discontinued, each party paying his own costs.

PORTUMNA DRUG CONTRACT.—The Portumna District Council recently accepted from Messrs. Goldon and Co., chemists, Birr, a contract for twelve months' supply of drugs and surgical appliances at 15 per cent. off the scheduled list. A large number of other firms tendered unsuccessfully at only 5 per cent. off. The Local Government Board have since refused to confirm the appointment, on the ground that Messrs. Goldon (who have been medicine contractors to Birr and other unions for a number of years) have not satisfied the Board that they have in their establishment "a large assortment of medical and surgical appliances." The Council hold that no precedent exists for such a stipulation, and are determined to stand by their ruling already made in favour of Messrs. Goldon.

PHARMACEUTICAL SOCIETY.

NORTH BRITISH BRANCH.

A meeting of the Executive of the North British Branch was held in the Society's House, 36, York Place, Edinburgh, on Friday, June 22, at 10.30 a.m., Mr. PETER BOA in the chair.

Present:—Messrs. Boa, Cowie, Currie, Fisher, Gilmour, Henry, Kerr, McAdan, McLaren, Mitchell, Russell, Strachan, and Tocher.

The minutes of last meeting were read and approved.

Apologies for absence were intimated from Messrs. Ayre, Ewing, Johnston, and Storrar.

The report of the Scrutineers of voting papers for the election of Executive was read and arrangements made for the business of the annual meeting.

This was all the public business.

ANNUAL MEETING.

The annual meeting of members residing in Scotland was held in the Society's House, 36, York Place, Edinburgh, on Friday, June 22, 1900, at 11 a.m., Mr. PETER BOA in the chair.

The minutes of last meeting were read and approved.

Apologies for absence were intimated from Messrs. Ayre, Ewing, Johnston, Storrar, and Wilson.

Chairman's Address.

The CHAIRMAN said he would not trouble them with an elaborate speech, but merely confine himself to a few running observations on the work of the past year, and one or two items of interest to this branch of the Society. Referring to the membership in Scotland, he said that in the beginning of 1895 they had 383 members; in 1896, 400; in 1897, 412; and in 1898 412. 1899 was the year in which the new Act came into force in regard to the membership, and in that year the membership went up from 412 to 570. They had hoped that the membership in 1900 would have been 599, but there were twenty-three names to be deleted from the list of members in Scotland for the current year. Still, they had for this year an increase of thirteen, so that the membership at that moment was 583. He was sorry to see the number of names that had lapsed, but he fancied it was not due to any desire on the part of members to cut their connection with the Society, but was probably merely forgetful-

ness on their part to send their subscriptions. It seemed to him that some method could be devised of reminding such members; if they could get someone to wait upon them, their names would not require to be deleted. A good many years ago, at a meeting in that house, he made the suggestion that it would be a good thing if the Society had someone to take a run through the country and

HOLD MEETINGS AT CERTAIN PLACES

and explain the connection of the Society with various matters, and also lead them to understand properly the advantages to be derived from membership of the Society. He was not sure at the time he was very serious in making the suggestion, but it was only a few months after that suggestion was made that Mr. Michael Carteighe came to that part of the country and further north, and treated them to a series of expositions of the aims of the Society, and he thought it did a great deal of good. He thought they were all the better for Mr. Carteighe's visit, and he thought the Society might almost select a suitable representative to be continually on the road. In regard to the position they took in Scotland, as regarded the proportion of eligible men in the country and across the border, he should say there were altogether about 15,600 registered men, and assuming that 1,400 were in Scotland, and taking the membership, the proportion worked out to about thirty-two or thirty-three per cent. across the border, and in Scotland about forty-two per cent. That was to say, the membership in Scotland was about forty-two per cent. of the registered chemists and druggists, and, compared with the approximate number of those on the other side of the border, they were about ten per cent. better. So that, so far as their position with regard to supporting the Society was concerned, they in Scotland had no reason to be ashamed of themselves. He thought it was matter for gratification to all that they supported the Society so well. He was quite sure they did that with the intention of increasing the prestige and honour of

THE PHARMACEUTICAL SOCIETY

in general, and not for simply local purposes. When they had a branch such as theirs, supported in great measure by men from the surrounding district, it was quite impossible to get absolute freedom from a certain amount of what he might call provincialism from attachment to the centre to which they all gravitated. He said that because he had on several occasions formed the impression that they were regarded as being selfish—as looking more to themselves than to the general good of the Society. He deprecated any such feeling. Their efforts were always directed for the general good of the pharmaceutical community. He was sorry they had lost during the year so many members by death, and he particularly mentioned Mr. Daniel Frazer (Glasgow), Mr. Watt (Haddington), Mr. Burley (Edinburgh), and Sir Douglas Maclagan, their oldest honorary member. With regard to the finances of the Society, he said they had spent last year rather less than in the year before.

AS TO THE EXAMINATIONS,

it was matter of regret to them all that the percentage of failures had been so large in past years, but it was matter for some satisfaction that for the past two years, at any rate, there had been a very gradual, but at the same time a very steady improvement in this respect. That was to say, that from thirty-three per cent. one year they increased to nearly thirty-five per cent., and in the third year to nearly thirty-nine per cent. of those examined. These failures were no doubt deplorable, but he hoped that if they obtained some slight breaking-up of the qualifying examinations they would get better results. The Minor examination was at present a somewhat heavy undertaking, and the fact that they had no compulsory curriculum made young men come up for it perhaps before they had taken a sufficient course of training. He had nothing whatever to say against a young man doing that. It was quite natural for him to try and get

through as soon as possible. He went up and took his chance, and he did not blame him. In regard to

THE EVENING MEETINGS,

although many societies which held scientific meetings had had great difficulty in getting suitable papers, he was glad to say they had been quite full up at their evening meetings with very good material. He was not prepared to say they obtained the material for these meetings without a little trouble. Still, they did better than some societies which took a great deal of trouble and did not get papers. They were very much indebted to those who supported the evening meetings, not only by their presence as part of the audience, but as contributors of papers. In regard to the suggestion made at last Executive meeting by Mr. Gilmour to have a scientific meeting in the forenoon, he was quite sure the General Purposes Committee, which was usually entrusted with that matter, would do its best during the coming session to arrange, if there was any prospect at all of suitable support coming from the surrounding district, to hold such a meeting in the forenoon or afternoon in order to give those outside Edinburgh reasonable opportunity to attend such a meeting. One of the most pleasant features of the annual report was the extent to which

THE LIBRARY

was used. The increase in the circulation of books was 140 over the year before in the town, the number being 1,446, as compared with 1,306 in the previous year. Considering that the increase in the year before was 523, he thought the still further increase was very satisfactory. In the country there had been a decrease of twelve, but the total increase was still 128. Some of those books went to the north of England. He might emphasise the information that the Society paid the carriage of books one way, and so far as personal opinion went, he might say he did not understand how men in business in the country did not see it to be to their advantage to pay a guinea a year of membership to the Society for nothing else than to get the advantages of the library. He further stated that the books in the library in Edinburgh could be obtained by members of the Society resident in England, and that the books of the London library could be obtained by members resident in Scotland. So far as quality was concerned for the purposes in view, the two libraries were second to none among the libraries of the country. They had quite a unique museum, but he did not think the facilities for using it were quite as good as they might be at present. The Executive had the matter in hand with the view of making it more useful by providing greater facilities for examining the specimens, and with more comfort. So far as the specimens were concerned, they had probably an unrivalled collection. As to matters political, he was just afraid he was not a sufficient adept to be able to say anything that would be of much value in that connection. He was aware that the leader of the House of Commons was asked the other day by a gentleman interested when

THE COMPANIES BILL

would likely be taken up, but the leader of the House of Commons did not choose to indicate what he thought on the matter, so they had no information on the subject at all. He should say, however, that even if the Companies Bill were passed, it would be without Clause 2, which the Society had given them all the hint to object to. At the present moment he thought legislation was distinctly unsatisfactory, so far as the practice of pharmacy in legitimate ways was concerned, and he did not see that any substantial remedy would be obtained by tinkering at pharmacy by clauses in the Companies Bill, and he did not think they need expect any radical improvement until they simply went the whole hog and tried to get a new Bill to fit pharmacy in the country. As an example of the disadvantage under which the Society laboured, he might mention a recent case which

occurred not far from Edinburgh, where a lady dispenser was prosecuted for selling poisons in a doctor's shop, and the usual penalty was imposed, but the lady could not pay. The doctor distinctly declined to pay, and he really wanted to ask who was punished in that sort of case? So far as he could see, it was the Society who had to pay all the legal expenses involved. That was merely one example of the distinctly unsatisfactory character of legislation.

The ASSISTANT SECRETARY then read

The Report of the Scrutineers.

At a meeting held on April 27, 1900, the Executive appointed June 22, 1900, as the date of election for the ensuing year.

Five hundred and ninety-nine nomination papers were issued by the Assistant Secretary on May 19, 1900. The nomination papers returned showed that sixty-nine members had been nominated, of whom the following twenty-nine signified their willingness to act if elected:—

Boa, Peter, 119, George Street, Edinburgh.
 Cowie, William Beverly, 26, Clyde Street, Edinburgh.
 Cruickshank, John, 42, George Street, Aberdeen.
 Cummings, Charles, 49, Reform Street, Dundee.
 Currie, Archibald, 162, Ferry Road, Leith.
 Currie, William Little, 223, Byres Road, Dowanhill, Glasgow.
 Dey, Alexander John, 19, Duke Street, Edinburgh.
 Doig, William, 9, High Street, Dundee.
 Dunlop, Thomas, 181, Albert Road, Pollokshields, Glasgow.
 Ewing, James, Laidlaw, 104, South Canongate, Edinburgh.
 Fisher, John Hutchison, 66, High Street, Dunfermline.
 Gilmour, David, 40, Bridge Street, Dunfermline.
 Glass, William Stephen, 193, Morningside Road, Edinburgh.
 Henry, Claude Francis, 1, Brandon Terrace, Edinburgh.
 Hunter, Andrew, 4, North Bridge, Edinburgh.
 Kerr, Charles, 56, Nethergate, Dundee.
 Key, George Brown, West End, Kirkcaldy.
 M'Adam, Robert, 34, Virginia Street, Glasgow.
 M'Dougall, Rea Ireland, 1, Gladstone Place, Leith.
 Macpherson, Colin Allen, 97, Dalry Road, Edinburgh.
 Mitchell, Donald, 30, Union Street, Inverness.
 Naysmith, Andrew, 211, High Street, Arbroath.
 Robertson, David Stewart, 170, Main Street, Rutherglen.
 Russell, James Anderson, 212, New City Road, Glasgow.
 Spence, Alexander, 135, High Street, Linlithgow.
 Stewart, Jeanie, 81, Glasgow Road, Dumbarton.
 Strachan, Alexander, 138, Rosemount Place, Aberdeen.
 Tocher, John, 84, High Street, Dumfries.
 Wilson, William Potter, 36, High Street, Haddington.

A voting list was accordingly drawn up, and on June 13, 1900, 583 voting papers were issued.

The scrutineers met last night at 7 o'clock, and proceeded to examine the voting papers.

The result was found to be as follows:—

Voting papers issued	583
Voting papers returned	282
Voting papers informal	4

There were thus 278 votes to be recorded.

The following gentlemen have a majority of votes:—

Boa, Peter, 119, George Street, Edinburgh.
 Cowie, William Beverly, 26, Clyde Street, Edinburgh.
 Currie, William Little, 223, Byres Road, Dowanhill, Glasgow.
 Doig, William, 9, High Street, Dundee.
 Dunlop, Thomas, 181, Albert Road, Pollokshields, Glasgow.
 Ewing, James, Laidlaw, 104, South Canongate, Edinburgh.
 Fisher, John Hutchison, 66, High Street, Dunfermline.
 Gilmour, David, 40, Bridge Street, Dunfermline.
 Henry, Claude Francis, 1, Brandon Terrace, Edinburgh.
 Kerr, Charles, 56, Nethergate, Dundee.
 M'Adam, Robert, 34, Virginia Street, Glasgow.
 Mitchell, Donald, 30, Union Street, Inverness.
 Naysmith, Andrew, 211, High Street, Arbroath.
 Russell, James Anderson, 212, New City Road, Glasgow.
 Spence, Alexander, 135, High Street, Linlithgow.
 Strachan, Alexander, 138, Rosemount Place, Aberdeen.
 Tocher, John, 84, High Street, Dumfries.

The voting papers and all documents connected with the election are submitted herewith.

JOHN BROWN.

GEORGE COULL.

PETER BOA, *Chairman*.

GEORGE L. MCGIBBON.

JOHN ROBERTSON.

R. L. HENDRY.

The result of the poll was as follows:—

Boa	238	Doig	111
Currie, W.	230	Dunlop	102
Ewing	219	Glass	101
Henry	218	Cruickshank	100
Kerr	207	Wilson	97
Strachan	201	McPherson	85
Gilmour	200	Hunter	83
Cowie	194	Key	79
McAdam	188	Cummings	71
Mitchell	177	Dey	67
Fisher	175	Robertson	66
Tocher	173	Stewart	66
Russell	169	Currie, A.	54
Spence	141	McDougall	48
Naysmith	114		

Mr. FORGIE moved the adoption of the scrutineers' report. Being a comparative stranger at the meetings, he did not think it would be discreet for him to say very much. He would, therefore, formally propose the adoption of the report.

Mr. LUNAN seconded the motion, and said the work of the scrutineers was very anxious work, and they were very much indebted to the gentlemen who performed it year after year. He referred to the signature of Mr. Robertson as appearing as one of the scrutineers for a number of years past.

The motion was agreed to.

The CHAIRMAN then declared that the seventeen persons whose names appear in the following list, together with the President of the Society (Mr. G. T. W. Newsholme), the Vice-President (Mr. C. B. Allen), Mr. John Johnston, Aberdeen, and Mr. David Storrar, Kirkcaldy, would constitute the Executive for the year 1900-1901:—

Boa, Peter	Kerr, Charles
Cowie, William Beverly	McAdam, Robert
Currie, William Little	Mitchell, Donald
Doig, William	Naysmith, Andrew
Dunlop, Thomas	Russell, James Anderson.
Ewing, James Laidlaw	Spence, Alexander
Fisher, John Hutchison	Strachan, Alexander
Gilmour, David	Tocher, John
Henry, Claude Francis	

On the motion of the CHAIRMAN, a vote of thanks was awarded to the scrutineers, Dr. George Coull and Messrs. John Brown, R. L. Hendry, George L. McGibbon, and John Robertson.

The Society's Examination Syllabus.

Mr. KERR (Dundee) asked leave to bring a matter before the meeting. He said he was local secretary for Dundee and had charge of the examinations there, and in view of the new system of examinations, he had had applications for syllabuses and inquiries regarding the examinations by several gentlemen and by young men likely to become candidates. On that account he wrote to Mr. Bremridge, and asked if he would send him a number of the pamphlets giving the information regarding the new examinations which were about to come into force. The reply he received from Mr. Bremridge was: "Anyone applying for these circulars please advise them to write to me for them." He (Mr. Kerr) thought that was a very curt and peculiar reply. He did not think that was the way to get people to interest themselves in the Society; it was not complimentary, and it showed that they wanted real business habits to bring to bear on the interests of their trade and what would do them good. They did not seem to understand that those circulars should be given freely to young men who were desirous of becoming members of their business. That would do more good than telling them to write to London for them. The probability was that if they were told to do so they would not take any further trouble about it. He thought it was most desirable that local secretaries everywhere should be supplied with

these circulars in abundance to give away, as anyone would in advertising their business. They should do everything in their power, in prospect of these new examinations, to circulate information regarding them, so as to attract young men to come forward as apprentices, instead of putting obstacles in the way of their coming forward. That was against the interests of their business and of the Society. Mr. Bremridge was taking a very wrong position in sending him such a letter. A schoolmaster came to him the other day asking for a circular, and he gave him the only one he had. Another gentleman came to him for one, and he had to tell him to write to Mr. Bremridge. He thought that was very hard. Two or three young men had come to him, and he had to tell them the same thing. He thought that was not right. He therefore thought he would bring the matter before the members of the Society, speaking as a local secretary, and not as a member of the Executive at all. He thought the members should have an opportunity of expressing an opinion regarding it.

Mr. W. L. CURRIE said he had great pleasure in supporting what Mr. Kerr said, because he had found some trouble in connection with the same matter himself. He thought it was a disgrace that one individual should have the power of refusing a supply of these materials of information. He would like to ask the question, Was Mr. Bremridge empowered by the Council to make replies of that kind to letters without first consulting the Council? It appeared to him that he "bossed" the Pharmaceutical Society of Great Britain. They wanted to know whether he was the Pharmaceutical Society or no? He was very much surprised to have put into his hands the other day a booklet issued by a teacher of pharmacy in Scotland, and on turning it up and reading it for his own satisfaction he found a complete reprint of the examination syllabus as an introduction to the prospectus. He would like to ask why it was that a teacher of pharmacy had to put himself to the expense and trouble to reprint a thing like that. He thought it ought to be had for the asking for the purposes of their own local officials. It was much better printed than the one in the calendars or the one Mr. Kerr had in his hand. It had the correct and proper spelling and orthography, which was more than could be said of the official one. He did not think it was right that such things should be allowed, and a very strong representation should be sent up from Scotland that these things ought to be in the hands of the officials of the Society resident in Scotland. To have to write to London for them was a perfect farce—red-tapeism, pure and simple.

Mr. LUNAN asked if Mr. Kerr was to submit a motion.

Mr. KERR said he had only thought of bringing the matter before the meeting—that it was desirable they should know how local secretaries were treated.

Mr. McLAREN said there was another matter. The Chairman had spoken of the advantage to chemists of using the library more. He would like to know if any member could get a copy of the catalogue of the Edinburgh library.

The ASSISTANT SECRETARY: Every member of the Society is entitled to receive a catalogue on applying for it.

Mr. McLAREN: He has to apply for it?

The ASSISTANT SECRETARY: He has to apply for it.

Mr. KERR: It is well to know that.

Mr. McLAREN: That should be advertised freely—that catalogues are to be had on application free. I do not think it is known generally. It might help towards utilising the library more.

Mr. GILMOUR asked if it was necessary to write to London for them?

Mr. CURRIE asked the Assistant Secretary if he could supply any member with copies?

The ASSISTANT SECRETARY: I am not allowed to supply them.

Mr. CURRIE: Have you got a supply?

The ASSISTANT SECRETARY: No.

Mr. CURRIE: Well, you cannot supply them.

The ASSISTANT SECRETARY: I have copies of the syllabus for my own use. I apply for them every two or three weeks.

Mr. GILMOUR: Would it not be possible for you to ask for 100 or 200, so as to supply local secretaries?

The CHAIRMAN: I am afraid he would not be allowed to do that.

Mr. McLAREN said there was no doubt of this, that Mr. Bremridge had taken very high and unjustifiable ground. He not only would not supply Mr. Hill; but when a local secretary wrote to the Council he tells him to tell the candidates to address him. The thing was ridiculous, and a strong representation should be made on the matter.

Mr. GILMOUR thought it should go through their own Secretary.

Mr. CURRIE asked who was the Secretary.

Mr. GILMOUR: Mr. Hill.

Mr. CURRIE said Mr. Hill was only Assistant Secretary. There was a legitimate remedy for this grievance, and they ought to have it laid before the Council in London.

Dr. COULL said he felt very strongly on this matter. He had had some correspondence with Mr. Bremridge about the existence of a certificate that was accepted by the Royal College of Physicians by simply passing certain subjects. Mr. Bremridge said there was a rule that it would not be accepted. He looked through the Journals for a number of years, and he never came across that rule. Mr. Bremridge was entirely wrong and quite illogical.

Mr. KERR suggested that this discussion would bring the matter before the Council and would show them the feeling they had with regard to the syllabus.

Mr. McLAREN thought it would carry out the idea better if they remitted the matter to the Executive. They represented the body of members in Scotland, and they should ask the Executive to make a strong representation to London in regard to it. He moved to that effect.

Mr. CURRIE said the matter had been left in the hands of the Executive, and nothing came of it. It should go from the annual meeting of the North British Branch of the Society.

Mr. KERR then moved: "That this meeting represent to the Council that there is a widespread feeling among members that the present arrangements for obtaining papers for examinations is unsatisfactory, and that all such papers should be obtainable from the Society's office in Edinburgh or from any local secretary."

Mr. C. F. HENRY asked if Minor forms were obtainable at that office.

The ASSISTANT SECRETARY said they were not.

Mr. HENRY quoted a portion of a reply he had received from Mr. Bremridge to a letter he had written about the Minor papers and other matters, in which Mr. Bremridge wrote that if he had inquired of Mr. Hill he could have informed him "that, with the exception of the Preliminary entry form, which is non-existent after Tuesday 1st, the various papers distributable are freely supplied."

The ASSISTANT SECRETARY: You see it is only what he regards as distributable. I have none of these papers for distribution. Nor will he supply them. They used all to be obtainable here.

The resolution was seconded by Mr. ROBERTSON and unanimously adopted, and the subject then dropped.

Membership in Scotland.

Mr. GILMOUR then said he thought the most important general remark made by the Chairman in his speech was as to the membership of the Society. He had the idea of bringing the matter up, and he thought they required to come more closely to the point. How could the Society be strong with a membership of 583 out of 1,400. It never could be strong at that figure, and the question was, how could it be made better? The bulk of the prejudice against the Society had its origin in ignorance. A great many had the idea that the Society ought to do something for them, and it was not doing it, and therefore they were not

going to become members. There was more in coming to close quarters with these men than they possibly thought. If it was possible to get hold of them it might be well to make that effort. They had local secretaries who did the work, but they could not always do it. They could not talk about it in other people's premises, and he felt perfectly convinced that if the proper opportunities were taken for doing it, it would be advantageous to the Society. The Chairman referred to the benefit which followed the visit of Mr. Carteighe. That was done in large centres, and the public meetings and speeches gave a stimulus to their interest. To bring the matter to a point, his idea would be that Mr. Hill should be let free for a certain time each year to visit local secretaries, and with the local secretaries see the members of the trade, either through meetings, or, better still, through calling on these men. He was pretty sure that by doing so they would get 50 per cent. of the outsiders right away. He did not know how far they could make a rule or order that Mr. Hill should be set free for this purpose, but in whatever way it would be in order he would be quite prepared to move.

Mr. HENRY said the Secretary would not be able to do it on account of his other duties.

Mr. FORGIE said that, as a local secretary, he endorsed what Mr. Gilmour had said. He thought a visit from Mr. Hill or any other travelling secretary would be of great benefit to the Society. He did not know about the other districts of Scotland or the country generally, but he thought that in his district there was a great deal of good work that a travelling secretary could do that for a local secretary to do might attach a good deal of odium to him.

Mr. LUNAN said they would have to appoint a man from London occasionally. Mr. Hill's time was too much taken up.

The CHAIRMAN said he understood that what Mr. Gilmour wished was a visit from a secretary somewhat after the manner in which an insurance company sent a man to visit the local manager. If there were any grievances against the Society he might be able to explain them away.

Mr. McLAREN said there was one thing quite unusual for an officer of the Society to do. Mr. Hill sometimes took a trip to Dundee or Arbroath in the interests of the Society, and he did so at his own expense. He thought that was most unfair and unworthy on the part of the Society. When Mr. Hill went out as an official of the Society his expenses in going and coming and, for that matter, of staying while he was away, ought to be paid by the Society.

Mr. HENRY asked what steps had been taken to get the twenty-three members who had lapsed to rejoin.

Mr. HILL said he had only got the list, and had not been able yet to inquire. But he felt quite satisfied that most of them had simply forgotten or neglected to send their subscription.

Mr. ANDERSON RUSSELL said there were two in his district. One of them was thinking of becoming a life-member, and had failed to keep himself right for the year. The other was a man in business who had failed.

Mr. HENRY, referring to the Chairman's statement that there were 42 per cent. of the registered chemists in Scotland members of the Society, against 33 per cent. in England, said he had seen official statements to the effect that the membership was much lower in Scotland than in England, and that they were not doing much for the Society.

The meeting closed with votes of thanks to the Chairman and the retiring Executive, proposed by Mr. GILMOUR and Mr. R. L. HENDRY respectively.

SODIUM PARA-FLUORO BENZOATE.—This is a white powder soluble in cold water, which is recommended by Philipsson as a substitute for sodium fluoride. It is administered internally in three doses of 0.5 Gm. for lupus.—*Pharm. Centralh.*, **41**, 156.

FORFARSHIRE AND DISTRICT CHEMISTS' ASSOCIATION.

A meeting of the Committee of this Association was held in Dundee on June 21, Bailie DOIG presiding. The Secretary (Mr. W. Cummings) read the replies to inquiries on the question of inviting

THE BRITISH PHARMACEUTICAL CONFERENCE to Dundee, and after discussion it was unanimously agreed to invite the Conference to Dundee in 1902. The following were appointed delegates to the Conference meeting in London:—Messrs. C. Kerr, A. B. Anderson, James Russell, John Anderson, W. Cummings, Dundee; A. Naysmith and J. Jack, Arbroath; A. Davidson, Montrose. To the Federation:—Messrs. A. B. Anderson and A. Naysmith.

EVENING CLASSES.

Mr. KERMATH (St. Andrews) then said he thought the Association should take steps to get classes arranged for the benefit of their apprentices, so that they might obtain instruction in botany, chemistry, etc., year by year, instead of the few months' cramming so many took just before examination.

Bailie DOIG said the facilities in Dundee for instruction in these subjects were ample, and the fees most moderate, and yet they had had no success for lack of pupils. It seemed to him that one of the principal reasons for the absence of youths from the classes was the long hours during which they were kept at the counter. It was not reasonable to expect them to show much enthusiasm for study after nine o'clock at night. In this connection he wished to say how very much he regretted that the proposal to close the central shops in Dundee an hour earlier during the summer months had failed this year. Returning again to the subject in hand, Mr. Doig said there was another thing badly wanted in order to interest youths in the trade—namely, an up-to-date volume, on the lines of Christison's, to lie upon the desk, so that they could get all the particulars of the preparations they were daily handling brought before them in an interesting way. The Pharmacopœia, with all its merits, was a most unattractive volume to a budding chemist.

After a lengthy discussion, taken part in by Messrs. FORD (Kirriemuir), NAYSMITH (Arbroath), THOMSON (Lochee), and others, it was remitted to the President to report on evening classes to next meeting.

MATERIA MEDICA CABINET.

It may be mentioned for the benefit of studious apprentices in Dundee that a cabinet of materia medica is at their service, and may be had on application to Mr. W. Cummings, Hon. Secretary of the Chemists' Association, 49, Reform Street.

Publications Received.

FOOD AND DRUGS: A Manual for Traders and Others, being a consolidation of the Sale of Food and Drugs Acts, 1875, 1879, 1899, and the Margarine Act, 1887. By CHARLES JAMES HIGGINSON. Pp. xvi. + 179. Price 2s. 6d., net. London: Effingham Wilson, 11, Royal Exchange. 1900. From the Publisher.

FALLOWFIELD'S PHOTOGRAPHIC ANNUAL AND COMPREHENSIVE CATALOGUE OF PHOTOGRAPHIC MATERIALS, CHEMICALS, AND APPARATUS, 1900-1. Pp. 888. Price 1s. 6d., post free. London: Jonathan Fallowfield, 146, Charing Cross Road, W. From the Publisher.

FINCH'S SCIENTIFIC AND NOVEL SANITARY APPLIANCES FOR HOSPITALS AND ASYLUMS. Pp. 47. London: B. Finch and Co., Ltd., 82, Belvedere Road, Lambeth. From the Publishers.

WILLIAMS AND NORGATE'S BOOK CIRCULAR for June 1900. Pp. 207-226. London; 14, Henrietta Street, Covent Garden, W.C. From the Publishers.

THE STUDENTS' COLUMNS.

THE MATERIA MEDICA OF THE PHARMACOPŒIA.

Hemidesmi Radix.

HEMIDESMUS ROOT or INDIAN SARSAPARILLA is obtained from *Hemidesmus indicus*, R.Br. (N.O. Asclepiadaceæ), a climbing plant, with slender, twining, woody stems, which is indigenous to India and Ceylon. The opposite petiolate leaves of the plant vary much in size and shape; they are entire, smooth, shining, and of a firm consistence. The small green flowers are purple inside and disposed in axillary racemes. The fruit consists of two long slender, spreading follicles. The dried root alone is used in medicine, and has long been employed in India as a substitute for sarsaparilla. It possesses alterative and tonic properties, and is used in the preparation of Syrupus Hemidesmi.

root was derived from *Smilax aspera*. Starch occurs in considerable quantity in the parenchymatous tissue of the drug, and tannin is found in the cork.

Hirudo.

LEECHES for medicinal purposes are of two kinds—the speckled leech, *Sanguisuga medicinalis*, Savigny, and *S. officinalis*, Savigny—both fresh-water species, belonging to the class Annelida, family Hirudinea. They are imported from various parts of Europe, and are used to abstract blood from congested parts of the body. Inside the anterior sucker, by means of which the leech attaches itself, are three curved chitinoid plates, placed radially, and having finely serrated edges. The leeches bite through the skin with those jaws or “teeth,” and continue to draw blood until they are gorged, when they drop off. The blood takes several months to digest in the ordinary course, but the gorged leeches can be made to give



HEMIDESMUS ROOT.—A and B, Pieces of root, natural size. A showing loose cork; C, transverse section of root, enlarged.

CHARACTERS.—Hemidesmus root occurs in long, rigid, nearly cylindrical pieces, which are tortuous, longitudinally furrowed, and transversely fissured at intervals. They are hard and woody, often more than 30 Cm. long, but seldom exceed 6 Mm. in thickness. In colour they vary from reddish-brown to dark-brown or nearly black. The pieces branch occasionally, bear a few fibrous rootlets, and may have portions of the slender aerial stems—marked with opposite leaf scars—attached to one extremity. At one side of the root the thin cork is frequently separated from, and raised above, the cortex. A transverse section exhibits a thin greyish bark or cortex containing numerous laticiferous cells, surrounding a larger, porous yellowish wood, which is not distinctly radiate. The fragrant odour—recalling that of tonka beans—and somewhat sweet taste of the root are due to the presence of coumarin.

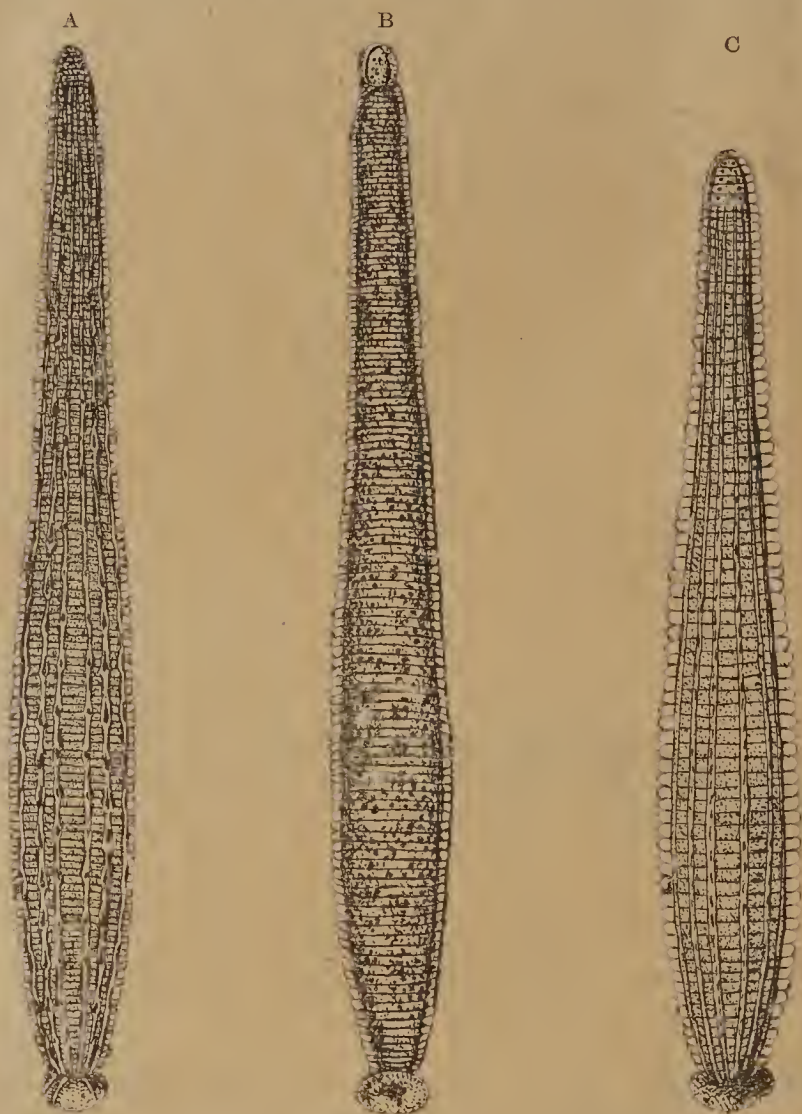
NOTES.—The distinctive characters of hemidesmus root are its rigid and tortuous character, the transverse cracks, easily separable cork, and large yellowish wood. Sarsaparilla is free from transverse cracks, has a firmly adherent cork, and the wood is small. Coumarin is the only important constituent of the root that is known. It is apparently the substance extracted from hemidesmus, and described as a “crystalline stearopten,” to which the name smilaseric acid was given, under the erroneous impression that the

it up readily by placing them in a 16 per cent. aqueous solution of common salt, then taking them by the tail, one by one, dipping them into hot water, and passing them lightly between the fingers. After being replaced in fresh water they should be fit for reapplication at the end of eight or ten days.

CHARACTERS.—Leeches have a soft, smooth body, 5 Cm. or more in length, tapering to each extremity. A section of the body appears plano-convex, the convexity being on the dorsal surface, which is olive-green in colour, with six rusty-red longitudinal stripes. The body is also divided into twenty-six segments, each of which, except those at the extremities, is marked by five fine rings, the total number of those annulations being from ninety to a hundred. The anterior end of the body is terminated by a small sucker surrounding the tri-radiate jaws, and the posterior end is similarly terminated by a large adhesive sucker. In *S. medicinalis* the ventral surface is greenish-yellow, with black spots; in *S. officinalis* the ventral surface is olive-green, without spots.

NOTES.—The distinctive characters of leeches are the possession of two suckers, the presence of five rings on each segment except those at the extremities, and the absence of bristles and “foot-tubercles” such as are found in the higher Annelida. The speckled (Swedish or German) leech is found in Central and Northern Europe.

The habitat of the green (Hungarian) leech is Southern Europe. They occur in fresh-water ponds, swimming with a vertical undulat-



LEECHES.—A, Speckled leech, dorsal surface; B, ditto, ventral surface, showing spots; C, green leech, dorsal surface.

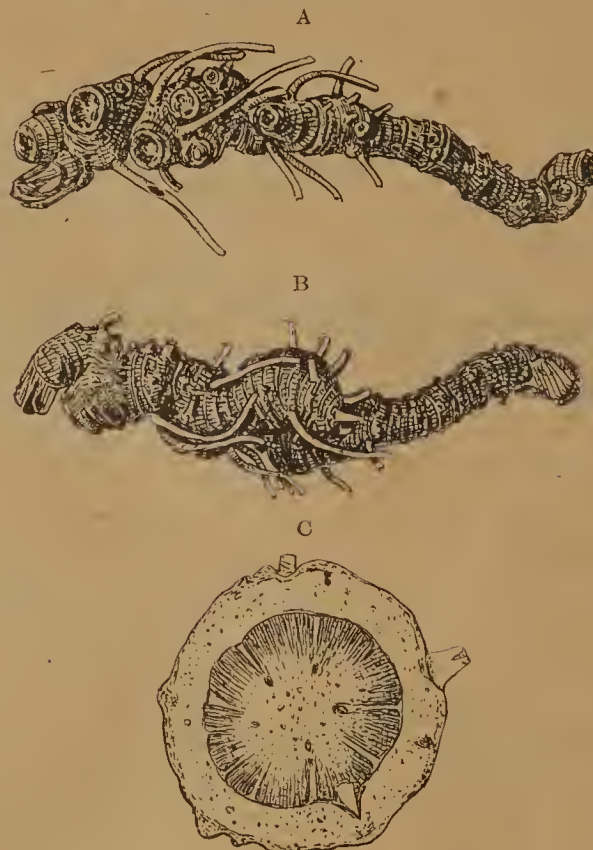
ing motion; when out of the water they move by the aid of their suckers, fastening themselves first by one and then by the other, and alternately stretching out and contracting their bodies.

Hydrastis Rhizoma.

HYDRASTIS RHIZOME or GOLDEN SEAL is obtained from *Hydrastis canadensis*, Linn. (N.O. Ranunculaceæ), a small herbaceous perennial plant, which is widely distributed in the United States and Canada, being found in moist, rich woodlands. It has a thick, fleshy, yellow rhizome, from which numerous long roots arise, and an erect, simple, pubescent stem, from 15 to 30 Cm. in height. There are usually only two leaves, one being sessile at the top of the stem and the other attached a short distance below by a thick footstalk; they are pubescent, roundish-cordate, with from three to seven pointed and unequally serrate lobes. A solitary whitish, rose-coloured, or purplish flower without a corolla rises from the base of the upper leaf; the fruit bears a close resemblance to the raspberry, but is not edible. The dried rhizome and roots alone are official, but the remains of stems are frequently found attached to the drug, which is collected in the autumn after the leaves have withered. Hydrastis possesses tonic, nervine, stimulant, hæmodynamic, astringent and stomachic properties; it is used in the preparation of Extractum Hydrastis Liquidum and Tinctura Hydrastis.

CHARACTERS.—Hydrastis rhizome is yellowish-brown, becoming darker with age, and occurs in rough, knotty and tortuous pieces from 12 to 38 Mm. long and from 3 to 12 Mm. thick. They are usually simple, though sometimes divided into two equal branches, and frequently give off short ascending branches, which terminate in cup-shaped scars left by the aerial stems of previous years.

These branches are found on the upper surface of the rhizome, and bear encircling scars of cataphyllary leaves, which are much more distinct than the scars found on the rhizome proper. Numerous thin, shrivelled, yellow roots are given off from the sides and under surface of the rhizome; as they are wiry and brittle they tend to break off, leaving small protuberances. The rhizome is hard, and breaks with a clean, short, resinous fracture, the surface thus exposed being smooth and of a dark brownish-yellow or greenish-yellow colour. A transverse section exhibits a comparatively thick bark and a ring of bright yellow narrow wood-bundles, which are occasionally somewhat distant, surrounding a large pith. The root also has a dark bark and small bright yellow wood. The slight but characteristic odour of the drug appears to be due to the presence of an unknown volatile principle; the bitter taste is due to hydrastine and berberine.



HYDRASTIS RHIZOME.—A, Upper surface, natural size; B, under surface, ditto; C, transverse section, enlarged.

NOTES.—The distinctive characters of hydrastis rhizome are its yellow colour, the appearance of a transverse section, and the characteristic odour. Bloodroot, from *Sanguinaria canadensis*, is usually of a dark reddish-brown colour, and a transverse section exhibits a more or less pronounced red colour, whilst there are no evident wood-bundles. The chief constituents of hydrastis rhizome are the alkaloids hydrastine (1.5 to 2 per cent.), berberine (3.5 to 4 per cent.), and canadine (tetrahydroberberine). Hydrastine crystallises in bitter, colourless, four-sided prisms, and is converted by oxidising agents into hydrastinine, a white crystalline base which forms a pale yellow crystalline hydrochloride. Berberine constitutes the colouring matter of the drug, and is obtainable in bitter yellow needles. Canadine occurs in the form of brilliant small white nodules, and yields yellow berberine iodohydrate when dissolved in alcohol and treated with iodine. Other constituents of the drug are a fluorescent compound, resin, starch, sugar, and probably a volatile principle to which its odour is due. An eclectic remedy named "hydrastin" is said to consist principally of berberine hydrochloride, with some hydrastine, but it probably also contains canadine and resin. Hydrastis rhizome is employed by the American Indians for staining and dyeing; it is said to impart to wool, silk, and cotton a rich and permanent yellow, or, when combined with indigo, a fine green.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LONDON, THURSDAY, JANUARY 4, 1900.

As might have been expected, there has been somewhat of a revival in the Drug and Chemical Trade after stocktaking, and it is gratifying to be able to report that there has been a fair amount of business passing, while prices have, on the whole, been fairly maintained, and have, in fact, in some instances, rather hardened. There has been renewed activity in Quinine, which is again dearer, while everything would appear to point to the probability of even higher prices ruling for this staple article in the near future. Quicksilver remains firm, as also do Mercurials, Camphor, Carbolic Acid, Cod Liver Oil, and Bromides. Iodides are steady. Glycerin slightly firmer. Cocaine in a somewhat undecided position. The following are the prices actually ruling for some articles of principal interest:—

ACETANILIDE—Continues dull and weak, at 9½d. to 10½d. per lb., according to quantity and make.

ACID ACETIC.—A new maker has appeared on the scene, which was hardly necessary, in view of the number of manufacturers already competing for orders on this market. The agent states that the article is made by a new process in vacuum, and that it is chemically pure. Our readers will probably prefer to stick to the makes which they have been accustomed to buy, and which they have probably hitherto found quite satisfactory, although perhaps not made by a new process. Present quotations are 30 per cent., £11 10s. to £13 per ton; up to £31 10s. to £32 10s. per ton for 98-100 per cent. Carboys free, casks being charged extra.

ACID AND SODA SALICYLATES.—There has so far been no further advance in makers' prices for these two articles. It will be remembered that same were, chiefly in consequence of rise in value of the raw material (acid carbolic), lately advanced 2d. per lb. for the acid and 5d. per lb. for the soda. Makers will, however, it is understood, only book 10-cwt. lots, at the cheapest figure, instead of ton lots as hitherto, and everything would appear to point to the probability of a further tangible advance in the price of salicylates.

ACID BORACIC—Higher crystals being quoted 25s. 6d. per cwt., and powder 28s.

ACID CARBOLIC—Very firm, the prices being 10d. for 35° to 36° C. ice crystal in large bulk; 11d. for 39° to 40° C.; 1s. for 39° to 40° C. detached crystals, B.P. quality. Crude, 60° F. 2s. 9d. per gallon; 75° F. 3s. 6d. per gallon; liquid, of pale straw colour, 1s. 6d. to 1s. 8d. per gallon, in 40 gallon casks; ditto, 25 to 30 per cent. of dark colour, 9d. to 11d. per gallon.

ACID CITRIC—Dull and weak, there being sellers at 1s. 2d. per lb. on the spot for crystals in 5 cwt. casks. Makers, however, are unwilling to book forward at this figure, in fact, they are not anxious to sell forward at all.

ACID OXALIC.—¾d. to ¾d. per lb. nett, delivered free London.

ACID TARTARIC.—English is quoted 1s. 0½d. to 1s. 0¾d. per lb., and Foreign 11¾d. to 1s.

ALUM.—Lump, 5s. 9d. to 6s. per cwt.; ditto ground, 6s. 9d. to 7s. per cwt.

AMMONIA COMPOUNDS.—Bromide: 2s. 2d. per lb. Carbonate: ¾d. to ½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt.; ditto, commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac: Firsts, 40s. per cwt.; seconds, 38s.; ditto, crushed for batteries, 2s. per cwt. more. Iodide: 13s. 7d. per lb. Sulphate dull: Gray, 24 per cent., London, prompt, £11; Hull, prompt, £10 17s. 6d.; Leith, prompt, £10 17s. 6d.; Beckton, prompt, £10 17s. 6d.; January-March, £11; Beckton terms, prompt, £10 15s. Sulpho-cyanide, 1s. 2d. to 1s. 3d. per lb.

ANTIMONY.—Regulus is still quoted £39 to £40 per ton, and crude Japan (black sulphide) £23 10s. to £24 per ton.

APOMORPHINE—Makers quote 19s. 6d. to 20s. per oz.

ARSENIC.—Lump is quoted 32s. to 32s. 6d. per cwt., and powdered 20s. 6d. to 21s. 6d.

ASHES.—Pots, 28s. 6d.; Pearls, 34s. per cwt.

BISMUTH—Is unchanged in price, both for the subnitrate, which is still quoted 5s. 1d. per lb., and for the carbonate, at 5s. 8d. per lb. The commercial quality of the metal is also still quoted 5s. per lb. So far, therefore, the anticipated advance in value has not taken place.

BLEACHING POWDER (CHLORIDE OF LIME).—£6 10s. to £7 per ton for English make.

BORAX—Dearer at 16s. 6d. per cwt. for crystals, and 17s. 6d. per cwt. for powder.

BROMIDES—Are firm and unchanged, at 1s. 10½d. per lb. for potassii bromid, 2s. 1½d. per lb. for sodii bromid, and 2s. 2d. per lb. for ammon. bromid. Bromine is also unchanged, at 2s. to 2s. 2d. per lb. in cases of 60lbs.

CAMPHOR.—English refiners' quotation remains unaltered at 2s. per lb. for Bells and Flowers in ton lots, while Hamburg has again stiffened up to 1s. 11d. for spot and 1s. 11½d. per lb. for delivery. Crude is quiet, with practically nothing doing, Japan being quoted to arrive 167s. 6d. per cwt. c.i.f.

CINCHONA BARK.—The exports of Java bark for December were 626,000 Amsterdam lb., against 1,018,000 Amsterdam lb. last year, making a total for the twelve months of 11,390,800 Amsterdam lb., against 11,150,000 Amsterdam lb. in 1898.

CLOVES.—The market for Zanzibar is strong and dearer for delivery, with sales for January-March at 3¾d., and March-May at 3⅞d.; also some on the spot at 3⅝d. cash, less interest.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. 3½d. per gallon; pure, 2s. 4d. Benzole, 50 per cent. 10½d. per gallon; 90 per cent., 8½d. per gallon. Creosote, 3½d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 5½d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 4d. per gallon; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene: A., 4½d. per unit; B., 2¾d. per unit. Pitch, 36s. per ton, f.o.b. Tar: refined and crude, 12s. 6d. per barrel; 2d. per gallon.

COCAINE.—Market continues in a rather undecided position. The makers maintain their quotation of 20s. 6d. per oz. for the Hydrochlorate in 25-oz. tins for 200oz. lots, but do not appear to be doing much business in the article; on the other hand, stock in second-hand appears to be very much reduced, and it would probably not be easy to buy any considerable quantity of the brands most in favour at much below makers' price. It is stated that shipments of crude are advised on a more liberal scale, and some of the makers appear to think that a reduction in price is more probable than an advance.

CODEINE—Remains very firm, at 12s. 11d. to 13s. 6d. per oz. for the pure and 1s. per oz. less for the salts.

COD LIVER OIL.—Market is quiet, but firm, quotations being nominally 77s. 6d. to 82s. 6d. per barrel f.o.b., according to brand, for non-congealing Norwegian Oil in tin-lined barrels of 25 gallons.

CREAM OF TARTAR.—First white crystals are quoted 73s. per cwt. on the spot. Powder, 75s.; ditto, 95 per cent., 76s. per cwt.

DRAGONS' BLOOD.—A fair business has been done in medium grades at £8 10s. to £9 per cwt., brighter lump being held for £11 per cwt., whilst fine bright is strongly held for £21. Reeds are in good supply, 14 cases having just arrived. These are held for £10 10s. per cwt.

ERGOT.—This article, which has been excessively dull for some time, has during the week been exceedingly active owing to urgent orders from the United States, and Russian Ergot, which a week ago was unsaleable at 2s. 3d. per lb., has touched 2s. 6d. per lb., some few tons having been done. It is doubtful if there is much now available, and to import the article would cost fully 2s. 9d. per lb.

ESSENTIAL OILS—Of all descriptions have been very quiet and business unimportant.

ESERINE (PHYSOSTIGMINE)—Makers are firm at the late advance in price to 2s. 6d. per gramme for the Sulphate and Salicylate, and 3s. 6d. per gramme for the pure, in lots of at least 10 grammes.

EXTRACT FELICIS MARIS (Oil of Male Fern)—Is firm at 4s. 6d. to 5s. per lb., according to make, packing, and quantity.

GLYCERIN.—Rather firmer, both for crude and for refined, the former from candle-making being quoted £39 to £40 per ton, and ditto from soap lees £31 to £32, while refined is quoted 55s. to 57s. 6d. for English, and 56s. to 65s. per cwt. for German, according to brand, for best white double-distilled, chemically pure 1260° quality in tins and cases.

IODIDES—Are unchanged at 10s. 6d. per lb. for potassii iodid, 11s. 10d. per lb. for sodii iodid, 13s. 10d. per lb. for ammon. iodid,

13s. 10d. per lb. for iodoform crystal, powder, or precipitated; 12s. per lb. for iodine resublimed, and 7½d. per oz. for crude iodine.

MENTHOL—Is very firm, at 10s. 6d. per lb. for good dry white crystals on the spot, in case lots, while to arrive a still higher price is asked.

MERCURIALS—Remain very firm, at 3s. 2d. per lb. for Calomel and 2s. 10d. per lb. for Corrosive Sublimatc.

MORPHINE—Is quiet and unchanged. Very little business has been passing in the article during last few days.

OILS (FIXED) AND SPIRITS.—Linseed: The market is strong at advanced prices. On the spot, pipes, London, quoted £22 5s. to £22 10s.; barrels, £22 10s. to £22 12s. 6d.; Hull, spot, naked, £21 5s.; Feb.-April, £21 5s. Rape firm; ordinary brown, on the spot, £23 5s.; refined, spot, £24 15s.; Ravison, naked, spot, £21 10s. Cotton very firm at higher prices; London, crude, spot, £19; refined, spot, £20 5s. to £20 15s., according to make; Hull dearer, naked, refined, spot, quoted £19; crude, spot, £17 15s. Olive: Mogador, £34 5s.; Spanish, £35 10s.; Levant, £34 5s. Cocoonut steady; Ceylon, on the spot, £25 10s.; Cochin, spot, £20 10s. Palm: Lagos, on the spot, quoted £26. Castor Oil firmer; Belgian, first pressing, spot, £27 10s.; Jan.-June, £26 10s., f.o.b.; Antwerp, second pressing, spot, £26 per ton, ex-wharf; Hull manufactured, guaranteed cold drawn pure pharmaceutical, £29 5s. per ton in barrels, 3½d. per lb. in cases; pure firsts, £26 15s.; seconds, £25 15s. per ton in barrels; firsts, 3½d. per lb. in cases, seconds 3 1-32d., ex-wharf, London. Lubricating Oil: Pale American, spot, 7s. 6d. to 11s.; black, 7s. to 9s.; Russian, black, 5s. 6d. to 6s.; pale, 8s. to 9s. 6d. Petroleum Oil quiet; Russian, spot, qoted 6½d. to 6½d.; American, spot, 7¼d. to 7½d.; water white, 8½d. to 8¾d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. Turpentine very firm at slightly higher prices; American, spot, 38s. 1½d. to 38s. 3d.

OPIUM.—Druggists' and manufacturing kinds have been in good request, and a large business has been done at slightly dearer rates. A considerable quantity has been withdrawn from the market, and higher prices are anticipated. "Soft Shipping" has also been dealt in to a fair extent at full rates. Persian kinds are inactive at unaltered prices.

PARAFFIN WAX.—Crude, 2½d. to 3d. per lb.; refined, 3¼d. to 4d.

PHENACETIN.—Good makes are firm at 3s. 6d. per lb. as the very lowest price for either powder or crystals in 5 cwt. lots, while the probability of a further advance in price does not appear very remote. Even at the advanced figure the article is still very cheap, too cheap to leave anything like a satisfactory profit to the makers.

PILOCARPINE.—Makers' price remains firm at the late advance to 41s. 9d. per oz. for 8-oz. lots, smaller quantity being quoted higher in proportion.

PITCH.—8s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 33s. to 36s. per cwt. Bichromate, 5d. per lb. Bromide, 1s. 10½d. Chlorate spot London crystals, 3¾d.; Powder, 3¾. Iodide, 10s. 6d. per lb. Permanganate: Small Crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate: Yellow English makes 7¾d.; Beckton, 7d. Red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER.—Importer is firm at £9 12s. 6d. per bottle, while second-hand offers at 1s. per bottle less money.

QUININE.—The agents here for makers of the favourite German brands of Sulphate, after advancing their price to 1s. 3½d. per oz. for 1,000-oz. lots in 100-oz. tins, now decline to book orders at all, while in the speculative market there have been buyers at 1s. 3½d. per oz. for spot and 1s. 4d. per oz. for March delivery. Cause of the increased firmness in the article has been the very moderate bark shipments to Amsterdam for December, and it looks very much as if we were on the eve of a further decided advance in price of quinine, much will, however, depend upon the result of next Thursday's Bark sales in Amsterdam.

ROSIN—Steady, at 5s. per cwt. for strained on the spot, and rather firmer to arrive, at 4s. 9d. per cwt., ex ship conditions, for January-March shipment, per sailing vessel.

SALICINE—Remains very firm, at 12s. to 12s. 6d. per lb., according to quantity.

SANTONINE.—The agents for the makers quote 11s. 3d. to 11s. 9d. per lb., according to quantity, while stock in second-hand appears to be practically exhausted.

SHELLAC.—The market exhibits a dull tone, and, in the continued absence of demand, few sales of consequence have occurred, but prices are about steady. The shipments from Calcutta (per "Reuter") to the United Kingdom were for the last half of December 7,500 cwt., making 8,400 cwt. for the month, against 7,300 cwt. last year, and to the United States for the last half of December 11,300 cwt., making 12,200 cwt. for the month, against 4,500 cwt. last year. To the Continent the shipments were 4,100 cwt., making 9,200 cwt for the whole month, against 5,400 cwt. last year. The landings in London in December were 2,220 chests, against 4,101 chests; the deliveries 2,727 chests, against 3,225 chests; and the stock on December 31, 41,599 chests, consisting of 34,103 chests Orange, 2,033 chests Garnet, and 5,463 chests Button, against 49,068 chests last year.

Statement of the Landings, Deliveries, and Stocks of Shellac the last three

	years:—		
	1899.	1898.	1897.
Landed chests	45,955	48,028	73,062
Delivered	53,424	50,908	56,793
Stock, Dec. 31	41,599	49,068	51,948

SODA COMPOUNDS.—Crystals: Barrels quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 4¼d. per lb. Bicarbonate, landed, £7 5s. Bromide, 2s. 1½d. Caustic: 70 per cent. white, £10; 60 per cent., £1 less. Hypo-sulphate (Antichlor), 6s. 6d. to 8s. 6d. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate, quiet on spot; refined, £8; ordinary, £7 15s.

SPICES.—No public sales have been held this week. The usual weekly auctions will be resumed on the 10th inst.

SULPHATE OF COPPER—Rather easier at £24 2s. 6d. to £25 10s. per ton, according to quantity and make, for spot delivery.

SULPHONAL.—The two principal makers maintain their price of 17s. per lb. for both crystals and powder, while less reputable makes are being offered at 14s. to 14s. 6d. per lb.

SULPHUR.—Roll, 6s. 9d. to 7s. per cwt.; flour, 7s. 3d. to 7s. 6d.

TAR.—Stockholm, 25s. to 25s. 6d.; Archangel, 18s. to 18s. 6d.

THYMOL—Remains firm at 10s. 6d. to 11s. per lb., according to quantity.

VERATRIA—Is firm, at the late advance to 4s. 8d. per oz. for the pure.

LIVERPOOL, JANUARY 3, 1900.

In consequence of the holiday season, business has been somewhat curtailed, but inquiry in most staple articles is good, and prices continue steady, with higher quotations in several important items. A distinct firmness is noticeable in Linseed Oil and Cottonseed Oil of Liverpool makes, due to rise in the price of material. Honey has been inquired for rather more of late, and good sales of Chilian have been arranged.

CANARYSEED.—No business has been done, but a good inquiry for Turkish exists, with holders asking 35s. to 36s. per 464 lbs.

CHILLIES.—24 bags of common Sierra Leone fruit were sold ex quay at 25s. per cwt.

CREAM OF TARTAR.—Early last week the quotations were 74s. to 80s. per cwt., but business has since been done at 73s. to 79s.

HONEY.—Chilian has been sold to about 120 barrels in all, Pile 3 at 21s. 6d. to 22s. per cwt., Pile 1 at 25s., and Pile X at 30s. 6d. per cwt.

LINSEED—Is firm, but there is little doing. Some Calcutta 4 per cent., to arrive shortly, has been sold at 46s. 3d. per 416 lbs.

NITRATE.—Chili is selling slowly at 7s. 7½d. to 8s. per cwt., according to quality.

OILS (FIXED) AND SPIRITS.—Castor, Calcutta is offering at 2¼d. to 3d. per lb. French 1st pressure, 2¾d. to 2¼d. and 2¾d., with business at 2¾d. per lb.; and 2nd pressure Belgian at 2½d. per lb. Olive is firm, but in limited demand at £36 10s. to £37 per ton for Spanish. Linseed is held at an advance of 3d. per cwt. for Liverpool pressed oil, makers asking 22s. 9d. to 23s. 6d. per cwt. Cottonseed is very firm, Liverpool refined being priced at 20s. 9d. to 21s. per cwt. Spirits of Turpentine have advanced to 39s. per cwt. with a fair trade doing.

PEARLASHES—Are quiet at 33s. 6d. to 35s. per cwt.

POTASHES—Are firm, at 26s. 9d. to 27s. per cwt.

NEWS IN BRIEF.

SIR JOHN LUBBOCK has been created a Peer of the United Kingdom, on the same occasion.

CAPTAIN ABNEY, the eminent photographic authority, has been promoted to be K.C.B.

DR. LAUDER BRUNTON has received the honour of Knighthood, on the occasion of the award of the New Year honours.

MR. W. MURTON HOLMES has again consented to deliver a course of lectures on pharmacy at the Westminster College of Chemistry and Pharmacy.

MESSRS. HOWARDS AND SONS, Stratford, E., have issued an eye-letted card, on which the solubility and equivalent value of the chief salts of quinine are conveniently tabulated.

MESSRS. BURROUGHS, WELLCOME AND Co., London, are supplying, as a gift, the entire medical equipment of the City of London Imperial Volunteers throughout the present war in South Africa.

MESSRS. EVANS, SONS, AND Co., 56, Hanover Street, Liverpool, have admitted into partnership Mr. James Herbert Everett Evans, son of Mr. John James Evans.

MR. F. W. GAMBLE has been appointed manager of Messrs. Allen and Hanburys' West End Branch, 7, Vere Street, W. Mr. Gamble is well-known as President of the Chemists' Assistants' Association.

MESSRS. I. and M. COHEN, 53 and 54, Houndsditch, and 66, St. Mary Axe, London, E.C., have presented to the hospital ship "Maine" a large case containing one thousand selected medical sponges.

MR. BAGGALLAY, at West Ham Police Court, has dismissed a case against a retailer of compound rhubarb powder containing magnesium carbonate, on the ground that the British Pharmacopœia is not a legal standard under the Sale of Food and Drugs Acts.

MR. JOHN C. UMNEY, of Messrs. Wright, Layman, and Umney, Limited, London, has published some useful notes (No. 4) on current chemical and pharmaceutical topics, dealing with a few difficulties of the British Pharmacopœia, 1898.

MESSRS. EVANS, GADD AND Co., Bristol and Exeter, notify that they are now standardising their tinctures in accordance with the figures given in Messrs. Wippell Gadd and Moor's 'Synopsis of the British Pharmacopœia'—4th edition.

MR. JOSIAH AUSTIN, M.P.S., F.S.A., Nechell's Green, Birmingham, in his almanac for 1900, publishes a readable article, written by himself, on "The Catacombs of Rome." There is also the usual local, postal, and other information, and an interesting compilation of literary matter.

MESSRS. ALLEN AND HANBURYS, LIMITED, LONDON, have introduced, under the name "Kapsol," an improvement on the ordinary pill or compressed tablet. It consists of a particularly soft, homogeneous and easily absorbed pill-mass, enclosed in a thin jujube coating, which is soft and flexible.

MESSRS. J. AND A. CHURCHILL state that a disastrous fire at the printers has caused the destruction of the sheets and type of the 'Medical Directory.' Steps are being taken to replace them, but a delay in sending out the subscribers' copies is inevitable. It is hoped, however, to publish the volume for 1900 early in February.

MESSRS. JAMES TOWNSEND and SON, label printers, of Exeter and London, having amongst their staff from fifty to sixty volunteers, have promised, should they be called upon to serve with the colours, to keep their situations open for them, also to provide or their wives and families during their absence.

MR. THOMAS BEECHAM, St. Helens, Lancs., intimates that he will be pleased to send a gratis box of Beecham's Pills, postage paid, to any individual soldier now on active service in South Africa, in whom readers may be interested, if they will send to St. Helens an address which will find their absent friend at the seat of war.

MESSRS. HELBING AND PASSMORE, analytical and consulting chemists, 63, Queen Victoria Street, London, E.C., state that, in order to meet the increase of business and provide accommodation for a larger staff, they have now completed the installation of a large auxiliary laboratory, conveniently situated in the neighbourhood of their office.

MR. J. C. C. PAYNE, Oxford Buildings, Medical Hall, 18, Shaftesbury Square, Belfast, in removing his branch at Holywood from one building to another, has taken the opportunity of having his new premises entirely refitted, and the effect is now extremely handsome. The whole of the work has been carried out by Messrs. Ayrton and Saunders, Liverpool.

MR. J. THOMPSON, Beswick, Manchester, has patented a simple wire poison-guard. It is intended to be attached to dispensing bottles when sent out from the works, various sizes being also kept for attaching to stock-bottles and jars, so as to convert them into safe poison receptacles. The guard is so shaped that without purposely raising it, the stopper or cork cannot be removed from the bottle.

MESSRS. HARKER, STAGG AND MORGAN, London, announce that they have been compelled, owing to the increased cost of bottles and stoneware, to revise their prices charged for the different sizes. For some time to come the firm will affix to all packages where there is an alteration in price, a circular red label bearing the date 1900, so as to prevent any confusion in crediting.

THE HIGHEST AWARD granted by the National Export Exposition, recently held at Philadelphia, and diploma, were conferred upon Messrs. Seabury and Johnson, for the excellence of their plasters, dressings, surgical appliances, etc. The exhibit of "Seabury" products is reported to have been the handsomest in the Drug and Chemical Industries' section.

MR. R. LORD GIFFORD, on Tuesday, January 2, addressed the Darwen members of the North-East Lancashire Chemists' Association on "The Present Pharmaceutical Position." He took as his text a quotation from an editorial article in the Journal for December 16 last, p. 589, viz.: "The privileges appertaining to the statutory qualification of the Pharmacy Act, 1868, are like the qualification itself, and the acts to which it relates altogether of an individual nature." His address was virtually an expansion of that article.

THE STAFF OF SOUTHALL BROS. AND BARCLAY, LIMITED, Birmingham, gave a complimentary dinner on December 28, to Mr. E. F. Elwell, who, after representing the house in the Midlands for some twenty-two years, is now retiring. Mr. W. Heal occupied the chair, and formally presented a handsome piece of plate, which had been subscribed for by the staff, to Mr. Elwell. After Mr. Elwell had suitably responded, a smoking concert followed, in which the following gentlemen took part:—Messrs. F. G. Hughes, Felix Powell, H. W. Hunt, D. Davies, H. Firkin, R. Howard, J. Nield, and J. Kennard.

MINIMS, DRACHMS AND FLUID OUNCES TO MILLIMETRES, AND PINTS TO LITRE

	Minims to Ml.	Drachms to Ml.	Ounces to Ml.	Pints to Litres.
1	0.05916	3.552	28.412	0.568
2	0.11832	7.103	56.825	1.136
3	0.17748	10.655	85.237	1.705
4	0.23664	14.206	113.649	2.273
5	0.29580	17.758	142.065	2.841
6	0.35496	21.309	170.474	3.409
7	0.41412	24.860	198.886	3.977
8	0.47328	28.412	227.298	4.545
9	0.53244	31.964	255.711	5.111

EXPLANATION OF TABLE.—The first column represents the number of minim drachms, fluid ounces, or pints. Thus: 4 minims = 0.23664 Ml.; 4 drachm = 14.206 Ml.; 4 fl. = 113.649 Ml.; 4 pts. = 2.273 Litres.

Calendar for the Week.

Sunday, Jan. 7.	1st after Epiphany.	Sun rises 8.7; sets 4.6
Monday, Jan. 8.	☾ 5.40 m.	Sun rises 8.7 sets 4.8
SOCIETY OF CHEMICAL INDUSTRY, Burlington House, Piccadilly, W., at 8.30 p.m.—Papers on "Colour Photography," by J. W. Hinchley; "Cinchona," by J. M. V. Vergara; "Microscopic Characters of Vicuna, Camel-hair, and Alpaca," by R. M. Prideaux.		
Tuesday, Jan. 9.		Sun rises 8.6; sets 4.9
ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m.—The sixth lecture on "Fluids in Motion and at Rest," by C. Vernon Boys.		
ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—Paper by W. B. Ferguson, on "Toning and Intensification with the Salts of Copper."		
Wednesday, Jan. 10.		Sun rises 8.6; sets 4.10
EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION, 36, York Place, at 9.15 p.m.—Apprentices' Night: Short Papers by Messrs. Grainger Kidd, and Murdoch.		
MANCHESTER PHARMACEUTICAL ASSOCIATION, Chemical Club Rooms, Victoria Hotel, at 7.30 p.m.—W. S. Glyn-Jones on "The P.A.T.A. and its Defence Fund."		
NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION, Hotel Metropole, at 8.30 p.m.—Discussion on various Items of Interest to the Trade generally.		
PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London W.C., at 11 a.m.—Meeting of the Council.		
SHEFFIELD PHARMACEUTICAL SOCIETY, at 8.30 a.m.—Students Night.		
Thursday, Jan. 11.		Sun rises 8.5; sets 4.11
Friday, Jan. 12.		Sun rises 8.4; sets 4.13
GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masnic Chambers, 100, West Regent Street, at 9.15 p.m.—"Mirth and Music."		
aturday, Jan. 13.		Sun rises 8.3; sets 4.14

London Gazette Notices.

PARTNERSHIPS DISSOLVED.

Josiah Pring Starling and Edward Sweetland, Photographers, High Wycombe.
James Harry Toplis and Thomas Henry Bradley, Wholesale and Retail Chemists and Druggists, at Chesterfield, Staveley and Whittington Moor. Debts will be received and paid by James H. Toplis.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Andrews, Austin, Burns, Churchill, Crossley, Cumber, Dent, Fleming, Forrest, Forster, Gilderdale, Gilmour, Guyer, Helbing, Hodge, James, Johnstone, Jones, Kirkby, Lennox, Melbourn, Moulton, Spencer, Summers, Umney, Walton, Warren, White, Williams, Winton.

Publications Received.

UNWIN'S CHAP BOOK, 1899-1900. Pp. 108. Price 1s. London: T. Fisher Unwin, Paternoster Square, E.C. From the Publisher.

THE AGRICULTURAL AWAKENING. By SIR JAMES BLYTH, BART. Pp. 16. Reprinted from *The Times*, December 26, 1899. From the Author.

THE JOURNAL OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND. Third series, Vol. X., part IV. Price 3s. 6d. London: John Murray, Albemarle Street, W. From the Secretary.

AN INTRODUCTION TO ANALYTICAL CHEMISTRY. By G. G. HENDERSON, D.Sc., M.A., F.I.C., and M. A. PARKER, B.Sc. Pp. 228. Price 5s. London: Blackie and Son, Limited, 50, Old Bailey, E.C. 1899. From the Publishers.

AIDS TO MATERIA MEDICA, PART III. By WILLIAM MURRELL, M.D., F.R.C.P. Pp. 100, foolscap 8vo. Price 2s. 6d. London, Baillière, Tindall, and Cox, King William-street, Strand, W.C. 1900. From the Publishers.

THE DIOPTRIC AND OPHTHALMOMETRIC REVIEW: With Notes and Transactions of the British Optical Association. Edited by R. SUTCLIFFE, F.B.O.A., Hon. Sec. No. 26. November, 1899. London: J. H. Sutcliffe, 17, Shaftesbury Avenue, Piccadilly Circus, W. From the Secretary.

ON THREE NEW SPECIES OF EUCALYPTUS. By R. T. BAKER, F.L.S., Curator, Technological Museum, Sydney. Reprinted from the Proceedings of the Linnean Society of New South Wales, 1899. Part II. June 28. From the Author.

Advertisements

Received too late for Classification.

LONDON, 116, High St., Aldgate, E.—Good going concern for immediate Disposal; good central position; long lease; Retail Chemist and Druggist's Business.—Apply, W. LEMON, Northgate St., Devizes.

J. & H. MATHEWS require a competent qualified ASSISTANT, at once. Must be a good and accurate Dispenser, and have had London experience.—Apply, J. & H. MATHEWS, 68, Queen's Gardens, Hyde Park, W.

BURROW'S SELTZER AND REAL SODA. Are unequalled for Brandy and Whisky. Six Dozen Carriage Paid.	THE PUREST MINERAL WATERS.	BURROW'S LITHIATED MALVERNIA. The best remedy for GOUT and RHEUMATISM. Six Dozen Carriage Paid.
	BURROW'S MALVERN WATERS	
	THE NATURAL WATER Is in Stoppered Reputed Quarts.	
W. & J. BURROW, The Springs, MALVERN.		

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LONDON, THURSDAY, JANUARY 11, 1900.

Business has been somewhat quiet during past few days, the unfavourable news from South Africa having, it would appear, rather acted as a damper on intending buyers. Prices at the same time continue to be fairly well maintained, the chief excitement having again centred in Quinine, which is dearer on the week; what the immediate future of the article will be apparently now depends upon the course of to-day's Bark sales in Amsterdam, results of which were not known at the time of our going to press. Acid Carbohc remains very firm, with an upward tendency, while Ipecacuanha is lower and looks like further receding in value. Sulphonal appears to have assumed a more settled position. Price of Cocaine is also stiffening up, in spite of more liberal arrivals of the crude. Ergot of Rye is dearer, and continues very firm. Otherwise there are no changes in value of any importance to report. Bank rate was to-day reduced to five per cent., and it is hoped that the advent of cheaper money, with perhaps the arrival of more favourable news from South Africa, may help towards making business more active. As a matter of fact, the wholesale drug houses and wholesale chemists have been, and are, extremely busy, in consequence of the prevailing epidemic of influenza; this, however, refers to retail business, but must in the end also have an influence in promoting orders for wholesale quantities. The following are the prices ruling for some articles of principal interest.

ACETANILIDE—Remains dull and weak at 9½d. to 11d. per lb., according to quantity.

ACID CARBOHC.—Very firm at advanced prices—namely, 10¾d. for 35° to 36° C. ice crystal in large bulk; 11¼d. for 39° to 40° C.; and 1s. 0¼d. for 39° to 40° C. detached crystals, B.P. quality. Crude, 60F., 3s. per gallon; 75° F., 3s. 9d. per gallon. Liquid of pale straw colour, 1s. 8d. per gallon in 40-gallon casks; ditto, 25 to 30 per cent. of dark colour, 9d. to 11d. per gallon.

ACID CITRIC—Quiet at 1s. 2½d. to 1s. 3d. per lb. for crystals in 5 cwt. casks.

ACID OXALIC—Is quoted 3d. to 3¼d. per lb., nett free, delivered London.

ACID TARTARIC.—English is still quoted 1s. 0½d. to 1s. 0¾d. per lb., and foreign 11¾d. to 1s. per lb.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt.; ditto commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac: Firsts, 40s. per cwt.; seconds, 38s.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 7d. per lb. Sulphate dearer. Grey, 24 per cent., London, prompt, £11 10s.; Hull, prompt, £11 7s. 6d. to £11 10s.; Beckton, prompt, £11 10s.; Beckton, terms prompt, £11 7s. 6d. Sulphocyanide, 1s. to 1s. 2d. per lb.

ANTIMONY.—Regulus is still quoted £39 to £40 per ton; while Crude Japan (Black Sulphide) is cheaper at £21 to £21 10s. per ton.

BISMUTH—Is unchanged both for the Metal and for the Salts.

BLEACHING POWDER.—English still quoted £6 10s. to £6 15s. per ton.

BORACIC ACID.—The advance is maintained, Crystals being now quoted 25s. 6d. per cwt. and Powder, 27s. 6d.

BORAX.—Crystals are now quoted 16s. 6d. per cwt. and Powder 17s. 6d.

BROMIDES—Are steady at unchanged prices.

CAMPHOR.—Refined is unchanged at 2s. per lb. for Bells and Flowers in ton lots. For crude the market remains very quiet, without any business being reported, quotations for arrival are—for China 160s. per cwt., and for Japan 167s. 6d. per cwt., c.i.f.

CLOVES.—At auction the small supply of Zanzibar sold well at rather dearer prices, good bright at 3¾d., ordinary to fair at 3¼d. to 3¾d. Penang: 12 cases of dark picked were bought in at 6¼d. Privately Zanzibar are strong and again dearer. A fair business has been done, comprising of spot at 3⅞d. cash, less interest; January-March delivery at 3⅞d., March-May at 3½d. and buyers, and June-August at 3⅞d. to 3½d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon; pure, 2s. 3d. Benzole, 50 per cent, 10½d. per gallon; 90 per cent., 8d. per gallon. Creosote, 3¼d. per gallon. Crude Naphtha, 30 per cent., at 120°C., 6d. per gallon. Solvent Naphtha, 95 per cent. at 160°C., 1s. 7d. per gallon; 90 per cent. at 160°C., 1s. 4d. per gallon; 90 per cent. at 190°C., 1s. 3d. per gallon. Anthracene, A., 3¾d. per unit; B., 2¾d. per unit. Pitch, 35s. per ton, f.o.b. Tar, refined and crude, 12s. 6d. per barrel; 2d. per gallon.

COCAINE.—Makers' price remains 20s. 6d. per oz. for the Hydrochlorate in 25-oz. tins for 200-oz. lots. It is, however, stated that in view of the more liberal arrivals of crude a reduction in makers' price is more probable than a further advance. On the other hand, while sales of the favourite brands of this article have been made from second-hand at 19s. to 19s. 6d. per oz., the supply of good makes in second-hand appears to be practically exhausted, which should help the makers (who have lately been somewhat out in the cold as regards orders for this article) to obtain their price, for a time at least.

CODEINE.—Very firm at 12s. 11d. to 13s. 6d. per oz., according to quantity for the pure, and 1s. per oz. less for the muriate, phosphate, and sulphate salts.

COD LIVER OIL.—Market is just a shade easier, there having been small sales of "Jervals" brand from second-hand at 77s. 6d. to 80s. per barrel. The quotation from the other side remains however nominally unchanged at 75s. to 82s. 6d. per barrel, according to quantity and brand, f.o.b., for best non-congealing Norwegian oil in tin-lined barrels of 25 gallons.

CREAM OF TARTAR.—First White Crystals quoted 73s. per cwt. on the spot; Powder, 75s.; ditto 95 per cent, 76s.

ERGOT OF RYE.—Is exceedingly scarce, as much as 2s. 9d. to 3s. per lb. being asked for fair to good sound Russian, while really fine sound Spanish is hardly procurable at all. Any further activity in the demand would probably drive the price still higher, especially as the new crop cannot become available for many months to come. The various preparations of Ergot have naturally been advanced in proportion, 15s. 6d. to 19s., according to quantity and make, being now asked for Ergotin Bonjean.

GAMBIER.—The market for arrival remains firm, although quiet, and no business is reported; January-March steamer quoted value 15s. 3d. On the spot whole bales are selling at 15s. 3d. At auction 276 bags Cube offered and bought in at 23s.

GINGER.—At auction the moderate supply of Cochin was slow of sale, and of 137 cases and 660 bags offered only 62 bags sold at steady prices, comprising washed, rough, medium, plump, and small at 29s., the remainder bought in, including medium and small, cut and scraped limed at 45s. Japan: The 100 bags offered were all bought in, fair limed, at 23s. Jamaica: Only ten barrels sold out of 109 offered, good common at 58s.

GLYCERIN.—Refined is steady at 54s. 6d. to 57s. 6d. per cwt. for English and 56s. to 67s. 6d., according to brand, for German best white, double distilled, chemically pure, 1260° quality, in tins and cases. Crude quiet but firm at nominally unchanged rates.

GRASS TREE GUM.—19 bags offered and bought in at 8s.

HYPOPHOSPHITES.—Makers' prices are 3s. 3d. per lb. for the Lime, Soda, and Potash Salts.

IODIDES—Quiet and without change in price.

IPECACUANHA.—Market is weaker at 11s. 9d. to 12s. 6d. per lb. for Rio and 8s. to 8s. 6d. per lb. for Carthagenia; and it looks very much as if the article would go still lower.

MENTHOL.—Spot price remains 10s. 6d. to 10s. 9d. per lb. for good brands of dry white crystals in case lots (12 × 5 lb. tins in a case).

MERCURIALS.—There is no change in makers' prices to report.

MYRABOLANS—Dull of sale and 886 bags Bhimlies in auction were bought in at 8s. 6d.

OILS (FIXED) AND SPIRITS.—Linseed dull. On the spot pipes London, £23 15s.; barrels, £24; Hull, spot naked, £22 10s. Rape very firm. Ordinary brown on the spot quoted £24 10s.; refined spot, £25 15s.; Ravison naked spot, £22 10s. Cotton firm. London crude spot, £20 5s.; refined spot, £22 5s. to £23, according to make; Hull naked refined spot, £20 5s.; crude spot, £19 5s. Olive: Mogador, £34 5s.; Spanish, £35 10s.; Levant, £34 5s. Coconut steady. Ceylon on the spot, £25 10s.; Cochin spot, £28 10s. Palm: Lagos on the spot quoted £26. Castor firmer. Belgian first pressing, spot, £27 10s.; January-June, £26 10s., f.o.b. Antwerp second pressing, spot, £26 per ton ex wharf; Hull manufactured, guaranteed cold drawn pure pharmaceutical, £29 15s. per ton in barrels, 3⅞d. per lb. in cases; pure firsts, £27 5s.;

seconds, £26 5s. per ton in barrels; firsts, 3³/₁₆d. per lb. in cases; seconds, 3¹/₁₆d., ex wharf London. Lubricating Oil: Pale American spot, 7s. 6d. to 11s.; black, 7s. to 9s.; Russian black, 5s. 6d. to 6s.; pale, 8s. to 9s. 6d. Petroleum Oil flat. Russian spot quoted 6¹/₂d. to 6¹/₂d.; American spot, 7³/₁₆d. to 7¹/₂d.; water white, 8¹/₂d. to 8³/₄d. Petroleum Spirit: American, 9³/₄d.; deodorised, 10d. Turpentine dull. American spot, 38s. 1¹/₂d.

OPIUM—Has been very quiet during past few days, prices being nominally without change.

PHENACETIN.—Price is maintained at 3s. 6d. per lb. for Crystals and Powder in 5-cwt. lots, smaller quantities being quoted higher in proportion.

PLUMBAGO.—At auction the fair supply of 667 barrels and 3 cases offered and 100 barrels sold, ordinary LL at 62s., good OL at 62s. 6d., Chips ordinary to fair at 15s. to 27s., Flying Dust at 8s. to 11s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 33s. to 36s. per cwt.; Bichromate, 5d. per lb.; Bromide, 1s. 10¹/₂d.; Chlorate, spot, London, crystals, 3³/₄d.; powder, 3¹/₂d.; Iodide, 10s. 6d. per lb. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English makes, 7³/₄d.; Beckton, 7d.; Red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER—Firm at £9 12s. 6d. per bottle from the importer and 1s. per bottle less from second hand.

QUININE.—The market for best German brands shows further improvement, and prices are again dearer. The demand continues, and sales to the extent of 100,000oz. have been made, comprising B&S and/or Brunswick March delivery at 1s. 4³/₄d. to 1s. 5d., April at 1s. 5d., May at 1s. 5d., and June at 1s. 5¹/₂d. 10,000 oz. Amsterdam also sold at 1s. 4d. Makers decline to sell, pending results of to-day's Bark Sale in Amsterdam becoming known.

SEEDLAC.—At auction 23 bags Kurrachee offered and bought in, fine pale clean at 60s.

SHELLAC.—The market privately is without alteration, a very quiet tone prevailing in all departments, with little business passing. The auctions to-day produced moderate supplies, but owing to the firmness of sellers only a small proportion sold at steady private rates, the value of fair TN Orange being 62s., against 63s. last sale. A total of 602 cases offered and 77 cases sold. Second Orange: 316 cases offered and 42 cases sold, strong palish flat free at 65s., ordinary reddish ditto at 62s., livery reddish 61s.; fine LM&Co., No. 1 bought in at 76s., and AA in circle at 72s. to 75s. Garnet: Of 117 cases Rangoon 30 cases sold, fair cakey at 59s., blocky 55s. to 56s.; good tree "Eagle" mark bought in at 63s. Button: Of 109 cases 5 sold, ordinary circle 2's at 56s.

SODA COMPOUNDS.—Crystals, barrels, quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 4¹/₂d. per lb. Bicarbonate, landed, £7 5s. Bromide, 2s. 1¹/₂d. Caustic, 70 per cent., white, £10; 60 per cent., £1 less. Hypo-sulphate (Antichlor.), 6s. 6d. to 8s. 6d. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate, quiet on spot; refined, £8; ordinary, £7 15s.

SPICES (VARIOUS).—Black Pepper: At auction no Singapore was offered; 216 bags Aleppy bought in at 5³/₄d.; 2 bags Ceylon offered and sold at 5³/₄d. White Pepper in slow demand at auction. Of 72 cases and 501 bags Singapore offered only 31 bags sold, good at 9¹/₂d. to 9¹/₂d., siftings at 6³/₄d., the remainder bought in, including finest selected in cases at 1s. 2d.; 75 bags good Siam bought in at 9d.; 39 bags Ceylon offered and sold, good to fine, at 9d. to 9¹/₂d., mixed white and black at 6d.; 149 bags fair Penang bought in at 8¹/₂d. Chillies quiet; 106 packages Japan offered and 6 cases sold without reserve, fair yellowish, at 37s. 6d. Pimento in fair supply met a moderate demand at about previous rates; 835 bags offered, and about 200 bags sold, ordinary to fair, at 3¹/₄d. to 3⁵/₁₆d.; common, 3d. to 3¹/₂d. Cinnamon neglected; 469 packages Ceylon offered in auction, and only 11 cases sold, cuttings, 7¹/₂d.; featherings, 7¹/₄d. Cinnamon chips, etc., in moderate request. Of 524 bags offered, 238 sold, ordinary chips, at 2¹/₄d. to 2¹/₂d., and bark at 1¹/₂d. to 2d. Cassia Chips: 100 cases offered and sold at 41s. 6d. Wild Cassia Buds: 45 bags offered and bought in at 26s. Mace slow of sale and barely steady; 21 cases Penang bought in, fine pale, at 2s. 3d. to 2s. 4d.; fair red, 1s. 6d. to 1s. 7d.; broken pickings at 1s. 4d. 42 packages Singapore offered, and only 7 cases sold, broken red, at 1s. 4d. 13 cases Bombay bought in at 1s. 6d. to 1s. 8d. West Indian: 16 cases sold, good bold pale, at 1s. 11d.; good reddish, 1s. 8d. to 1s. 9d.; fair, 1s. 5d. to 1s. 6d.; broken,

1s. 3d. to 1s. 4d. Nutmegs dull and easier. Of 53 cases Penang in auction 32 cases sold without reserve, 80's to 82's, at 1s. 6d. to 1s. 7d., remainder bought in, including 66's at 2s. 3d. 6 cases Bombay bought in, wormy and defective, at 4d. West Indian: 20 cases and 128 barrels offered and mostly sold. 63's and 65's at 2s. 2d.; 78's, 1s. 5d.; 84's to 85's, 1s. 4d. to 1s. 5d.; 95's at 1s.; 122's to 123's at 9d. to 9¹/₂d.; 124's to 129's, partly shrivelled, at 9d.; broken and defective at 2¹/₂d. to 3¹/₂d.

STICKLAC—Quiet, and 317 cases Siam in auction were all bought in at 40s. to 45s.

SULPHATE OF COPPER—Rather easier at £24 2s. 6d. to £25 10s. per ton, according to quantity and brand.

SULPHONAL.—It is reported that the outside makers of this article have now joined the convention, and also fixed their price at the same figure as that quoted by the two hitherto best-known manufacturers of Sulphonal—viz., 16s. 6d. to 17s. per lb for both Crystals and Powder, with a certain reduction for large contracts. If this arrangement holds good it is probable that the price will remain steady during the immediate future at least.

THYMOL—Continues firm at 10s. 6d. to 11s. per lb.

TURMERIC—Quiet, but steady. At auction 6 bags Bengal offered and sold at 30s.; 368 bags Madras bought in, ordinary dull finger at 35s., and whole bulbs at 25s.

LIVERPOOL, THURSDAY, JANUARY 11, 1900.

A firm upward movement has set in during the last few days in Linseed Oil, Cottonseed Oil and in Spirits of Turpentine, which promises to continue. Quotations otherwise are in much the same state as last week, prices being well maintained and demand and inquiry continuing both good. Business has been done in Californian Honey at high figures, and in Chilian at fully recent rates. Amongst the miscellaneous sales worth noting are Syrian Fœnugrec, Chilian Spermacti, Quillaya Bark, and American Beeswax. In the Chemical Market, business has been quiet, but, as before Christmas, Caustic Soda, Bleaching Powder, and Chlorate and Bichromate of Potash continue scarce and very firm.

AMMONIA SALTS.—Carbonate 3³/₄d. per lb. Sal Ammoniac 38s. to 40s. per cwt. Sulphate dull, £11 per ton.

BEESWAX.—American has been sold at £7 5s. per cwt.

BLEACHING POWDER—Is very firm at £6 15s. per ton.

CANARY SEED.—600 bags of Turkish sold at 34s. to 36s. per 464 lbs., demand is quiet.

COPPERAS—Is firm at 39s. per ton for Lancashire, and 37s. for Welsh.

COPPER SULPHATE—Enjoys more inquiry, and is quoted at £25 per ton.

FŒNUGREC.—50 bags of Syrian made 7s. 3d. per cwt., ex quay.

HONEY.—Fine Californian made 46s. per cwt., and 54 barrels of Chilian brought for Pile 1 24s. per cwt., and for Pile 2 22s. 6d. per cwt.

LINSEED.—300 tons of Calcutta 4 per cent. sold, ex quay, early in the week for 46s. 6d. per 416, but no transactions have taken place since owing to high figures asked.

OILS (FIXED) AND SPIRITS.—Castor: Spot parcels are in good demand. Calcutta at 2¹⁵/₁₆d. to 3d. per lb.; and French 1st pressure at 2¹³/₁₆d. to 2⁷/₁₆d. Several lots of French have been sold at the first figure. Belgian 2nd pressure has also been selling at 2³/₄d. per lb. Olive: Transactions have not been numerous, but the figures reached have been quite up to the high rates ruling of late. Spanish Oil has been sold at £36 10s. per tun. Linseed: In consequence of the extreme prices asked for material, crushers have raised their price for oil in export casks to 24s. 6d. per cwt., and are very firm in their demands. Cottonseed has considerably improved in price, and is now firm at 22s. 3d. to 22s. 9d. per cwt. in export barrels. Spirits of Turpentine, 39s. 6d. per cwt., and are firmly held with moderate demand.

POTASH SALTS.—Bichromate scarce at 4¹/₂d. to 4³/₄d. per lb. Cream of Tartar is steady at 74s. to 80s. per cwt. for "finest white." Patras has sold ex store at 62s. 6d. Pearlashes are quiet at 33s. 6d. to 35s. per cwt., and Potashes firm at 26s. 9d. to 27s. per cwt., but demand is slow. Prussiate 7³/₄d. to 7³/₄d. per lb.

QUILLAYA BARK.—5 tons Chilian sold at £13 per ton ex store.

SODA SALTS.—Bicarbonate £6 5s. per ton. Borax quiet, 16s. per cwt. Caustic very scarce, 76 to 77 per cent. is dearer, £10 7s. 6d. per ton, 70 per cent. £9 5s. Crystals are firm at £3 5s. per ton. Nitrate is only a slow market at 7s. 7¹/₂d. to 8s. per cwt.

SPERMACE TI.—A lot of crude Chilian was disposed of privately, ex quay.

NEWS IN BRIEF.

THE CHEMISTS' BALL will be held at the Portman Rooms, Baker Street, W., on Wednesday next, January 17. Tickets (lady's, 12s. 6d.; gentleman's, 17s. 6d.) can be obtained of Mr. W. Warren, 24, Russell Street, Covent Garden, W.C.

MR. G. C. DRUCE, M.A., F.L.S., 118, High Street, Oxford, is engaged in the preparation of a 'Flora of Buckinghamshire,' on the same lines as his 'Flora of Berkshire,' and will be glad to receive any notes on the botany of the country.

PROFESSOR RAMSAY, during the course of a lecture delivered on Friday, January 5, in the Urania, at Berlin, on "The Atmosphere," declared that there no longer remained any unknown constituents to be discovered in the atmosphere.

MESSRS. J. and J. COLMAN, LIMITED, of Norwich, direct attention to the fact that the new Food and Drugs Act, which came into operation on January 1, this year, will not affect their existing mustard labels or their trade in any way.

MESSRS. PARKE, DAVIS AND Co., 451, Oxford Street, London, W. have introduced several new and important pharmaceutical preparations into the 1900 edition of their price list, the latest being chloretone, a new hypnotic remedy, particulars concerning which will be supplied by the firm on application.

MESSRS. WILKINSON AND SIMPSON, LIMITED, of Newcastle-on-Tyne, have again had placed with them the contracts for the supply of drugs, etc., to the Fleming Children's Hospital, Moor Edge, and the Lady Armstrong Memorial Hospital, City Road, Newcastle-on-Tyne, during the present year.

THE SECOND CINDERELLA DANCE of the session in connection with the Chemists' Assistants' Association was held at the Portman Rooms, Baker Street, W., on Thursday, January 4. There was only a moderate attendance, but the programme was as attractive as usual, and the evening was pleasantly spent by those present.

MESSRS. WILLIAMSON AND HOGG, chemists, North Shields, on January 4 had their shop, at the corner of Saville Street and Camden Street, threatened by a fire, which broke out on the top floor of the premises. Fortunately, the fire was confined to the upper rooms, but the stock in the shop was greatly damaged by water.

THE LIEBIG'S EXTRACT OF MEAT Co., LIMITED, has declared a half-yearly interim dividend of 5 per cent., the same as last year, being 20s. per share free of income tax, payable on and after February 15 next, to the proprietor's registered on the company's books on February 8, and to holders of share warrants to bearer.

MR. J. H. WATSON, M.P.S., 36, Westgate, Shipley, has again published his annual illustrated family almanac (1900), this being the twentieth year of publication. A photograph of the shop-front appears on the front outside cover, together with the particulars of the hours of business. The literary matter is largely historical. There is also the usual local information.

CAMWAL, LIMITED, announces an issue of 29,258 £5 per cent. cumulative preference shares of £1 each at par. The new prospectus is now ready, and on January 16 will be posted to every chemist on the Register. Any chemist who does not receive a copy of the prospectus by January 18 should apply for a copy to the Secretary, at 112, Pembroke Street, Caledonian Road, London, N.

THE SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY will hold its annual ball at the Masonic Hall, Sheffield, on Tuesday, February 13. As it will be necessary to limit the number of tickets sold, it is suggested that early applications should be made for the same. Tickets, including supper (single, 7s. 6d.; double, 12s. 6d.), may be had from the Hon. Secretary, Mr. H. Antcliffe, Union Offices, Westbar.

MR. JAMES STUART HILLS, son of Mr. Walter Hills, past President of the Pharmaceutical Society, has been selected to go to

South Africa with the battery of the Honourable Artillery Company attached to the City of London Imperial Volunteers. Mr. Hills has been a student at the School of Pharmacy since October last, and will carry with him the best wishes of his fellow students, as well as those of the professors and other officers of the Pharmaceutical Society.

MR. G. LORIMER, junior town traveller for the firm of Messrs. Lorimer and Co., has been selected for active service in South Africa with the battery of the Honourable Artillery Company about to sail shortly for the front. Mr. Lorimer is a good all-round athlete and horseman, and was at one time a player in the School of Pharmacy football team. Mr. Alec. Wink, son of Mr. John Adam Wink, M.P.S., of Devonshire Square, London, E., has also been selected for active service at the front, and will accompany the battery of the Honourable Artillery Company to South Africa.

MESSRS. BURROUGHS, WELLCOME and Co. are supplying the whole surgical equipment, as well as the medical equipment, as a gift to the City of London Imperial Volunteers. This equipment includes medical companions and water bottles (Army pattern), surgical haversack and water bottle (Army pattern), two pairs field medical and surgical Army regulation panniers fitted complete, one pair surgical saddle bags, ten stretchers (Army pattern), two stationery boxes, two aluminium Congo tabloid medicine chests, fitted complete, and supplied with six complete sets of refills, two solid antiseptic cases, fitted complete, and supplied with six complete sets of refills, field dressings, etc., etc.

Publications Received.

PHILADELPHIA HOSPITAL FORMULARY. Pp. 42. Edited by Dr. DANIEL E. HUGHES and JOSEPH W. ENGLAND (Chief Druggist). Published by the Department of Charities and Correction, Bureau of Charities, of Philadelphia, 1899. From the Editors.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

50,000 Choicest Microscopical Objects, Microscopes, Cabinets, Mounting Materials.—Suter, Highweek Road, Tottenham.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Complete Pill-making Plant, Pindar hand machine (10 lbs. per hour), with 2 sets rollers, 3 and 4 grain; pill-piper, with 2 piping-gauges; pill-coater (with sieve), for 5 lbs. at a time; total value, £22; unused; half-price.—Marshall, 27, Red Lion Sq., London.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Erasmic Soap, Frog, Vanilla Pods, Swandown Powder.—Eastman, Forest Lane, Stratford.

Chemist and Druggist Diary, 1900.—Lowest price to W. J. M., 75, Elsley Road, Lavender Hill, London, S.W.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

A Large Number of second-hand copies of Wills's "Materia Medica"; half price will be paid for copies in good condition, latest edition.—Apply to Mr. G. S. V. Wills, Westminster College, Trinity Square, Borough, S.E.

Calendar for the Week.

Sunday, Jan. 14. 2nd after Epiphany. Sun rises 8.3; sets 4.16.

Monday, Jan. 15. 07.8 A. Sun rises 8.2; sets 4.17.

Tuesday, Jan. 16. Sun rises 8.1; sets 4.19.
 BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION, County Restaurant, at 9 p.m.—Musical evening, arranged by Mr. Hanson.
 ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m.—Professor E. Ray Lankester, on "Fishes."
 ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—W. Gamble, on "Screen Gears for Half-Tone."

Wednesday, Jan. 17. Sun rises 8.0; sets 4.20.
 CHEMISTS' BALL, Portman Rooms, Baker Street, London, W.—The last ball of the nineteenth century.
 PHARMACEUTICAL SOCIETY, 36, York Place, Edinburgh, at 8.30 p.m.—Evening Meeting, when Papers will be read by G. F. Merson on "Commercial and Powdered Myrrh" and "Tincture of Myrrh."
 ROYAL MICROSCOPICAL SOCIETY, 20, Hanover Square, London, W., at 8 p.m.—Address by the President.

Thursday, Jan. 18. Sun rises 7.59; sets 4.22.
 CHEMICAL SOCIETY, Burlington House, Piccadilly, London, W., at 8 p.m.—Papers by Julius Stieglitz and E. E. Slosson; W. J. Sell and F. W. Dootson A. Lapworth and E. M. Chapman; and E. C. Szarvasy.
 CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—W. S. Glyn-Jones on "The Chemist and the Laws that particularly affect him."
 LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 8 p.m.—Papers by H. M. Kyle and G. Massee.
 ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m.—Dr. W. H. R. Rivers, on "The Senses of Primitive Man."

Friday, Jan. 19. Sun rises 7.58; sets 4.23.
 GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masnie Chambers, 100, West Regent Street, at 9.15 p.m.—A Lecture by Dr. James Devon.
 ROYAL INSTITUTION, Albemarle Street, London, W., at 9 p.m.—Lord Rayleigh on "Flight."

Saturday, Jan. 20. Sun rises 7.57; sets 4.25.

Marriages.

VALLANCE—WOOLLEY.—On December 6, at St. John's Church, Higher Broughton, Manchester, by the Rev. H. J. B. Armstrong, M.A., Rector, Arthur Clayton Vallance, Ph.C., to Gertrude Daisy, second daughter of the late Percy Woolley, of Manchester.

SAGE—BROOKS.—On January 6, at St. George's Church, Bloomsbury, by the Rev. A. B. Boyd-Carpenter, M.A., Charles Edward Sage, F.C.S., Ph.C., to Bella, eldest daughter of Mr. W. F. Brooks, of Bloomsbury.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Antcliffe, Bartlett, Bennett, Chard, Durrant, Fawcett, Ferrall, Forster, Gilmour, Grimshaw, Hebb, Hudson, Keith, Lee, Mallinson, Merriam, Merson, Nottingham, O'Halloran, Soar, (Miss) Spencer.

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London Gazette Notices.

PARTNERSHIPS DISSOLVED.

Samuel Job, Robert Timothy Matterson, Frederick Henry Appleby, and Henry Percy Job, carrying on business as Surgeons, at Newark-upon-Trent, under the style of Job, Matterson, and Appleby.

Anne Iredale and James William Worthington Huddleston, Dry Soap Manufacturers, trading as Iredale's Patent Soap Co., at Vauxhall Road, and Upper Milk Street, Liverpool.

Edward Mansel Sympson and John Thomas Collier, Physicians, Surgeons, and General Medical Practitioners, at 2, James Street, and 7, West Parade, Lincoln. Debts will be received and paid by either E. M. Sympson or J. T. Collier.

James Wigmore, 26, Green Park, Bath, and Henry Charles Heathcote, Twerton Villa, Twerton-on-Avon, practising as Surgeons and General Medical Practitioners.

Caroline Emilie Goode and Mildred Grogono, Proprietors of a Surgical Home, or Private Hospital, at Welbeck, Shorncliffe Road, Folkestone.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LONDON, THURSDAY, JANUARY 18, 1900.

While there has not been a very large volume of business passing in drugs and chemicals during the past week, except, perhaps, in Sulphate of Quinine, there is a very steady undertone, and prices for most articles remain very firm, with even, in many instances, a further upward tendency. Price of Salicine has been advanced, and there has been quite a flutter in Quinine, which, if the small bark shipments from Java continue, may prove to be the commencement of a very important upward movement in price of this article. Acid Carbohc, owing to the action of the Government, has assumed a somewhat peculiar position, and this may very likely affect values of Salicylates. Prices of other articles usually quoted in these columns are generally firm, without, however, any important changes, with the exception of those referred to above, the following being those ruling for some articles of principal interest. Bank rate was to-day reduced to 4½ per cent. :—

ACID CARBOLIC—Very firm, at the following prices :—10½d. to 11d. for 35° to 36° C. ice crystal in large bulk; 11½d. to 1s. for 39° to 40° C. ice crystal in large bulk, according to quantity, etc. 1s. 0¾d. to 1s. 1d. for 39° to 40° C. detached crystals, B.P. quality. Crude, 60° F., 3s. per gallon; 75° F., 3s. 9d. per gallon. Liquid, 95-98 per cent. of pale straw colour, 1s. 8d. per gallon; ditto, 25-30 per cent. of dark colour, 9d. to 11d. per gallon. The position of this article has become somewhat peculiar in consequence of the issue of a Royal Proclamation, as follows :—“Whereas, by the Customs and Inland Revenue Act, 1879, section 8, certain goods may by proclamation be prohibited to be exported or carried coastwise, and whereas, by advice of our Privy Council, we deem it expedient and necessary to prohibit the goods hereinafter mentioned to be exported or carried coastwise, We, by the advice aforesaid, do hereby order and direct that from and after the date hereof the following goods, being articles which we have judged capable of being converted into or made useful in increasing the quantity of military stores—viz., picric acid, trinitro-phenol, trinitro-cresol, carbohc acid phenol, cresylic acid cresol, shall be and the same are hereby prohibited either to be exported from the United Kingdom or carried coastwise. Given at our Court, at Osborne, this eleventh January, 1900. God save the Queen.” With regard to the above Proclamation, it may be mentioned that the articles enumerated therein are all employed in the composition of high explosives, such as lyddite and mélinite, in both of which picric acid figures largely. The substances the export of which is now prohibited are the bye-products of gas manufacture. It remains now to be seen what effect this will have upon the article. Many people think that the requirements of the British Government will be so large that the price of the article will at least be fully maintained; that, in fact, one object of the proclamation will have been to ensure the Government getting all they may require. Anyhow, the prohibition to export the article will prove a serious inconvenience to wholesale druggists who receive regularly export orders for the article in larger and smaller quantities for medicinal and sanitary purposes only, and where the question of same being used for purpose of manufacture of explosives does not arise. We understand that representations will be made to the Government on this point, but whether they will be successful in bringing about any amendment of the matter remains to be seen.

CINCHONA BARK.—The opening auctions of the year were held to-day. Small supplies were catalogued, amounting to 1,610 packages of all descriptions, as compared with 2,793 packages at the closing-sale last year. East India kinds comprised the bulk of the offerings, which met a good demand, and about two-thirds sold at very full to extreme prices in many instances, the average unit showing an advance of ⅓d., being 1¼d. against 1½d. last sale, or rather above the values obtained in Amsterdam last week. Ceylon: 137 bales offered and sold, according to analysis—Suceirubra, stem chips, fair to good at 4¾d. to 5¾d., good shavings at 7½d. East Indian: 1,140 packages offered and about 700 sold, red stem chips, ordinary to fair at 2½d. to 4¾d., fair root at 4d.; Officinalis, stem

chips and shavings, ordinary to fair at 2½d. to 4¼d.; renewed ditto, fair to good rich at 4d. to 7¾d.; Ledger, stem chips, fair to good rich at 6½d. to 8¼d., branch at 4¾d. Java: 273 packages offered and 200 sold, Ledger, natural stem chips, fair at 5¾d. to 6d., ditto dusty at 4¾d. to 5d., root at 4½d. to 5½d., branch from 2¾d. to 4¾d. South American: 60 bales Bolivian cultivated Calisaya quills offered and sold, good quill at 10d., damaged 5½d.

CLOVES.—At auction, only 14 bales Zanzibar offered and sold, fair at 3½d.; 10 cases picked Penang bought in at 6¼d. Privately, the market for Zanzibar is strong, business done including January-March delivery at 3 15-32d., March-May at 3 16-6d., and June-August at 3 16-6d.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. 2d. per gallon; pure, 2s. 3d. Benzole, 50 per cent., 10d. per gallon; 90 per cent., 8d. per gallon. Creosote, 3¼d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 6d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 4d. per gallon; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene: A, 3¾d. per unit; B, 2¾d. per unit. Pitch, 35s. per ton f.o.b. Tar, refined and crude, 12s. 6d. per barrel, 2d. per gallon.

GINGER.—Cochin in slow demand; and of 694 bags and 77 cases, only 55 bags sold, without reserve. Calicut, rough, medium, and small, some bold, but rather wormy, at 24s. to 24s. 6d., the remainder bought in; medium and small native cut at 47s.; and washed rough, fair to good bright, at 28s. to 32s. Of Jamaica, only 1 barrel offered and sold, common at 53s. Japan: 221 bags bought in; rather small and little wormy at 23s.

OILS (FIXED) AND SPIRITS.—Lined firm. On the spot pipes London, £23 10s. to £23 15s.; barrels, £23 15s. to £24. Hull, spot naked, £22 7s. 6d. Rape strong. Ordinary brown on the spot quoted £25 10s.; refined spot, £26 15s.; Ravison naked spot, £23 5s. Cotton firm. London crude spot, £21 15s. to £22; refined spot, £23 15s.; to £24 10s., according to make. Hull naked refined spot, £21 10s.; crude spot, £20 5s.; Olive Mogador, £34 5s.; Spanish, £35 10s.; Levant, £34 5s. Coconut firm. Ceylon on the spot, £25 10s.; Cochin spot, £28 10s. Palm: Lagos on the spot quoted, £26 10s. Castor dearer. Belgian 1st pressing, spot, £27 10s. January-June, £26 10s., f.o.b. Antwerp second pressing, spot, £26 per ton ex wharf. Hull manufactured, guaranteed cold drawn pure pharmaceutical, £30 5s. per ton in barrels; 3½d. per lb. in cases. Pure firsts, £27 15s.; seconds, £26 15s. per ton in barrels; firsts, 3¼d. per lb. in cases; seconds, 3¼d. per lb. ex wharf, London. Lubricating Oil: Pale American spot, 8s. to 9s. 6d.; black, 7s. to 9s. Russian black, 6s. to 6s. 6d.; pale, 8s. to 9s. 6d. Petroleum oil steady. Russian spot, quoted 6d. to 6¼d. American spot, 7½d. to 7½d. Water white, 8½d. to 8½d. Petroleum spirit: American, 9½d.; deodorised, 10d. Turpentine dull, and easier American spot, 38s. 6d.

QUININE.—The advice of small shipments of bark from Java, same being given as under 250,000 lbs. for first half of January, has caused quite an excitement in quinine, and if these small shipments continue we shall see the article shortly at quite a different figure than has hitherto been the case. Makers now decline to sell, while prices for B & S and/or Brunswick Sulphate in the speculative market are :—Spot, 1s. 5d. to 1s. 5½d. per oz.; March, 1s. 5½d.; May, 1s. 5½d. to 1s. 5¾d.; and July, 1s. 6d., at which figures the market is very firm.

SALICINE.—Has been advanced 3s. per lb., to 15s. 6d. per lb. Scarcity and poor yield of the raw material is stated to fully justify the advance.

SALICYLATES.—The prohibition on the part of the British Government of the export of acid carbohc may very likely have an important effect on value of acid and soda salicylic, although the makers, while declining to commit themselves to accepting further orders, have so far made no alteration in their quotations.

SALOL.—What we have written about salicylates applies also to salol, price of which is, however, so far unchanged.

THURSDAY'S DRUG SALES.

As might have been expected after so long an interval, to-day's drug auctions comprised a considerable number of catalogues and a large number of lots. Some articles sold well, for instance, Senna, at the same time many lots had to be bought in. The results show no very startling changes in value, the following being the particulars as far as it has been possible to give same up to time of going to press.

ACONITE ROOT.—20 bags Japan bought in at 28s. per ewt.

ALOES.—11 kegs Socotrine part sold at 75s., 17 cases ditto being bought in at 57s. 6d. 230 gourds Curaçoa part sold at 56s. per

cwt. for good pale livery. 18 cases Zanzibar part sold at 34s. to 37s. 68 kegs Socotrine part sold at 72s. 6d.

ANTIMONY.—40 cases Japan crude (black sulphide) were taken out nominally at 24s. per cwt. Other 50 cases at £23 10s.

ARECA NUTS.—22 bags of fair quality bought in, only 17s. 6d. per cwt. being bid.

BALSAM (CANADA).—1 cask was taken out at 1s. 7d. per lb.

BALSAM COPAIBOE.—7 barrels were bought in at 1s. 4d. per lb., other 7 cases at 1s. 8d. per lb.

BALSAM PERU.—1 case bought in at 8s. per lb.

BALSAM TOLU.—9 cases bought in at 1s. 10d. per lb.

BUCHU LEAVES.—31 bales part sold at 11d. to 1s. per lb. for fair to good green rounds and 9½d. to 10½d. for yellowish.

CARDAMONS.—Of 60 cases Ceylon, a few only sold, at 1s. 10d. to 2s. 4d. per lb., remainder being bought in, chiefly at 2s. 2d. per lb. One case Wold was taken out at 3s. 6d. per lb. Of other 129 cases, really fine bold, fetched 3s. 10d. per lb. Other 61 packages nearly all sold at 1s. 6d. to 2s. 9d. per lb., 2 cases Wild fetching 3s. 7d. per lb. Other 16 cases sold at 3s. 9d. to 3s. 10d. for good bold Mysore, and at 3s. 5d. per lb. for ditto second size; good seeds sold at 2s. 2d. to 2s. 3d. per lb.

CALUMBA ROOT.—69 bags all bought in at 60s. per cwt. for good washed, and 28s. to 30s. for fair sorts.

CASCARA SAGRADA BARK.—124 bags, of fair quality bought in at 35s. per cwt.

CASCARILLA BARK.—11 bales fair bright quill bought in at 65s. to 75s. per cwt.; thin at 50s. Other 11 bales of fair quill part sold at 75s.

CASTOR OIL.—73 cases East Indian were bought in at 3½d. to 4d. per lb.

CHILLIES.—2 cases fine Japan bought in at 45s. per cwt.

CINCHONA BARK.—71 packages crown and grey bark, sold at 1s. 1d. per lb., down 4d. per lb. for 2CCD; 24 bales yellow bark realised 9½d. per lb. for the sound; 19 bales Maracaibo bark taken out at 6d.; 11 bales Carthagenas, at 7d.; and 11 cases Cinchona, consisting of very bold, mossy quills, at 10d. per lb.; 4 bales small Cuprea sold at 1d. per lb.

CIVET.—2 horns bought in at 10s. 6d. per oz.

COCA LEAVES.—15 bales of fair quality taken out at 1s. 4d. per lb.

COD LIVER OIL.—5 barrels Norwegian offered without reserve fetched 65s. per barrel.

COLOCYNTH.—15 cases Turkey part selling at 1s. 3d. to 1s. 4d. per lb. for 1 C.S.D. good medium apple, and at 1s. 1d. per lb. for ditto 2 C.S.D. 3 cases sound ditto were taken out at 1s. 7d. per lb.

CROTON SEEDS.—58 bags, bought in at 60s. per cwt., for fair bright; another lot partly sold at 38s. per cwt.

CUBEBS.—67 bags, of only very medium quality, realised 22s. per cwt.

CUMMIN SEED.—75 bags good Malta bought in at 35s. to 38s. per cwt.

CUS CUS ROOT.—4 bales rather sandy bought in at 22s. per cwt.

CUTTLE FISHBONE.—10 cases medium to bold taken out at 7d. to 9d. per lb.

DRAGONS' BLOOD.—12 cases bought in at £10 per cwt for reeds, and £12 per cwt. for fair mixed block, good bright lump at £22, and dull saucers at £10 per cwt. 1 case dull lump sold at £7 12s. 6d. per cwt.

DRIED TURTLE.—20 cases part sold at 2s. 6d. to 2s. 9d. per lb.

ERGOT OF RYE.—6 bags fair but small Spanish were taken out at the high figure of 3s. 6d. per lb.

ESSENTIAL OILS.—2 half-cases Bergamot taken out at 7s. 9d. per lb. 10 cases fair commercial Oil, Eucalyptus, at 1s. 3d. per lb. Other 30 cases at 10d. 4 cases good Oil, Cinnamon, at 1s. 6d. per oz. 20 cases oil Citronelle at 1¾d. per oz. 15 cases Cajeputa at 2s. 8d. per bottle. 10 cases dementholised Japan Oil, Peppermint (Kobayashi brand), at 3s. 10d. per lb. 28 cases Lemongrass at 3½d. per oz. 6 cases Bergamot, offered without reserve, sold at 4s. 1d. per lb. 1 tin Anethol (Russian) bought in at 8s. per lb. 3 cases 2 barrels Bitter Orange at 6s. 6d. per lb. 1 case Nutmeg at 2½d. per oz. 1 bottle Ylang-Ylang taken out at 8s. 6d. per oz. 4 cases West Indian Oil of Limes at 3s. 6d. per lb. Other 9 cases ditto at 3s. 7d. 1 case hand-pressed ditto fetched 7s. 1d. per lb.

FENNEL SEED.—10 bags sold at 19s. 9d. per cwt.

GALANGAL ROOT.—34 bales, of fair quality, were bought in at 25s. per cwt.

GENTIAN ROOT.—31 bags cut root bought in at 14s. per cwt.

GUM ACCROIDES.—17 bales bought in, a bid of 28s. per cwt. not being entertained.

GUM AMMONIAC.—10 cases taken out at 35s. per cwt.

GUM ARABIC.—29 bales Turkey sorts bought in at 80s. per cwt., and 70s. to 75s. for fair siftings, 1 case picked at 85s., 1 bag Australian at 20s. per cwt.

GUM ASAFETIDA.—Of 424 packages, a considerable part was withdrawn; rest was nearly all brought in at prices varying from 40s. to 60s. per cwt., according to quality. 3 cases good loose gum selling at 60s. per cwt.; other 64 cases sold at 65s., down to 20s. to 22s. 6d. for dark heavy.

GUM BENZOIN.—12 cases part sold at £7 17s. 6d. per cwt. for medium Sumatra seconds and £5 7s. 6d. for inferior. Really fine was bought in at £9 5s. to £10s., 1 case good realising £8 12s. 6d. 23 cases Siam sold at 97s. 6d. per cwt. for good almondy block down to 41s. to 51s. per cwt. for low inferior quality. 1 case glassy Penang sold without reserve at 85s. per cwt.

GUM ALBANUM.—15 packages all bought in at 1s. 1d. per lb. for fair, 1s. 3d. per lb. for good almondy lump, and 9d. per lb. for fair blocky.

GUM GUAIAECUM.—5 cases part sold at 1s. 3d. for good glassy, 5 barrels dull lump being bought in.

GUM MASTIC.—16 cases yellow, part medium, part good, were bought in at 1s. 6d. per lb.

GUM MYRRH.—36 cases part sold at 52s. 6d. per cwt. for fair sorts, 7 cases of inferior quality only realising 18s. per cwt. Other packages, part sold at 81s. per cwt., for good pale sorts.

GUM SAGAPENUM.—4 cases offered without reserve sold at 6s. 6d. to 6s. 9d. per cwt.

GUM TRAGACANTH.—6 packages of fair quality were all bought in at £14 to £15 per cwt., other 10 packages part sold at £14 5s. down to 62s. 6d. for low inferior, offered without reserve.

HONEY.—11 casks good Jamaica were taken out at 35s. per cwt.

IGNATIUS BEANS.—10 bags of fair quality taken out at 6d. per lb.

IPECACUANHA.—Fair to good Rio sold at 11s. 9d. to 12s. 3d. per lb., Carthagenas at 7s. 3d. to 7s. 6d. per lb.

KOLA NUTS.—3 bales of fair small nuts were taken out at 4d. per lb., other 25 bags good bold at 1s. per lb., 1 half barrel mouldy sold at 2¾d.

LICORICE ROOT.—10 bales decorticated impalpable powder taken out at 41s. per cwt.; 31 bags good cut natural, at 14s. per cwt.

MATICO.—16 bales were bought in at 7d. per lb.

MENTHOL.—1 case Japan, consisting of fair white dry crystals, bought in at 10s. per lb.

MORPHINE.—500 oz. of Winks' hydrochlorate powder all sold readily at 4s. 6½d. per oz. nett.

MUSK.—5 caddies Tonquin bought in at 40s. to 70s. per oz.; 1 case skins at 3s. 6d. per oz.

OPIUM.—4 cases Turkey failed to find a buyer, while 3 tins, containing about 60 lb. of ditto powder, were taken out at 10s. per lb.

ORANGE PEEL.—26 packages, thin cut, chiefly bought at 1s. per lb. 3 cases offered without reserve, selling at 2d. per lb. 8 bags thick cut, were taken out at 8d. per lb.

ORRIS ROOT.—28 bags Florentine taken out at 35s. for medium, and 55s. per cwt. for fair quality.

OTTO OF ROSES.—5 vases bought in at 13s. per oz.

PISTACHIO KERNELS.—6 cases were taken out at 2s. 3d. per lb.

QUINCE SEEDS.—3 bales fair bought in at 1s. 6d. per lb.

QUININE.—A somewhat "scratch" lot of sulphate, together with some salicylate, valerianate, muriate, and bisulphate, consisting of Brunswick, Lombarda, and Boehringer brands, partly in 100 oz. and partly in kilo, ½ kilo, and ¼ kilo tins, failed to find buyers, and were all bought in at 1s. 6d. per oz. for the sulphate, it being intimated that 1s. 4½d. per oz. was price required. Later on in the auctions 1 case of 10 × 100 oz. tins = 1,000 oz. sulphate, of Paris make (Pointet and Girard), guaranteed PB, in accordance with Dr. Paul's analysis, weight being also guaranteed, fetched 1s. 4d. per oz.

RHATANIA ROOT.—3 bales of fair quality bought in at 5d., 2 bales stained selling at 4½d. per lb. Other 74 bales all bought in at 4d. per lb.

RHUBARB.—96 cases part sold at 2s. 6d. per lb. for Shensi round, and 2s. 8d. to 2s. 11d. per lb. for flat ditto; flat Canton held for 1s. 1d. per lb.; round ditto for 1s. Demand was by no means active.

SARSAPARILLA.—38 bales good Jamaica sold at 1s. 7d. to 1s. 9d. per lb. 17 bales fair Lima bought in at 1s. to 1s. 3d. per lb. 14 bales Guayaquil realised 1s. 1d. per lb.

SCARMONY.—10 cases taken out at 20s. to 22s. per lb.

SCAMMONY ROOTS.—25 bales of fair quality bought in at 21s. per cwt.

SENEKA ROOT.—4 bales fair Western were taken out at 2s. 6d. per lb.

SENNA.—78 packages Alexandria, part consisting of good half leaf, part fair leaf; part fair stalky, part obovata, chiefly bought in at 3d. to 9d. per lb., 2 cases selling at 9d. 6 packages Alexandria pods had been sold previously at a price which did not transpire. 391 bales Tinnevely all sold at 4½d. per lb. down to 1¾d., according to quality.

STROPHANTHUS SEEDS.—4 bags fluffy Kombé seeds were bought in at 2s. 6d. per lb.

TAMARINDS.—14 barrels Barbadoes sold at 13s. per cwt.

TONQUIN BEANS.—4 cases inferior black beans were taken out at 1s. 3d. per lb. 10 casks Angastura at 3s. 6d.

TURMERIC.—101 bags Madras bought in at 40s. per cwt.

VANILLOES.—6 tins New Zealand sold, without reserve at 6s. 6d. to 6s. 9d. per lb. for 4½in. by 6in., 7s. for 3½in. by 6½in., and 7s. 9d. per lb. for 5in. by 6in.

WAX.—1 cask Mogador bought in at 95s. per cwt.; 20 cases Italian at £6 10s. per cwt., fair to good Jamaica sold at £7 to £7 2s. 6d.; Mozambique at £6 17s. 6d. 1 case Zanzibar bought in at £7 per cwt.

LIVERPOOL, THURSDAY, JANUARY 18, 1900.

A considerable amount of business has been done in oils recently and prices will be found to have altered largely since last report. The amount of attention bestowed upon Linseed and Canaryseed has not increased, and sales of spot lots have been very small. With the exception of an advance in the price of Ammonium Sulphate, chemicals generally are in the same position as last week.

AMMONIA SALTS.—Sulphate is in better demand at the high rate of £11 12s. 6d. to £11 13s. 9d. per ton.

CANARYSEED.—The inquiry for Turkish has only been moderate. 50 bags sold at 34s. per 464 lbs. About 60 bags good Spanish found purchasers at 45s. to 47s. 6d.

CARNAUBA WAX.—21 bags of grey made 45s. per cwt.

GUINEA GRAINS.—Small sales have been effected at £6 per cwt.

LINSEED.—The market is very firm at fancy prices. Calcutta is nominally at 50s. per 416 lbs for spot lots. North American at 47s. per 424 lbs., and River Plate 47s. About 50 bags of Turkish sold from store at 49s.

OILS (FIXED) AND SPIRITS.—Castor has improved in demand, and prices are very firm. Of Calcutta, 100 cases sold at 2½d. per lb., then 150 cases at 2¼d., and at the close 3d. was asked. French, 1st pressure, 5 tons sold at 2¼d., and 5 tons "to arrive" went for 2¼d.; 2nd pressure, Belgian is quoted at 2¼d. Olive is firm, with both inquiry and business limited. Spanish oil is quoted at £36 to £36 10s. per ton. Linseed is selling well at 24s. to 25s. per cwt. Cottonseed continues very firm, with a marked hardening tendency, the rate since last week having gone up to 23s. 9d. and 24s. 3d. per cwt. for Liverpool refined oil in export barrels. Spirits of Turpentine is firm, with fair inquiry, at 40s. per cwt.

POTASH SALTS.—Bichromate is in good demand at 4½d. to 5d. per lb. Pearlashes 33s. 6d. to 35s. per cwt. Potashes 26s. 9d. to 27s. per cwt. Prussiate 7¾d. per lb. Saltpetre 21s. per cwt.

SODA SALTS.—Bicarbonate £6 5s. to £6 15s. per ton. Borax is quiet at 16s. per cwt. Caustic is still scarce, 76 to 77 per cent., at £10 2s. 6d. to £10 7s. 6d. per ton, 70 per cent., at £9 5s. per ton. Crystals, £3 5s. per ton. Nitrate is quietly steady at 7s. 7½d. to 8s. per cwt.

NEWS IN BRIEF.

MR. J. RUTHERFORD HILL will conduct an open meeting of the Edinburgh Chemists', Assistants', and Apprentices' Association at 36, York Place, on Wednesday, January 24, at 9.15 p.m.

MR. A. S. BUCK, M.P.S., President of the Liverpool Chemists' Association, will deliver the inaugural address at the annual meeting of the Association on Thursday next, at the Royal Institution, Liverpool.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.—On January 16 Mr. Hanson and a party of friends gave a musical evening in the County Restaurant. There was a fair attendance, and a very enjoyable time was spent.

MESSRS. LORIMER AND COMPANY notify that the conversion of their business into a limited company is done for convenience and family reasons, and that practically all the shares are held by Mr. Lorimer and Mr. Brocklesby, the partners of the old business.

MR. C. RIDLEY, President of the Newcastle-on-Tyne and District Chemists' Association, will preside at the third annual dinner of the Association, to be held at the Hotel Metropole, on Wednesday, January 24, at 7.45 p.m. Tickets 4s. each (exclusive of wine), may be obtained from F. Gilderdale, Hon. Sec., 19, Groat Market, Newcastle-on-Tyne. Application should be made not later than Monday, January 22.

MR. S. A. STURTON, M.P.S., 9, Goldhawk Road, W., in presenting his Bouquet Almanack for the year 1900 to his customers, has furnished them with a very dainty and extremely useful publication. In addition to a descriptive list of preparations supplied by Mr. Sturton, there is ruled space for memoranda, rules for a sick room, postal information, and, of course, a complete calendar for the year; all contained in thirty-two pages, 3½ in. × 2¼ in., and enclosed in a neat cover, printed in colours.

FREEMASONRY.—On Friday, January 12, at the Festival of St. John of the Sutherland Lodge of Unity, No. 460, held at the Castle Hotel, Newcastle, Staffordshire, Brother Edward Turner, chemist, who has been a member of the lodge for fifty years (having joined in December, 1849) was presented by the Brethren with a Master Mason's Jewel as a mark of esteem. Brother Turner suitably responded. At the same lodge, Brothers D. H. Oxen and C. J. Wain, chemists, were installed Senior Deacon and Senior Steward, respectively.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Magnificent Model Vertical Engine, tubular boiler, glass gauge, whistle, double-action slide-valve cylinder, bronzed stand, exhibition model, silver-plated, high speed and perfect; worth 42s., accept 12s. 6d. free; photograph, 1d.—Manager, Hassall's Chemical Works, Stratford, London.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

Surplus Stock.—3 Martin's bandages, 7½ by 2½, 1s. 10d. each, 8 ditto, 5 by 2½, 1s. 6d. each; 1 ditto, 10½ by 3, 3s.; 2 ditto, 21 by 2½, 6s. each. 2 American ball-nozzle douches, 7/6 each; 8 celluloid stethoscopes, 2s. each; 3 wood stethoscopes, 1s. each; 6 probangs, 1s. 6d. each; 5 flannel pilches, 7d. each; 4 Terry's pilches, 9d. each; 14 plain pilches, 6d. each; 9 Zwank's pessaries, 1s. 4d. each; 4 doz. Hodge's vulcanite pessaries, 3s. doz.; 20 yards pink jacconette, slightly faded, 1s. 3d. per yard.—WOODRUFF, Chemist, Clifton Road, Heaton Moor, near Stockport.

WANTED.

Chemist and Druggist Diary, 1900.—Lowest price to W. J. M., 75, Elmsley Road, Lavender Hill, London, S.W.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Good Second-hand Chemical Balance, also Westphal Balance and other laboratory apparatus. Will exchange Natural History of Plants, by Kerner and Oliver (unbound), and The Dispensatory, latest editions, or will purchase or sell for cash.—KIRKPATRICK, Analyst, Taunton. Please send full particulars.

Calendar for the Week.

Sunday, Jan. 21. 3rd after Epiphany. Sun rises 7.56; sets 4.27.

Monday, Jan. 22. Sun rises 7.55; sets 4.29.
LONDON COLLEGE, 323, Clapham Road, S.W.—Dinner and Distribution of Prizes, Venetian Chamber, Holborn Restaurant, at 7 p.m.

Tuesday, Jan. 23. 11.53 a. Sun rises 7.54; sets 4.30.
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Professor E. Ray Lankester, on "The Structure and Classification of Fishes." (Lecture II.)
ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—Note on "Dr. Vogel's Method of Preparing Subhaloid Salts of Silver," by Major-General J. Waterhouse.
CHEMISTS' ASSISTANTS' UNION, Horseshoe Hotel, Tottenham Court Road, London, W., at 9 p.m.—General Meeting.

Wednesday, Jan. 24. Sun rises 7.53; sets 4.32.
EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION, 36, York Place, at 9.15 p.m.—Open Meeting conducted by J. Rutherford Hill; notes on "What are the Statutory Functions of a Pharmacist?" and "Botany in January," by J. R. Hill; "Dispensing Notes," by D. B. Kidd.
NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION, Hotel Metropole, at 7.45 p.m.—Annual Dinner.
WESTERN CHEMISTS' ASSOCIATION, Westbourne Restaurant, Craven Road, Paddington, W., at 9 p.m.—Smoking Concert.

Thursday, Jan. 25. Sun rises 7.51; sets 4.34.
CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Impromptu Discussion.
MIDLAND PHARMACEUTICAL ASSOCIATION, Mason University College, Birmingham.—Paper by J. Spilsbury and T. G. Joyce, on "Balsam of Tolu."
LIVERPOOL CHEMISTS' ASSOCIATION, Royal Institution, at 7 p.m.—Annual Meeting: President's Inaugural Address.

Friday, Jan. 26. Sun rises 7.50; sets 4.36.
GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masnie Chambers, 100, West Regent Street, at 9.15 p.m.—"The Druggist as a Civil Servant," by J. P. Taylor.
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—The Hon. Charles A. Parsons on "Motive Power—High-Speed Navigation—Steam Turbines."

Saturday, Jan. 27. Sun rises 7.49; sets 4.37.

Marriage.

Gill—Robathan.—On January 10, at St. James's, Ashted, Birmingham, by the Vicar, Herbert Edward Gill, M.P.S., eldest son of E. H. Gill, of Belbroughton, to Ada Beatrice, youngest daughter of J. W. Robathan, of Handsworth, Birmingham.

London Gazette Notices.

PARTNERSHIPS DISSOLVED.

James Thomas Haines Cory and Benjamin Dixon, Wholesale Perfumers, trading under the style of H. Sardou and Co., at 62, Golden Lane, and 3, Joiners' Hall Buildings, London.

Frederic Louis Perken, Edgar Theodore Perken, and Arthur Rayment, Manufacturers and Importers of Optical and Scientific Instruments, trading as Perken, Son, and Rayment, at 99, Hatton Garden, London, E.C. Debts will be received and paid by F. L. Perken and E. T. Perken, who will in future carry on the business under the style of Perken, Son, and Co. Arthur Rayment will in future carry on business on his own account, at a separate address.

RECEIVING ORDERS IN BANKRUPTCY.

Edward Henry Cole, Chemist and Druggist, late of 171, North Street, Leeds, now residing at 8, Carlisle Terrace, North Street, Leeds.

John and William Gorsuch, Photographer, 48, Junction Road, Upper Holloway, and 67, Highgate Hill, London.

James Walker McEwen, Mineral Water Manufacturer, Clifton Street, Aberdare, Glamorgan.

William Opie Piper, Surgeon, Denmark Place, Stockport Road, Ashton-under-Lyne, late of Albert Road, Colne.

WINTER PRINTING SAMPLES

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Publications Received.

LESSONS ON PRESCRIPTIONS AND THE ART OF PRESCRIBING. By W. HANDSEL GRIFFITHS, Ph.D., L.R.C.P.E. New and revised edition, adapted to the British Pharmacopœia, 1898. Pp. x + 148, Price 3s. 6d. London: Macmillan and Co., Limited, 1899. From the Publishers.

PROCEEDINGS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION, at the Forty-seventh Annual Meeting held at Put-in-Bay, O., September, 1899. Also the Constitution, By-Laws and Roll of Members. Pp. xxx. + 891. Price 5.50 dols. Baltimore: American Pharmaceutical Association, 1899. From the Secretary.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Arrowsmith, Bates, Brown, Burrell, Churchyard, Clarke, Cruickshank, Fairley, Ferrall, Gilderdale, Gill, Greaves, Hickman, Hill, Horsfield, Hyslop, Jackson, Leicester, Lennox, Marsden, Matthews, Merson, Mitchell, Osborne, Oxen, Parry, Prebble, Prescott, Price, Radcliffe, Sturton, Treacher, Turver, Vogel, Wallis, Whineray, Wolff

NEWS IN BRIEF.

THE DUKE OF TECK's death creates a vacancy in the Presidency of the Royal Botanic Society.

MESSRS. BRYANT AND MAY are about to abolish entirely the use of ordinary white phosphorus in the manufacture of matches.

SIGNOR G. MARCONI will deliver a lecture at the Royal Institution, Albemarle Street, W., on Friday, February 2, on "Wireless Telegraphy."

MESSRS. MIDDLETON and Co., Middlesbrough, have again been entrusted with the contract for the supply of drugs to the North Ormesby Cottage Hospital.

MR. C. B. CLARKE, M.A., F.R.S., will read a paper at a meeting of the Linnean Society of London, on Thursday, February 1, on "Botanic Nomenclature."

SIR MICHAEL FOSTER has consented to stand as a candidate for the seat in Parliament held by Sir John Lubbock as representative of the University of London.

MESSRS. I. AND M. COHEN, of 53, Houndsditch, have presented the Imperial Yeomanry Hospital with a case containing about a thousand sponges for medical and surgical use.

DR. W. S. SQUIRE, F.I.C., F.C.S., will read a paper before the Society of Chemical Industry, on Monday, February 5, on "Recent Objections Urged Against the Adoption of the Metric System."

MR. J. O. MOULSON, M.P.S., is to open a debate at a meeting of the Bradford and District Chemists' Association, on Tuesday, January 30, on "Proprietary Articles; How far is Substitution Justifiable?"

MESSRS. E. SACHSSE AND Co., manufacturers of essential oils, of Leipzig and Liesing, near Vienna, notify that Herr Cust Conrad Friedrich Wilhelm Ritzhaupt is retiring from the firm, with which he has been connected for nearly thirty years.

WILLIAM ALLEN, the first President of the Pharmaceutical Society, is the subject of a long biographical article contributed by Mr. William Weare, Sub-Librarian of the Whitechapel Library, to the *East London Advertiser*, as the first of a series on "East-end Men of Mark."

THE JUNIOR PHARMACY BALL will be held at the Portman Rooms, Baker Street, W., on Wednesday, February 7, and tickets (7s. 6d. each, including supper and light refreshments during the evening) may be obtained of the Hon. Secretary, Mr. Ralph L. Cassie, 49, Newgate Street, E.C.

HOMOCEA, LIMITED, announce that the company is now under an entirely new board of directors and management, and that in future the only address will be 98, Strand, London, W.C. All the Homocea preparations are on the P.A.T.A. list. Retailers will be supplied gratis with advertising matter on application to the office.

MR. G. LORIMER, junior traveller to Messrs. Lorimer and Co., Limited, Britannia Row, Islington, who is about to sail for South Africa with the battery of the Honourable Artillery Company, has been accorded a hearty "send-off" by the town travellers and "heads of departments" at a dinner given in his honour at "The Trocadero," the company afterwards adjourning to the Palace Theatre.

MR. A. W. HANKINSON, M.P.S., Grange-over-Sands and Carnforth, has transferred the Carnforth branch of his business to Mr. J. P. Porteus, M.P.S., who has acted as manager at Carnforth for several years. Considerable alterations have been completed in Mr. Hankinson's pharmacy at Grange-over-Sands. The shop has been carried back to the extent of 30 feet, and is now a decidedly handsome and well-equipped pharmacy.

MR. BENSON HARRIES, M.P.S., of Newport (Mon.), has removed from 83, Commercial Road, to new premises next door, No. 84, built specially to his own design, all the ground floor, arranged in a most convenient manner, being used for shop purposes. Mr.

Harris has also taken over the business known as "The B.S.S. Co.," 32, Commercial Road, and intends to run it as a branch. One establishment will be devoted more particularly to pharmacy, and the other carried on as a drug store in the broad sense.

MESSRS. CRESSWELL BROTHERS AND SCHMITZ have purchased the goodwill, stock, and book-debts of Mr. A. Louis, sponge merchant, 65, Aldersgate Street, E.C., and have transferred the same to their establishments in Red Lion Square, Holborn. Messrs. Cresswell Brothers and Schmitz also announce that in consequence of the rapid growth of their Paris branch, they have taken a large and roomy warehouse adjoining their own at 175, Rue du Temple. This branch is managed by Mr. George Cresswell, a relative of the Messrs. Cresswell, of London.

THE SCHOOL OF PHARMACY ANNUAL DINNER will take place on Wednesday, February 21, at the Holborn Restaurant, in the Caledonian Salon. It is hoped that all past students and all interested in the work of the School of Pharmacy will endeavour to be present, in order to make it, as usual, a thoroughly representative gathering. Full particulars will be published in due course. All inquiries or application for tickets (price five shillings each), should be addressed to Mr. Edgar M. Chapman or Mr. John Lawson, Hon. Secs. of the Dinner Committee.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, JANUARY 24, 1900.

Prices generally are unchanged since last week, with the exception of those Castor Oils which are advancing. General sales include Beeswax at full rates, small parcels of Californian Honey at recent high figures, and a parcel of Scammony Root. Higher prices rule for Caustic Soda (which is 10s. a ton dearer) and Chlorate of Potash, whilst both Bicarbonate of Potash and Borax are firmer.

AMMONIA SALTS.—Carbonate, 3½d. per lb. Sal Ammoniac is firm at 38s. to 40s. per cwt. Sulphate is in slightly less demand at £11 12s. 6d. to £11 15s. per ton.

BEESWAX.—44 packages of Gambia made £6 17s. 6d. per cwt. and small lots of Sierra Leone went for £6 7s. 6d.

COPPERAS.—Continues firm at 39s. per ton for Lancashire and 37s. for Welsh.

COPPER SULPHATE.—Is quiet at £24s. 7s. 6d. per ton.

GUM.—A moderate inquiry exists for Arabic sorts; small lots of Niger have sold for 42s. 6d. per cwt.

HONEY.—Sales of fine Californian are reported at 46s. per cwt.

OILS (FIXED) AND SPIRITS.—Castor Oils are in good demand, firm in tone, and advanced rates are being paid. Calcutta has risen to 3½d. per lb., and business has been done at 3d. and 3½d.; of French, 1st pressure, 10 tons sold at 2½d. per lb., 35 tons at 3d., and latterly 3½d. has been asked. Belgian, 2nd pressure, has been selling at 2½d., but holders want 2½d. French, 2nd. Sulphur is quoted at 2½d. per lb. Olive maintains its high price, and a little business has been done in Spanish at £36 to £36 10s. per tun. Linseed is firm at 24s. to 25s. per cwt. Cottonseed, after a momentary decline of a fraction, has recovered, and is now at 23s. 9d. to 24s. per cwt. again. Spirits of Turpentine are steady at the higher rate of 40s. per cwt., with a fair inquiry.

POTASH SALTS.—Bichromate is scarce at 4½d. to 5d. per lb. Chlorate 3½d. to 3¾d. per lb. Cream of Tartar is quiet but firm at 74s. to 80s. per cwt. Pearlashes are dull of sale at 33s. 6d. to 35s. per cwt. Potashes are nominal at 26s. 9d. to 27s. per cwt. Prussiate is firmer 7¾d. per lb.

SCAMMONY ROOT.—16 bags sold ex-quay at 21s. per cwt.

SEEDS.—Canary seed is selling fairly well. 250 to 325 bags of Turkish made 33s. 6d. to 34s. per 464 lbs., and 55 bags of Spanish sold at 45s.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is firmer at 16s. per cwt. Caustic soda is dear and scarce, 76 to 77 per cent. at £10 2s. 6d. per ton, 70 per cent. at £9 15s. Crystals, £3 5s. per ton. Nitrate is in quiet demand at 7s. 10½d to 8s. 1½d. per cwt.

LONDON, THURSDAY, JANUARY 25, 1900.

Business in Drugs and Chemicals without being very active has, nevertheless, been fairly brisk during past few days, and it is hoped that the news received from South Africa this morning, combined with cheaper money (Bank rate having to-day been reduced to 4 per cent.), may lead to the commencement of an era of renewed prosperity in the trade of the country. The changes in value during the week have not been numerous, but prices remain very steady all round. Bicarbonate of Potash is dearer, as also is Sulphonal, the advance in price of this latter article having taken many people by surprise. Otherwise, prices are chiefly unchanged, the following being particulars of those ruling for some articles of principal interest:—

ACETANILIDE.—There is again a rumour that an advance of price is impending in this article. Meanwhile price remains nominally unchanged at 9½d. to 1s. per lb., according to make, quantity, etc.

ACID BORACIC.—Steady at 25s. 6d. per cwt. for crystals, and 27s. 6d. for powder.

ACID CARBOLIC.—Continues in very good demand for home consumption, the export abroad remaining prohibited, although it has been intimated by the authorities that certain reasonable exceptions and concessions will be made in case of *bonâ-fide* exporters for medicinal or sanitary purposes, according to who the exporter may happen to be, quantity, mode of packing, and eventual destination. Information to this effect only became definitely known this afternoon, and will probably have the effect of again stiffening the market. Meanwhile prices remain nominally unchanged at 10¾d. to 11d., according to quantity, brand, etc., for 35/36° C. ice crystal in large bulk packing, 1s. per lb. for 39/40° C. ice crystal, and 1s. 1d. per lb. for the B.P. quality, 39/40° C., in detached crystals; Crude, 60° F., 2s. 3d. per gallon; 75° F., 3s. per gallon; liquid, 95-98 per cent. of pale straw colour, 1s. 8d. per gallon; ditto dark, 25-30 per cent., 10d. to 1s. per gallon.

ACID CITRIC.—Market is gradually hardening. Makers now quote 1s. 3d. per lb. for crystals, in 5 cwt. casks, and are by no means too willing sellers at the price, except for prompt delivery, a further advance in price being considered to be a certainty.

ACID OXALIC.—Steady at 3d. to 3¼d. per lb. nett, free delivered in London.

ACID TARTARIC.—English spot is quoted 1s. 0½d. to 1s. 0¾d. per lb., and foreign, 11¾d. to 1s. per lb. c.i.f.

AMMONIA COMPOUNDS.—Bromide 2s. 2d. per lb., Carbonate 5½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt.; ditto commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac: Firsts, 40s. per cwt.; seconds, 38s.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate steady; grey 24 per cent., London prompt, £11 15s.; Hull, prompt, £11 12s. 6d.; I cith, prompt, £11 15s.; Beckton, prompt, £11 16s. 3d.; Beckton, terms prompt, £11 12s. 6d. Sulpho-cyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus £39 to £40 per ton. Crude Japan (black sulphide), £22 10s. to £23 per ton.

ARSENIC.—Is steady at firm prices.

ASHES.—Pots, 28s. 6d.; Pearls, 34s.

ATROPINE.—Makers remain very firm at 15s. 6d. per oz. for the sulphate B.P., and 17s. 10d. per oz. for the pure alkaloid.

BISMUTH SALTS are unchanged at 5s. 1d. per lb. for the subnitrate and 5s. 8d. per lb. for the subcarbonate; price of the metal is also without change, at 5s. per lb. for the commercial quality.

BORAX.—Unchanged, at 16s. 6d. per cwt. for crystals, and 17s. 6d. per cwt. for powder.

BROMIDES.—Very firm at 1s. 10½d. per lb. for Potassii Bromid, 2s. 1½d. per lb. for Sodii Bromid, and 2s. 2d. per lb. for Ammon. Bromid. Bromine is also unchanged at 2s. to 2s. 2d. per lb., according to quantity, in cases of 60 lbs. each.

CAMPHOR.—Refined is firm, English makers' price being unchanged at 2s. 1d. per lb. for Bells and Flowers. Crude dearer, 16s. 6d. per cwt. c.i.f. being stated to have been paid for China, while 16s. per cwt. c.i.f. is asked for Japan.

CASTOR OIL.—Firm. Belgian first pressing spot, £28 10s.; January-June, £28, f.o.b. Antwerp; second pressing spot, £27 per ton, ex wharf. Hull manufactured, guaranteed cold drawn pure pharmaceutical, £30 5s. per ton in barrels, 3½d. per lb. in cases. Pure firsts, £27 15s.; seconds, £26 15s. per ton in barrels; firsts, 3¼d. per lb. in cases; seconds, 3½d., ex wharf London.

CLOVES.—At auction, 170 bales Zanzibar sold at firm prices, good bright fetching 3¾d., and dull stalky 3½d. 14 cases of picked Penang, dull, to good bright, were bought in at 6½d. to 9d. Privately, Zanzibar is in good demand, and large sales have been done at firm rates, comprising spot, 3¾d.; January-March delivery at 3 21-32d. to 3 1½d., March-May at 3 1½d., and January-August 3 25-32d. to 3 1¾d.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial, 90 per cent., 1s. 2d. per gallon; pure, 2s. Benzole, flat, 50 per cent., prompt, 10d. per gallon; 90 per cent., prompt, 8d. Creosote, 3d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 6d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 4d.; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene A, 3¾d. per unit; B, 2¾d. Pitch, 35s. per ton, f.o.b. Tar, refined and/or crude, 12s. 6d. per barrel, 2¼d. per gallon.

COCAINE.—Remains steady at the late reduction, makers' price of the Hydrochlorate being 18s. 3d. per oz. for smaller lots, 18s. per oz. for 100-oz. lots in 25-oz. tins, and 17s. 9d. per oz. for 200-oz. lots. The pure alkaloid is quoted 2s. 9d. per oz. higher than the above-named salt.

CODEINE.—Very firm, at 13s. to 13s. 6d. per oz., according to quantity, for the pure, and 1s. per oz. less for the Muriate Phosphate and Sulphate Salts.

COD LIVER OIL.—Market remains quiet at 75s. to 80s. per barrel, according to brand, for best non-congealing Norwegian oil in tin-lined barrels of 25 gallons each.

CREAM OF TARTAR.—Steady but unchanged at 73s. per cwt. for first white crystals on the spot, 75s. for powder, and 76s. per cwt. for ditto 95 per cent.

ERGOT OF RYE.—Remains extremely scarce, and very high prices up to 3s. 3d. per lb. are asked for good and sound.

ESERINE (PHYSOSTIGMINE).—Maker's prices are very firm at 2s. 6d. per gramme for sulphate and salicylate. The continued scarceness and advancing value of the raw material (Calabar Beans) would point to the possibility of a further advance in price of this preparation, present quotations being still low, as compared with prices ruling not so very long ago.

GINGER.—At auction the moderate supply of Cochin was firmly held, and only a small part sold at full rates. Of 110 cases and 384 bags offered, 85 packages sold. Fair small, but plump cut and scraped, at 40s.; small and tips ditto, 34s.; native cut, small and medium, at 35s., with one lot at 34s. 6d.; small ditto, at 32s.; Calicut rough, in cases, good bold, some medium bright, at 40s. Privately, not much doing; some sales of Cochin resulting in prices again being dearer.

GLYCERIN.—Market is fairly steady at nominally unchanged prices, both for the crude and also for the refined article.

IODIDES.—Fairly steady, at 10s. 6d. per lb. for Potassii Iodid, 11s. 10d. per lb. for Sodii Iodid, 13s. 10d. per lb. for Ammon Iodid, 13s. 10d. per lb. for Iodoform cryst powder and precipitated, 12s. per lb. for Iodine resublimed, and 7½d. per oz. for crude Iodine.

MENTHOL.—Steady, at 10s. 3d. to 10s. 9d., according to quantity and brand, for good dry white crystals.

MERCURIALS.—Are firm but unchanged at 3s. 2d. per lb. for Calomel and 2s. 10d. per lb. for Corrosive Sublimate.

MORPHINE.—Makers are very firm at 5s. to 5s. 3d. per oz., according to quantity, for the Hydrochlorate Powder.

OILS (FIXED) AND SPIRITS.—Linseed is steadier. On the spot pipes, London, £23 10s. to £23 15s.; barrels, £23 15s.; Hull, spot naked, £22 10s. Rape steady. Ordinary brown on the spot quoted £25 10s.; refined spot, £26 15s.; Ravison naked spot, £23 10s. Cotton quiet. London crude spot, £21 to £21 5s.; refined spot, £23 to £24, according to make; Hull naked refined spot, £21 2s. 6d.; crude spot, £19 17s. 6d. Olive: Mogador, £34 10s.; Spanish, £36; Levant, £34 10s. Coconut Oil: Ceylon on the spot, £26; Cochin spot, £29 5s. Palm nearly 10s. dearer. Lagos on the spot quoted £27. Lubricating Oil: Pale American spot, 8s. to 9s. 6d.; black, 7s. to 9s.; Russian black, 6s. to 6s. 6d.; pale, 8s. to 9s. 6d. Petroleum Oil steady and quiet. Russian spot quoted 6 7/8d. to 6¼d.; American spot, 7¼d. to 7½d.; water white, 8¾d. to 8½d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. Turpentine firm and advancing. American spot, 39s.

OPIUM.—Steady, with but little doing, prices of all kinds being nominally without change.

PARAFFIN WAX.—Crude is still quoted 2¾d. to 3d. per lb., and refined 3¼d. to 4d.

PHENACETIN.—It is rumoured that the peculiar position of the raw material may lead to a change in an upward direction in price

of this article. Price for best brands remains, however, so far unchanged at 3s. 6d. per lb. for both Powder and Crystals in 5-cwt. lots.

PITCH.—18s. 6d.

POTASH COMPOUNDS.—Bicarbonate, 36s. to 39s. per cwt. Bichromate, 4½d. to 4¾d. per lb. Bromide, 1s. 10½d. Chlorate spot London crystals, 3½d.; powder, 3¾d. Iodide, 10s. 6d. per lb. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English make, 7¾d.; Beckton, 7d.; red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER.—Firm at £9 12s. 6d. from the importer and 6d. per bottle less from second-hand.

QUININE.—Makers still decline to book larger orders, price of the favourite German brands of sulphate—viz., B&S and Brunswick, being nominally 1s. 5d. per oz. for 1,000-oz. lots in 100-oz. tins, while in the speculative market there are buyers of these brands at 1s. 4¾d. per oz. for spot, 1s. 5d. per oz. for March, and 1s. 5¼d. per oz. for May delivery. Should the Bark shipments from Java for second half of January again prove small, or even moderate, we shall no doubt see an excited market, with further advancing prices.

ROSIN.—Strained, spot 5s. per cwt., ex-wharf, and 4s. 9d. per cwt. for March-May shipment per sailing vessel.

SALICINE.—Continues very firm at the advanced price of 15s. 6d. per lb, anything offering from second hand at even a trifle below makers' prices being eagerly snapped up. It is stated that makers are short of the article and that they can deliver only limited quantities promptly.

SALICYLATES.—Remain nominally unchanged in price. Makers, however, refuse to book further orders, while some of their agents appear to be unable to deliver promptly against existing contracts, and everything appears to point to the practical certainty of higher prices ruling in the near future.

SALOL.—Is in same position as are salicylates, and what has been written above with reference to these latter applies more or less also to salol.

SANTONINE.—Makers' price is still 11s. 3d. to 11s. 6d. per lb., according to quantity.

SHELLAC.—The market remains quiet, and privately only moderate sales have been effected at previous rates, including TN Orange on a basis of 62s. for fair. Futures continue dull and inactive, with sellers January-March shipment at 61s. c. f. and i., and March delivery at 63s. 6d. At auction to-day the fair supplies, part of which were offered without reserve, attracted a good attendance of buyers, and with fair competition for TN qualities, the larger proportion sold. At the opening prices were irregular and easier, but closed steady at about previous sales' rates. Fine Second Orange partly sold at steady prices. No Garnet was offered. Button went off slowly at about late rates. A total of 1,008 cases offered and 485 cases sold. Fine Second Orange: Of 134 cases 35 sold, fine lemony DJ in diamond at 75s., BO in diamond reddish of the mark bought in at 72s., BJ in diamond, fine bright but cakey to blocky, sold at 66s. TN Orange: 675 cases offered and 437 cases sold, partly without reserve, fair bright free at 61s. to 62s., ordinary to middling reddish part cakey at 60s. to 61s. Button: Of 199 cases 11 sold, good pale slightly cakey at 73s., ordinary blocky thirds at 56s., low dark broken at 43s.

SODA COMPOUNDS.—Crystals, barrels, quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 4¼d per lb. Bicarbonate, landed, £7 5s. Bromide, 2s. 1½d. Caustic, 70 per cent., white, £10 10s.; 60 per cent., £1 less. Hyposulphate (Antichlor) 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate, quiet on spot; refined, £8; ordinary, £7 15s.

SPICES (VARIOUS).—Black Pepper was barely represented in auction. Only 35 bags Singapore were offered and bought in at 6d., and 80 bags Tellicherry fair at 6¼d. White Pepper: Only a small quantity was offered in auction, 90 bags Singapore being bought in, good fair at 9½d. Pepper Dust: 32 bags Penang offered, and 28 bags sold, fair shelly, at 2¾d. Capsicums quiet but steady. Of 66 bales Bombay 16 bales country damaged sold; the remainder, fair, bright red, long, stalky, bought in at 36s. Pimento in fair supply met a good demand; of 838 bags offered about 600 bags sold at steady rates, good at 3½d. to 3¾d. Cinnamon Chips and Bark: Of 493 packages chiefly wild only 97 sold, fair quillings at 6½d., cuttings at 2d. to 2¼d., chips and bark at 2d. Nutmegs were poorly represented in auction, and only partly sold at about previous rates. Of 12 cases Penang 8 sold, including 110's, without reserve, at 11d. to 1s.; 65's bought in at 2s. 4d. 10 cases Singapore bought in, 30's at 1s. 7d., and 8 cases wormy Bombay at 5d. West Indian: 6

cases 90 barrels, etc., offered and sold at easy rates, 58's at 2s. 4d., 64's to 68's at 2s., 69's at 1s. 8d., 81's slightly mouldy at 1s. 3d., 87's and 88's at 1s. 2d., 94's at 1s., 102's at 1s. 1d., 110's to 114's at 10d. to 10½d., 131's at 7½d., defective from 3¾d. to 6½d. Mace in slow demand; 33 cases Penang in auction were mostly bought in at 1s. 5d. to 1s. 7d., one case sold, fair red, at 1s. 5½d. West Indian: 22 cases sold, good bold pale, at 1s. 8d. to 1s. 9d., ordinary to fair red at 1s. 5d. to 1s. 7d., broken at 1s. 4d.

SULPHATE OF COPPER.—Quiet at £23 10s. to £24 10s. per ton, on the spot, according to quantity and brand.

SULPHONAL.—It has come rather as a surprise all round that makers, after having brought the outside sellers of the article into line, have advanced the price of the article 3s. 6d. per lb., nearly everyone having rather anticipated a reduction in price. Makers now quote both powder and crystals 20s. 6d. per lb., with a reduction of 6d. per lb. for 10 lb. lots in bulk and a certain further reduction for 4 cwt. contracts. From second-hand there appears to be but little offering below makers' figures.

TAR.—Stockholm, 25s. to 25s. 6d.; Archangel, 18s. to 18s. 6d.

THYMOL.—Firm, at 10s. 6d. to 11s. per lb. for good white crystals.

TUMERIC.—At auction 26 bags offered and bought in. Cochin finger, ordinary to fair rather rough at 30s. Privately business continues on a small scale. Bengal firm at 32s. for the small quantity offering. Madras quiet at 36s. to 40s. for fair to good bright finger. Cochin split bulbs 12s.

URANIUM.—Owing, it is stated, to scarcity of the ore, prices of uranium salts have been advanced very considerably; in fact, to just double the figures previously ruling, acetate being now quoted 25s. per lb. and nitrate 16s. to 18s. per lb., according to degree of purity.

TRADE NOTES.

THE "EVER-READY" SURGICAL AND DENTAL LAMP.—Messrs. Allen and Hanburys, Limited, 48, Wigmore Street, London, W., have recently introduced a very neat and compact electric lamp for surgical and dental work. For handiness and portability it will be hard to beat. It is easily replenished, and in operative work gives a direct and brilliant illumination. Held in the closed mouth in a dark room, it shows foreign bodies, if existing in the framework of the face, almost as easily as by means of X-rays. It may be used efficiently in eye, nose, and throat cases, for gynecologic practice or in rectal examinations. The lamp is fixed at the end of a rubber tube in silver, and is run by a dry battery, which slides out of bottom of case, and can be replaced by a new one in a few seconds. The cost of maintenance is 2s. for about 500 brief examinations. The price of the apparatus, complete, with short tube, 3½ volt lamp, battery and connections in box of polished hard wood 4½ by 3½ by 3 inches, is 25s.; with long tube, box 7½ by 4 by 3½, with 5½ volt lamp, etc., 35s.

BLAUD PILL LENTIFORMS.—Messrs. F. Newbery and Sons, 27 and 28, Charterhouse Square, and 44, Charterhouse Street, London, E.C., submit samples of sugar-coated iron tonic tablets (Blaud), prepared by Messrs. Wm. R. Warner and Co., of New York. The tablets afford an agreeable form for the administration of iron, and are of excellent finish, being well coated. They are put up in screw-capped bottles, which are sold at a nominal retail price of 6d.

EFFERVESCENT KISSINGEN AND VICHY TABLETS.—Messrs. Newbery and Sons submit specimens of effervescent Kissingen and Vichy tablets, prepared by Messrs. Warner and Co., and put up in screw-capped bottles packed in a neat cardboard box, containing a bottle of each variety, to be sold at 2s. per box. These tablets are intended for use in the treatment of obesity, and afford a convenient and economical method of administering Kissingen and Vichy, while they possess an advantage over the natural water in the fact that each dose is accurate. The salts are also put up in the granular effervescent form.

BRITISH EMPIRE BOUQUET PERFUME.—Messrs. Ayrton and Saunders, Liverpool; submit a sample of their "British Empire Bouquet" Perfume, which at the present time ought to be an attraction. The perfume is put up at 9s., 12s., 18s., 21s., 24s., 30s., 48s., and 60s. per dozen. With each bottle a copy of Mr. Rudyard Kipling's poem, "The Absent-minded Beggar," is presented. The label is very effective, and the perfume is excellent.

Calendar for the Week.

Sunday, Jan. 28. 4th after Epiphany. Sun rises 7.47; sets 4.39.

Monday, Jan. 29. Sun rises 7.46; sets 4.41.

Tuesday, Jan. 30. Sun rises 7.45; sets 4.43

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION, County Restaurant, at 9 p.m.—Debate. "Proprietary Articles. How far is Substitution Justifiable?" Introduced by J. O. Moulson.

CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—Papers by W. J. Sell and F. W. Dootson; S. Ruhemann and H. E. Stapleton; W. J. Pope and S. J. Peachey; and M. O. Forster.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Professor E. Ray Lankester on "The Structure and Classification of Fishes." (Lecture III.)

Wednesday, Jan. 31. • 1.23M. Sun rises 7.43; sets 4.44.

PUBLIC AND POOR LAW DISPENSERS' ASSOCIATION, St. Bride's Institute Ludgate Circus, E.C., at 8 p.m.—Short Papers and Dispensing Notes by the Chairman, F. Noad Clark, and other members.

ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—Exhibition of a selection of J. Craig Annan's work.

Thursday, Feb. 1. Sun rises 7.41; sets 4.46.

CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Paper on "Aquatic Plants," by T. E. Wallis.

LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 8 p.m.—Papers by C. B. Clarke, and Prof. E. Ray Lankester.

Friday, Feb. 2. Sun rises 7.40; sets 4.48.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masonic Chambers, West Regent Street, at 9.15 p.m.—"The Medicinal Plants of the Clydesdale Flora," by W. Bowie.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—Signor G. Marconi on "Wireless Telegraphy."

Saturday, Feb. 3. Sun rises 7.38; sets 4.50.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; as Maw's.—Warnes, 333, Gray's Inn Rd., W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Camera, Half-plate, very compact, 3 slides, four-fold tripod, good R.-R. lens, excellent condition, £3; without lens, £2; or exchange good lantern.—Speedie, Crieff, Perthshire.

Overstocked.—1 lb. Potass. Iodid., 9/6; 4 lb. 36/-. 1 lb. Iodof. Xtal., 12/-. 1 lb. Bism. Carb. and Subnit., 5/3; 4 lb. £1. 1 oz. Cocain Hyd., 18/-. 3oz. ditto, 51/-. 1 oz. Morph. Mur. and Acet., 5/-. Frog, 5/-; 3 Doz., 4/9. Offers wanted for 3 Gross, carr. forward.—Eastman, Forest Lane, Stratford.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Balances.—Advertiser wishes to purchase 4 or 6 Balances, secondhand; good condition. Give maker's name and price.—Chemist, "Pharm. Journal" Office, 5, Serle St., London, W.C.

"SANITAS" EMBROICATION

In Bottles to Retail at 8d., 1s., and 2s. 6d.

"SANITAS"

AND OTHER

DISINFECTANTS

SULPHUR FUMIGATING CANDLES (Kingzett's Patents), 6d., 9d., and 1s. each.

PRESERVED PEROXIDE OF HYDROGEN (Kingzett's Patent).

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WEED DESTROYER, &c., &c.

THE "SANITAS" CO., Ltd., BETHNAL GREEN, LONDON,

AND 636—642, W. 55 STREET, NEW YORK.

MINIMS, DRACHMS AND FLUID OUNCES TO MILLILITRES, AND PINTS TO LITRES.

	Minims to Ml.	Drachms to Ml.	Ounces to Ml.	Pints to Litres.
1	0.05916	3.552	28.412	0.568
2	0.11832	7.103	56.825	1.136
3	0.17748	10.655	85.237	1.705
4	0.23664	14.205	113.649	2.273
5	0.29580	17.758	142.065	2.841
6	0.35496	21.309	170.474	3.409
7	0.41412	24.860	198.886	3.977
8	0.47328	28.412	227.298	4.545
9	0.53244	31.964	255.711	5.111

EXPLANATION OF TABLE.—The first column represents the number of minims, drachms, fluid ounces, or pints. Thus: 4 minims = 0.23664 Ml.; 4 drachms = 14.206 Ml.; 4 fl. oz. = 113.649 Ml.; 4 pts. = 2.273 Litres.

London Gazette Notices.

PARTNERSHIPS DISSOLVED.

Henry Llewellyn Williams and John Law Adam, General Medical Practitioners, 15, Kensington Square, and 16, Vicarage Gate, Kensington. The business will in future be carried on by H. Llewellyn Williams, at 15, Kensington Square.

Walter Frederick Enness, Chemist and Druggist, and Thomas Elders, carrying on business as Chemists, under the style of Bell and Co., at 9, Bank Buildings, Wandsworth, Surrey. Debts will be received and paid by W. F. Enness.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Allenby, Bailey, Baker, Bartlett, Bell, Bostock, Buckle, Cassie, Chambers, Dompe, Doward, Ellington, Elliot, Fischesser, Gair, Gifford, Giles, Gilmour, Harries, Hill, Hoit, Jones, Kohn, Ling, McNeill, Maunder, Pilcher, Taylor, Yates.

NEWS IN BRIEF.

A QUALIFIED LADY ASSISTANT has taken up an appointment with Mr. Eric Lemmon, pharmaceutical chemist, of High Street, Exeter

BRITISH PHARMACEUTICAL CONFERENCE.—A meeting of the Executive Committee will be held at 16, Bloomsbury Square, W.C., on Wednesday, February 7, at 4.30 p.m.

PROFESSOR J. REYNOLDS GREEN, Sc.D., F.R.S., is to deliver the Friday evening lecture at the Royal Institution on February 9, at nine o'clock. His subject will be "Symbiosis and Symbiotic Fermentation."

THE VICTOR MEYER MEMORIAL LECTURE will be delivered by the President of the Chemical Society (Professor T. E. Thorpe, F.R.S.) at a meeting of the Society at Burlington House, Piccadilly, W., on Thursday, February 8.

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' ASSOCIATION.—At the weekly meeting on January 26, Mr. J. P. Taylor read a paper on "The Druggist as a Civil Servant." An animated discussion ensued, chiefly of an adverse character.

MR. W. P. BRAWN, chemist and druggist (late assistant with Messrs. Southall Brothers and Barclay), left England on Tuesday last for South Africa, as Lance-Corporal in the Warwickshire Battalion of Imperial Yeomanry.

ALDERMAN BENJAMIN ROBINSON, Pharmaceutical Chemist, of Pendleton, at a meeting of the Justices held on January 26, was unanimously elected Chairman of the Visiting Committee of Her Majesty's Prison, Manchester.

"SHAKESPEARE AT HOME" is the title of a lecture to be delivered at a meeting of the Royal Photographic Society, 66, Russell Square, W.C., on Tuesday, February 6, at eight p.m., by Mrs. Catharine Weed Ward. The lecture will be illustrated by slides from her own photographs.

THE NEW TRIAL in connection with the case of alleged poisoning by atropine (see *P. J.*, last volume, pp. 430b, 562b) will not take place, as the plaintiff has withdrawn the action and agreed that the £5 paid into Court by Mr. Spanton should be returned to defendant.

MR. C. G. MOOR, Exeter City Analyst, is to deliver a lecture on "Bacteriology," illustrated by lantern slides and cultures, under the auspices of the Plymouth, Devonport, Stonehouse, and District Chemists' Association, on Wednesday, February 7, at the Foresters' Hall, The Octagon, Union Street, Plymouth. Chair to be taken by the President at eight o'clock.

WEST OF SCOTLAND COLLEGE OF PHARMACY.—On Wednesday, January 31, the students, accompanied by Mr. T. S. Barrie, Principal, visited the mills and laboratories of the Glasgow Apothecaries' Company. Mr. Bowie met the party and conducted them over the premises and aroused the enthusiasm of all by his lucid and humorous remarks on the various operations going on.

THE "APOTHEKER ZEITUNG" at the end of a long account of the agitation relating to company trading in this country, speaking of the President's letter to the President of the Board of Trade, says that, while not interfering with the formation of companies, it unquestionably lays down the principle which cannot be disregarded without destruction to pharmacy.

BURNLEY AND DISTRICT CHEMISTS' ASSOCIATION.—At a meeting of this Association, held on Tuesday, January 30, it was decided to hold a dinner shortly. Mr. Coates read an interesting paper

entitled "Test your Drugs," in which he pointed out that the greatest mistake chemists could make was to endeavour to supply articles as cheaply as possible without consideration as to quality.

MESSRS. WRIGHT, LAYMAN AND UMNEY, Southwark Street, S.E., have recently bought at public auction a considerable quantity of gum sagapenum, a drug that was at one time plentiful, but latterly has been exceedingly scarce. They will be pleased to present a sample of one or two lbs. to any local association which would like to have a specimen of the drug and will apply to the firm.

MR. J. YOUNG, chemist and druggist, Torquay, has obtained over £30 as a "tobacco fund" for the Devon Regiment, now on active service in South Africa, by means of a tambourine placed in his shop window. He has already sent out 500 lbs of tobacco, 5,000 cigarettes, and about six boxes of clothing, etc. Mrs. Young also sent, as a Christmas present for the regiment, a case of plum puddings (about 200 lbs.), and has received a letter from the captain and adjutant to say how much the gift was appreciated.

A "DAISY" POWDER administered to Ethel Jones, aged six years and ten months, was held by a medical witness who gave evidence at an inquest held by the Liverpool City Coroner on January 25, to have caused her death. The whole of the powder had been given instead of half, as directed on the label. A verdict of "Death by misadventure" was returned by the jury, and on its recommendation the "Daisy" manager undertook that the directions on the label should be made more explicit.

AN AMATEUR PRESCRIPTION for "bichromide of potassium, $\frac{1}{4}$ oz. to be taken in water," was taken to a "chemist in Great Mersey Street," Liverpool, who is reported to have said there must be some mistake, but gave potassium bichromate, labelled "poison," in the usual manner. A dose of the poison was swallowed by Elizabeth Milton (21), a young married woman, as a remedy for neuralgia, and caused her death. At the inquest, held on January 24, a verdict of "Death by misadventure" was returned, the jury being of opinion that greater care should have been exercised by the chemist, who might have made further inquiries as to the purpose for which the drug was required.

FOOTBALL.—The match which was no doubt the turning point in the contest for the Inter-Pharmacy Cup was contested on Saturday last at Shepherd's Bush. The opposing teams representing the "Square" and the Metropolitan School of Pharmacy were no doubt the pick of the men from either school, and considering the result of their last meeting a close game was expected; in consequence there was a good representative gathering of past and present students of both schools. The ground, unfortunately, was in the worst possible condition, having been quite under water the previous day, and rain also fell during the progress of the game. The ball was started by the Metros. at a quarter to three, and it was quite evident from the start that the "Square" had come to win, for during the whole of the first half the ball was kept almost entirely in their opponents' quarter, and numerous were the shots put in by their forwards, with the result that at half-time three goals were placed to the credit of Messrs. Jones and Addison, two of the Square forwards. On changing over the Metros. made a great effort to retrieve their fortunes, but without avail, for the Square backs were equal to their task, and hardly a single shot was put in at the Square goal. On the whistle sounding, four more goals were found to have been added to the Square score, making a total of seven, thus winning with a handsome margin of seven goals to nil. Goals were scored by:—Jones, 3; Addison, 3; Warren, 1. Such a victory must surely place the Square as favourites in the running for the Cup, and since by this victory they are neck-and-neck with the Metros., granting that they can repeat their victories over the other schools, it seems highly probable that with such a combination as was put in the field on Saturday, the Square team should bring home the trophy. Previous to the match a photograph of the Square team was taken. The team was composed of:—Goal, Metcalfe; backs, Fox and Owen (capt.); half-backs, Gray, Spurge, Garsed; forwards, Addison, Godolphin, Jones, Buckingham, Warren.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, JANUARY 31, 1900.

AMMONIA SALTS.—Carbonate, $3\frac{1}{2}$ d. per lb. Sal ammoniac, 38s. to 40s. per cwt. Sulphate is firm at £11 15s. per cwt.

BLEACHING POWDER—Is firm at £6 12s. 6d. per ton.

CANARY SEED—Continues dull at 34s. per 464lbs. for Turkish.

CARNAUBA WAX.—Grey has been offered in some amount, and 30 bags of Ceara have sold for 47s. 6d. per cwt.

COPPERAS—Is firm at 37s. per ton for Welsh and 39s. for Lancashire.

COPPER SULPHATE—Exhibits a stronger feeling, and is slightly advanced in price, £24 5s. per ton.

GINGER.—18 bags of green African sold at auction for 17s. per cwt. ex quay.

HONEY.—40 cases of fine Californian made 46s. per cwt., and Chilean Pile 1 has sold for 24s. and 25s. per cwt.

LINSEED—Is very strong, and prices have advanced 6d. to 1s. per 416lbs. Calcutta is not offered, and River Plate is quoted at 45s. per 416lbs. on a 2 per cent. basis and 44s. on a 4 per cent. basis. Advices from Rosario inform us that as the bubonic plague exists there trouble may be experienced in getting shipments away. Some Turkish has sold, ex store, at 49s. per 416lbs., and a little Calcutta on passage early in the week was offering at 50s.

OILS (FIXED) AND SPIRITS.—Castor has become firmer, and both French and Calcutta are firmly held for $3\frac{1}{2}$ d. per lb. 12 tons of French first pressure sold for $3\frac{1}{6}$ d. per lb. early in the week, but $3\frac{1}{2}$ d. is the lowest asked at present. Olive continues to sell steadily and in fair amount at £36 to £36 10s. for Spanish per tun. Linseed is very firm at a slight advance—viz., 24s. 3d. to 25s. per cwt. Cotton Seed is steady and unchanged at 23s. 9d. to 24s. per cwt. for Liverpool refined in export packages. Spirits of Turpentine are selling moderately at the steady and improved rate of 40s. per cwt.

POTASH SALTS.—Bichromate is very scarce, $4\frac{3}{4}$ d. to 5d. per lb. Chlorate has again become dearer, $3\frac{1}{2}$ d. to $3\frac{3}{4}$ d. per lb. Cream of Tartar is quiet at 74s. to 80s. per cwt. Pearl Ashes are nominal at 33s. 6d. to 35s. per cwt. Pot Ashes have advanced to 27s. per cwt. Prussiate is dearer, $7\frac{3}{4}$ d. to 8d. per lb.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is firmer at 16s. per cwt. Caustic, 76 per cent. to 77 per cent., £10 12s. 6d. per ton; 70 per cent., £9 15s. per ton. Crystals are firm at £3 5s. per ton. Nitrate is firmer and dearer at 8s. 6d. to 8s. 9d. per cwt.

SPERMACEIN.—12 bags of crude Chilian sold at 85s. 3d. per cwt., ex quay.

LONDON, THURSDAY, FEBRUARY 1, 1900.

Business has been somewhat quiet during the past week, but prices generally remain very firm, and in some cases with an upward tendency. The chief events of the week of interest to the drug and chemical trade have been the sudden increased firmness of citric acid, an advance in price of phenacetin, and a further reduction in price of cocaine. Bromides remain very firm. Iodides only fairly steady, the rumour of increased imports of iodine preparations from Japan having tended to produce an unsettled feeling and to make buyers very cautious. It is hinted that an advance in price of caffeine is not improbable, in that present prices cannot, it is said, be remunerative to the makers. Salicine is very firm at the late advance. The following are the prices actually ruling for articles of chief interest.

ACID CARBOLIC—Remains very firm, with practically no change from the prices quoted last week, it being stated that the demand from the Picric Acid makers (for purpose of manufacture of Lyddite) continues to swallow up all that the makers are able to offer. Crude 60°F ., 2s. 3d. per gallon; 75°F ., 3s.; liquid, 95-98 per cent., of pale straw colour, 1s. 8d. per gallon; ditto, dark, 25-30 per cent., 11d. to 1s. 1d. (according to quantity), in 40-gallon casks.

ACID CITRIC.—Makers refuse now to sell, while there are few sellers from second-hand at 1s. 5d. per lb., with buyers at 1s. $4\frac{1}{2}$ d.

ACID TARTARIC—Remains steady at unchanged price.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. Carbonate, $3\frac{1}{2}$ d. to $4\frac{1}{2}$ d. per lb., according to make, quantity, and

packing. Muriate: Chemically pure, small crystals, 33s. to 36s. per cwt.; ditto commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac: Firsts, 40s. per cwt.; seconds, 38s.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate weak: Gray, 24 per cent., London prompt, £11 15s.; Hull prompt, £11 12s. 6d.; Leith prompt, £11 15s.; Beckton prompt, £11 16s. 3d.; Beckton terms prompt, £11 12s. 6d. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

BLEACHING POWDER (CHLORIDE OF LIME)—Is rather dearer at £6 15s. to £7 per ton for English.

BORAX AND BORACIC ACID—Are unchanged in value.

CAMPHOR.—No change to report.

CASTOR OIL—Very firm. Belgian first pressing, spot, £29 10s.; January-June, £28 10s., f.o.b.; Antwerp second pressing, spot, £27 10s. per ton, ex wharf. Hull manufactured: Guaranteed cold drawn pure pharmaceutical, £31 15s. per ton in barrels, $3\frac{1}{4}$ d. per lb. in cases; pure firsts, £29 5s.; seconds, £28 5s. per ton in barrels; firsts, $3\frac{7}{8}$ d. per lb. in cases; seconds, $3\frac{5}{8}$ d., ex wharf London.

CLOVES.—At auction 102 bales out of 246 of Zanzibar sold at full rates, good fair at $3\frac{3}{4}$ d. Penang dull of sale, and 12 cases were bought in. Privately Zanzibar continues in good demand, and fair business has been done for delivery at full rates, including March-May at $3\frac{3}{4}$ d. and June-August $3\frac{3}{4}$ d.; January-March sellers at $3\frac{3}{4}$ d. Stems: 200 bales Zanzibar bought in at auction at $1\frac{3}{4}$ d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon; pure, 2s. Benzole, 50 per cent., $10\frac{1}{2}$ d. per gallon; 90 per cent., 8d. Creosote, 3d. per gallon. Crude Naphtha, 30 per cent. at 120°C ., $5\frac{1}{2}$ d. per gallon. Solvent Naphtha, 95 per cent. at 160°C ., 1s. 7d.; 90 per cent. at 160°C ., 1s. 4d.; 90 per cent. at 190°C ., 1s. 3d. per gallon. Anthracene, A, $3\frac{3}{4}$ d. per unit; B, $2\frac{3}{4}$ d. per unit. Pitch, 35s. 6d. per ton. Tar, refined and crude, 12s. 6d. per barrel; $2\frac{1}{4}$ d. per gallon.

COCAINE.—Somewhat to the general astonishment, not to say disappointment, of holders of the article, the makers again reduced their prices at the end of last week 1s. 6d. per oz., making the price of the Hydrochlorate 16s. 3d. per oz. for 200-oz. lots in bulk packing and 16s. 6d. per oz. for 100-oz. lots. There is now a rumour that the move is after all considered to lack justification, and that the makers are thinking of putting their heads together with a view of advancing the price again. Whatever steps they may however now take, they will find it difficult to re-establish confidence in the future stability of the price of the article. There are now practically no sellers from second hand below makers' present prices.

CODEINE—Very firm at 13s. to 13s. 6d. per oz. according to quantity for the pure.

CREAM OF TARTAR—Is unchanged.

GALLS.—China are quoted, to arrive, 64s. per cwt., c.f.i., and Japan 61s.

GINGER.—At auction the moderate supply of Cochin went off slowly. A small parcel of new crop sold at full rates, other kinds steady. Out of 877 bags and 26 cases offered 114 packages sold, medium, little bold, roughly cut and scraped, without reserve, at 51s.; Calicut, rough, medium, plump, rather mouldy and wormy, at 35s.; washed, rough, new crop, medium, and small plump, part mouldy, at 32s.

MERCURIALS—Are firm at unchanged prices.

MORPHINE—Is very steady at 5s. to 5s. 3d. per oz., according to quantity, for the Hydrochlorate powder.

OILS (FIXED) AND SPIRITS.—Linseed firm: on the spot, pipes, London, £23 12s. 6d. to £23 15s.; barrels, £23 15s.; February-April, £23 10s.; May-August, £22 15s.; Hull, spot, naked, £22 10s. Rape steady: ordinary brown, on the spot, quoted £25 10s.; refined spot, £26 15s.; Ravison, naked, spot, £23 5s. to £23 10s. Cotton firm: London crude spot, £21 10s.; refined spot, £23 5s. to £24 5s., according to make; Hull naked refined spot, £21 5s.; crude spot, £20. Olive: Mogador, £34 15s.; Spanish, £36 10s.; Levant, £34 15s. Coconut: Ceylon on spot, £26; Cochin spot, £29. Palm: Lagos on spot quoted £27. Lubricating: Pale American spot, 8s. to 9s. 6d.; black, 7s. to 9s.; Russian black, 6s. to 6s. 6d.; pale, 8s. to 9s. 6d. Petroleum oil: Russian spot quoted $6\frac{1}{8}$ d. to $6\frac{1}{2}$ d.; American spot $7\frac{1}{8}$ d. to $7\frac{1}{2}$ d.; water white, $8\frac{3}{8}$ d. Petroleum Spirit: American, $9\frac{3}{4}$ d.; deodorised, 10d. Turpentine easier: American spot, 39s. 3d.

OPIUM.—The market for this drug has been very quiet, prices for all kinds being nominally unchanged.

PHENACETIN—Has at last commenced to move. A day or two ago the Bayer Co. advanced their price 2s. per lb. for both crystals

and powder, while to-day it is reported that the other makers have decided upon an advance of 1s. 9d. per lb., making their price for both crystals and powder, therefore, 5s. 3d. per lb. for 5 cwt. lots. Absolute official confirmation of this latter advance has not yet been received. It is, however, nearly certainly correct.

POTASH COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4½d. to 4¾d. per lb. Bromide, 1s. 10½d. Chlorate, spot, London, crystals, 3¾d.; powder, 3½d. Iodide, 10s. 6d. per lb. Permanganate, small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English make, 7¾d.; Beckton, 7½d.; red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER—Steady at £9 12s. 6d. per bottle from the importer.

QUININE.—The market has been firmer yesterday and to-day in consequence of the report that the shipments of Bark from Java for the month do not much exceed 600,000 lbs. Makers' prices for the Sulphate remain nominally unchanged, while in the speculative market there are buyers of the favourite B&S and/or Brunswick brands at 1s. 5¾d. for March, and 1s. 5½d. per oz. for May delivery. It looks as if we were on the eve of another boom in the article.

SHELLAC.—Market continues extremely quiet, price being rather weaker at 62s. 6d. per cwt. for T.N. for March delivery.

SODA COMPOUNDS.—Crystals, barrels quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 3¾d. per lb. Bicarbonate, landed, £7 5s. Bromide, 2s. 1½d. Caustic, 70 per cent., white, £10 15s. to £11; 60 per cent., £1 less. Hyposulphate (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate quiet, on spot, refined, £8 10s.; ordinary, £8 5s.

SPICES (VARIOUS).—Black Pepper: At auction the limited supplies were all bought in, comprising 227 bags Singapore and 117 bags Tellicherry, fair at 6¼d. White Pepper quiet: 426 bags and 37 cases Singapore were all bought in, including fine bold selected in cases at 1s. 1½d., and fair to good fair at 9¼d. to 9¾d. Chillies firm and of 94 bales Zanzibar 69 bales sold, fair stalky at 42s.; the remainder bought in at 50s. Capsicums firm: 27 bundles sold out of the 177 packages of Bofbay, good bright long on stalks at 39s. 6d. Pimento in small supply chiefly sold in small lots, greyish at 3¼d. to 3½d. Cassia Ligna: 8 cases offered and sold, without reserve, new selected at 41s. Cassia Vera: 40 bales offered and bought in, coarse Padang Quills at 30s. Cinnamon slow: 66 bales Wild were bought in. Cinnamon Chips and Bark in little demand, and 481 packages all bought in or withdrawn. Nutmegs neglected: 25 cases Penang in auction were bought in, including 90's at 1s. 4d., and 110's at 1s. 1d. West Indian: 7 barrels sold, 131's at 8½d., 163's wormy and broken at 4½d. Mace rather firmer: of 34 packages Penang in auction only 2 cases sold, good pale and reddish, part wormy, at 1s. 10d.; 13 cases Bombay offered and 11 sold, pale and reddish, rather broken and wormy, at 1s. 5d.; Bombay Wild: 6 packages were bought in. West Indian: 3 packages sold, ordinary red at 1s. 5d. Coriander Seed: 159 bags Morocco were bought in.

SULPHONAL.—The makers all now quote 20s. 6d. per lb. for Powder and Crystals in bulk, with a reduction of 6d. per lb. on 10-lb. orders.

THURSDAY'S DRUG SALES.

To-day's drug auctions passed off somewhat quietly, the number of catalogues, as also of the lots offered, being restricted. Senna sold readily. Ipecacuanha was disposed of at prices which show a further decline in value. The following are the particulars:—

ALOES.—6 cases East India, in skins, were taken out at 45s. per cwt.; other 10 cases fair Zanzibar were bought in at 60s.

ANATTO SEEDS.—18 bags bought in at 3½d. per lb.; other 18 bags sold cheaply at 2d. per lb.

ARECA NUTS.—80 bags, part somewhat wormy, were all bought in, only 12s. per cwt. being bid; other 16 bags sound sold at 17s. 6d. per cwt.; other 21 bags realised only 15s. 6d. per cwt.

BALSAM PERU.—6 cases part sold at 6s. 6d. per lb., balance being bought in at 7s.

CANELLA ALBA.—13 bales were bought in at 45s. per cwt.

CARDAMOMS.—43 cases Ceylon sold readily at 3s. 10d. down to 1s. 9d. per lb. 4 cases seeds realised 2s. 2d. to 2s. 5d. per lb. 2 cases wild, catalogued as long Ceylon, were bought in, only 2s. 10d. per lb. being bid. Other 20 cases sold at 3s. 10d. down to 2s. 3d. per lb., 1 case wild fetching 3s. 8d. per lb. Other 33 cases part sold at 2s. 7d. to 3s. 2d. per lb., according to size.

CASTOR OIL.—20 cases catalogued as finest Italian were bought in at 28s. per cwt.

CINCHONA BARK.—62 Serons Crown Bark sold at 1s. per lb. sold to 6½d. for ICWD.

COCA LEAVES.—Of 5 bags, only 1 bag sold at 7d. per lb.

COD LIVER OIL.—25 barrels non-freezing Norwegian were taken out at 70s. per barrel.

CUMMIN SEED.—54 bags were all bought in at 25s. per cwt.

DRAGONS' BLOOD.—4 cases of dull powder were bought in at 65s. per cwt.; 15 cases fair to good reeds, part sold at 610; balance being bought in at £10 10s.

ERGOT OF RYE.—19 bags fair Russian were all bought in at 3s. 3d. to 3s. 6d. per lb.

ESSENTIAL OILS.—4 drums Citronella were bought in at 1s. 1d. per lb. 5 cases Portuguese Eucalyptus Oil at 2s. 5 cases West Indian Oil of Limes part sold at 3s. 2d. per lb. 1 case containing 12 bottles of hand-pressed oil realising 7s. 1d. per lb. 17 cases Japan Peppermint (Kobayashi brand) held for 3s. 10½d. per lb. 9 cases Oil Nutmeg for 2d. per oz. 3 cases Lemongrass for 4d. per oz. 1 case Dodge and Olcott's Oil of Wintergreen bought in at 12s. per lb.

GOLOCYNTH.—12 casks Turkish part sold at 1s. 5d. for good medium apple, 2 cases broken selling at 1s. to 1s. 1d. per lb. Other 10 cases were all bought in at 1s. 7d. per lb. for fair apple.

GAMBOGE.—Of 40 cases part sold at £4 12s. to £6 12s. 6d., fair to good bright lump being bought in at £7 10s. to £9 per cwt.

GUAZA (HERBA CANNABIS INDICA).—50 robbins were bought in at 6d. to 8d. per lb., and 18 bales siftings at 4½d. per lb.

GUM BENZOIN.—Good to fine Sumatra seconds sold freely at £8 10s. to £9 5s. per cwt., down to £7 5s. to £7 10s. for medium. 54 cases Palembang sold readily at 67s. 6d. to 70s. per cwt.

GUM MYRRH.—18 packages all sold at 92s. 6d. per cwt. for good pickings down to 50s. for siftings, 5 bags inferior dark lump fetching only 17s. 6d. per cwt.

GUM SANDRAC.—10 casks were taken out at 57s. 6d. per cwt.

HONEY.—5 barrels good Jamaica realised 30s. per cwt. 22 cases Canadian were bought in at 42s.

IPECACUANHA.—2 bags Carthagenia were bought in at 8s. per cwt. 15 bales Rio part sold at 10s. 8d. for 1 CCD down to 10s. 5d. for 2 CCD, better quality being taken out at 12s. to 12s. 3d. per lb. for sound and 11s. 9d. for 2 CCD. Other 30 bales Rio sold at 9s. 9d. to 11s. per lb., 14 bags Carthagenia catalogued having been sold prior to the auctions. Other 8 bags and 5 cases fair Carthagenia all bought in at 8s. per lb.

JALAP.—10 bales were bought in at 7d. per lb.

LIME JUICE.—21 packages West Indian were bought in nominally at the high price of 3s. 4d. per gallon.

ORANGE PEEL.—3 cases inferior thin cut were bought in at 4d. to 5d.; other 24 cases good thin cut all taken out at 9d. to 1s. per lb.

MENTHOL.—25 cases each 12 × 5lb. tins, Kobayashi brand, were bought in at 10s. 6d. per lb.; somewhat less would, however, probably have been accepted.

ORRIS ROOT.—4 casks good Florentine were bought in at 55s. per cwt., other 17 bales of fair quality at 53s., 2 barrels powder sold after somewhat keen competition at 33s. 6d. per cwt.

QUININE.—3 cases containing 10 × 100 oz. tins Sulphate, Taillandier brand, were bought in at 1s. 5d. per oz., it being intimated that 1s. 4½d. per oz. was the price which would be accepted.

RHUBARB.—Medium to fairly bold but somewhat spongy flat Canton sold without reserve at 9d. to 9¼d. per lb.; fine but rather dull-coated round Shensi was taken out at 2s.; bright, high-dried, small to bold, at 10d. per lb.

SARSAPARILLA.—50 bales Jamaica sold at 1s. 6d. for sound, 1s. 4d. to 1s. 5d. for 1 CCD, 1s. 3d. to 1s. 4d. for 1 CSD, 11½d. for 2 CSD, 9d. for 3 CSD, and 5d. to 6½d. for 4 CSD. 8 bales Lima sold at 11d. per lb. for 1 CCD and 10d. for 2 CCD.

SENNA.—37 bags low Tinnivelly bought in at 2d. per lb. Other 623 bales all sold readily at 1d. for low inferior up to 3½d. per lb., according to quality and condition. Other 38 bales part sold as high as 4d. per lb. for large leaf somewhat off colour.

WAX.—20 cases bleached Calcutta bought in at £7 10s. per cwt. 13 packages fair Jamaica part sold at £7 5s. 30 packages Zanzibar sold at £6 17s. 6d. to £7 for good, and at £6 10s. for medium, while for 5 cases of lower quality £5 17s. 6d. per cwt. was accepted, subject to holders' approval. 7 pockets Nyassaland wax fetched £6 15s. per cwt. 70 cases China sold at £6 7s. 6d. to £6 10s. 15 cases Madagascar at £7 2s. 6d. 80 cases fair Japan realised 32s. 6d. per cwt.

Calendar for the Week.

- Sunday, Feb. 4.** 5th after Epiphany. Sun rises 7.37; sets 4.52.
- Monday, Feb. 5.** Sun rises 7.35; sets 4.54.
- SOCIETY OF CHEMICAL INDUSTRY, Burlington House, Piccadilly, W., at 8 p.m.—Dr. W. S. Squire on "Recent Objections urged against the Adoption of the Metric System," and H. R. Le Sueur on "Oil of Carthamus Tinctorius (Safflower Oil)."
- Tuesday, Feb. 6.** ☽ 4.23A. Sun rises 7.34; sets 4.56.
- ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, W.C., at 8 p.m.—Mrs. Catherine Weed Ward on "Shakespeare at Home."
- Wednesday, Feb. 7.** Sun rises 7.32; sets 4.58.
- PHARMACEUTICAL SOCIETY, 17, Bloomsbury Square, London, W.C., at 11 a.m.—Meeting of the Council.
- BRITISH PHARMACEUTICAL CONFERENCE, 16, Bloomsbury Square, London, W.C., at 4.30 p.m.—Executive Meeting.
- JUNIOR PHARMACY BALL, Portman Rooms, Baker Street, W.—Tickets may be obtained of the Hon. Secretary, R. L. Cassie, 49, Newgate Street, E.C.
- EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION, 36, York Place, at 9.15 p.m.—Papers on "Murcia Lemons," by Miss Flora C. Madgshon, and "Serums" by Harry Smith.
- PLYMOUTH, DEVONPORT, STONEHOUSE AND DISTRICT CHEMISTS' ASSOCIATION, Forester's Hall, The Octagon, Union Street, at 8 p.m.—Lecture on "Bacteriology," by C. G. Moot.
- Thursday, Feb. 8.** Sun rises 7.31; sets 5.0.
- CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8.30 p.m.—Victor Meyer Memorial Lecture, by Professor T. E. Thorpe.
- CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Paper on "Quinine," by H. A. Martin.
- Friday, Feb. 9.** Sun rises 7.29; sets 5.1.
- GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION, Masonic Chambers, West Regent Street, at 9.15 p.m.—Play and Pleasure.
- ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—Professor J. Reynolds Green on "Symbiosis and Symbiotic Fermentation."
- Saturday, Feb. 10.** Sun rises 7.27; sets 5.3.
- INTER-PHARMACY FOOTBALL LEAGUE.—The following matches will be played:—Square v. London College at Wormholt Farm; Muter's College v. Westminster. Referees supplied by Metropolitan College and the Square, respectively.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; as Maw's.—Warnes, 333, Gray's Inn Rd., W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Offers wanted *Chemist and Druggist*, 1880 to 1885 complete, 1886, 1887, 1891, 1895, 1898, 1899, several numbers short; 2 doz. 1s. 6d. Welch's grape-juice; 5 doz. 6d. Zomela soap; 20 doz. 3d. Acme metal-polish.—Lees, Drug Stores, Stalybridge.

Surplus Stock.—Enterprise screw press, good as new, 10/-; 2 gall. pear-shaped carboy on black pedestal, 5/9, packed; 6 doz. Jameson's Arsenical soap, unsoiled, 5/6 per doz. tablets; 6 doz. Oppenheimer's Bland's Bipalatinoids, gross bottles, 24/- per doz.; just received as exchange order.—Mortimer, Mall Pharmacy, Clifton.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

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F. W. B., Manches er:—"Some time ago I had some of your excellent Carmine, and made a lot of Tooth Paste, which pleased me very much."

J. J. G., Folkestone:—"I have tried your Carmine, and made some Liquid Cochineal according to your formula, which turned out an excellent preparation."

D. R., Swansea:—"I made some Liq. Cocci some time since from your Carmine according to formula enclosed. It was a capital production."

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TRADE NOTES.

THE "ABSENT-MINDED BEGGAR."—Messrs. Ayrton and Saunders, of Liverpool, forward us a specimen of Mr. Rudyard Kipling's poem, printed in miniature type, and given away with each bottle of the "British Empire Perfume," which we noticed last week.

JUBILEE FETE AT LIEBIG'S FACTORY.—A very interesting fête and ceremony took place at Liebig's factory at Fray Bentos, on November 7 last, when silver medals were distributed to the employees who had been in the company's service for twenty-five years or over. The recipients numbered fifty-nine, including the works manager, the office manager, the ferry boat manager and the chief engineer. The medals bear on the face a portrait of



Justus von Liebig, and on the reverse side the name of the recipient, etc. The ceremony was accompanied by a rural banquet, at which all the employees were present, and an extra month's pay, to the amount of some 4,000 dols., was distributed amongst them.

The medals were distributed by the manager of the factory, Mr. Otto Gunther, Mr. W. Bertram, Chairman of the Local Board, presiding.

Notices to Correspondents.

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Balchin, Blyth, Breeze, Burns, Chapman, Coleman, Davis, Hill, Hobson, Mair, Merson, Metcalfe, Miller, Paterson, Pickering, Ridyard, Smith, Taylor, Thomas, Triana, Wamsley, Yates, Yoxall.

NEWS IN BRIEF.

MR. REGINALD MACLEOD, C.B., has been appointed Registrar-General in the place of Sir Brydges Henniker, retired.

THE UNITED ALKALI COMPANY has purchased the Wilmboldsley estate of Sir Joseph Verdin.

THE CITY IMPERIAL VOLUNTEERS had their clothing marked with John Bond's "Crystal Palace" Marking Ink.

THE HISTORY OF MATERIA MEDICA will be the subject of a paper to be read before the Liverpool Pharmaceutical Students' Society, on Friday next, February 16, by Dr. J. B. Nevins.

TRADE MATTERS are to be discussed by members of the Bradford and District Chemists' Association, at a meeting held in the County Restaurant on February 13.

THE SPECIAL ISSUE of the *Pharmaceutical Journal*, to be published on February 24, will be sent to more than seventeen thousand persons, including everyone whose name appears on the Register of Chemists and Druggists.

MR. GEORGE SQUIRE will deal with "Pharmaceutical Topics" in a paper to be read before the Sheffield Pharmaceutical and Chemical Society, on Wednesday, February 14, the day following the Sheffield Chemists' Ball.

THE CHEMICAL TRADE is reported never to have been more prosperous than at present, so much so that Messrs. Brunner, Mond and Co., Ltd., are stated to have decided to double the caustic plant at their Winnington Works, near Northwich.

MR. JOHN TAYLOR, of Bolton, is to address the members of the Manchester Pharmaceutical Association on "The Outlook in Pharmacy," at a meeting to be held in the Chemical Club Rooms, Victoria Hotel, on Wednesday next, February 14.

AN EVENING MEETING of the Pharmaceutical Society will be held at 17, Bloomsbury Square, W.C., on Tuesday next, February 13, when Mr. Edmund White will contribute a paper on "Aromatic Spirit of Ammonia." The chair will be taken by the President at 8 o'clock.

OLD "SQUARE" STUDENTS are reminded that the School of Pharmacy Annual Dinner will take place on Wednesday, February 21, in the Caledonian Salon, Holborn Restaurant. Tickets may be obtained from the Hon. Secretaries of the Dinner Committee, Mr. E. M. Chapman and Mr. J. Lawson.

SALE OF CAMPHORATED OIL—AN APPEAL CASE.—In the Queen's Bench Division of the High Court on Wednesday, February 7, before Mr. Justice Channell and Mr. Justice Bucknill, an appeal was heard against the decision of the Warminster magistrates in a Food and Drugs Act case, *re* the sale of camphorated oil (see last volume, page 480c). Briefly, the facts were that the oil in question was alleged to contain only 8 per cent. of camphor, but it was contended by the defendants, Messrs. John Walton and Co., Ltd., grocers, of Marden, Bradley, and Mere, Wilts, that inasmuch as camphorated oil is a compounded drug, the summons was issued under the wrong section—section 6. The magistrates accepted that view and the case was dismissed. It was now contended that the summons should have been issued under section 7, whereas the appellants argued that proceedings could be taken under either section 6 or section 7.—Mr. Justice Channell, in giving judgment, said he thought the effects of the sections was that nothing shall be an offence under section 6 in reference to compounded drugs, unless it was also an offence under section 7, which more specifically defined that offence. The appeal was allowed, with costs, and the case remitted for further consideration.

Marriage.

FRASER—THOMSON.—At Roslyn, Craw Road, Paisley, on the 6th inst., by the Rev. Walter Mursell Thomas Coats, Memorial Church, Alexander Fraser, chemist and druggist, to Ellen Wilson, youngest daughter of Andrew Thomson.

TRADE NOTES.

REFILLING OF SYPHONS.—Some retailers of mineral waters appear to be under an impression that a retailer is not liable for damages in the case of siphons improperly bearing the trademark and name of a manufacturer, and refilled with another manufacturer's product. Messrs. Jewsbury and Brown, of Ardwick Green, Manchester, call attention in our advertisement columns to a case where they have succeeded in obtaining from both fillers and retailers an apology, with costs of advertising same, etc., etc., and an undertaking not to infringe again.

THE "ALLENBURYS" MILK PASTEURISER (patented) is a recent introduction of Messrs. Allen and Hanburys, Limited, London. It has been devised by Dr. Hewlett for the sterilisation or pasteurisation of milk, and is at once efficient, simple, inexpensive, and thoroughly adapted to popular requirements. The process of pasteurisation consists in heating the milk to a temperature of 150° F. and retaining it at that temperature for about twenty minutes. A lower temperature would not with certainty kill the disease-germs; a higher temperature alters the quality of the milk. The "Allenburys" milk pasteuriser has been devised to carry out this somewhat delicate process with certainty and without the use of a thermometer or any complicated apparatus. It is of the simplest construction and cannot get out of order. The price complete is 6s. 6d.; japanned, 7s. 6d.

THE NEW UNIVERSAL ADJUSTABLE SPLINT (R. Hoppe's Patent) is manufactured for Great Britain and Ireland solely by Messrs. Allen and Hanburys, Limited. It consists of a jointed rod, to which are fixed adjustable aluminium plates. The joints of the rod can be locked at any angle, and the aluminium plates can be set and clamped at any required position on the rod. The splint is made in two sizes, suitable for adults and children, and is capable of adaptation to either arm or leg, and can be placed anteriorly or posteriorly, on the inside or on the outside. Being made of aluminium, it is as light as a wooden splint, and possesses a great advantage over other splints in that it can be adapted to the exact requirements of the injured limb instead of the limb having to be adapted to the somewhat arbitrary requirements of the splint. The price of the splint is 15s.

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

William Thomas Nichols and Johann Gottfried Schütte, Manufacturers of Artificial Musk, 11, Idol Lane, London. Debts will be received and paid by J. G. Schütte.

Edward Sanger Shepherd, William Saville Kent, and Robert Lincoln Cocks, Manufacturers of Instruments and Apparatus for Colour Photography and Photo-Mechanical Processes, etc., 5, 6, 7, Gray's Inn Passage, Red Lion Street, Holborn. Debts will be received and paid by E. S. Shepherd and R. L. Cocks, who will carry on the business under the style of Sanger, Shepherd, and Co.

Samuel Farrant and Wadham Bruce Winckworth, Surgeons and Apothecaries, Taunton, Somerset.

Charles Butler Stiles and John Reginald Fuller, Medical Practitioners, Hornsey. Debts will be received by either partner, and paid by J. R. Fuller.

Thomas John Paice and Frederick William Stephens, trading as the Crystalline Chemical Company, 69 and 70, Mark Lane London, E.C.

Alfred William Gerrard and Charles William Birch, trading under the style of Swann and Co., Chemists, Druggists, and Mineral Water Manufacturers, Staines, Middlesex. Debts will be received and paid by C. W. Birch.

William Lander and William Edward Jolliffe, Photographers, Regent's Parade, Station Road, Shanklin, Isle of Wight. Debts will be received and paid by W. Lander.

Arthur Edgley, Charles and Alfred Sargeant, trading as the Wembley Fruit Essence Company, Watford. Assets will be the sole property of A. Sargeant.

RECEIVING ORDER IN BANKRUPTCY.

James Stevens, Photographer, 1, Lower Park Street, and Victoria Studio, Holyhead, Anglesey.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, FEBRUARY 7, 1900.

Since last report a little more has been done in linseed at full prices with a rising market, but canaryseed continues slow of sale. High figures rule generally for oils, with advances in olive for shipment, and a continued firm tone in spirits of turpentine and cottonseed and linseed oils. Chemicals are very strong generally, with better rates and improved demand.

AMMONIA SALTS.—Carbonate, $3\frac{1}{2}$ d. per lb. Sal ammoniac is very firm at 38s. to 40s. per cwt. Sulphate is a turn easier, £11 15s. per ton.

BEEWAX.—7 tons Chilian sold at £7 5s. per cwt.

BLEACHING POWDER—Is firm at £6 12s. 6d. per ton.

COPPERAS—Is firm at 37s. and 39s. per ton.

COPPER SULPHATE—Is dull at £24 2s. 6d. to £24 5s. per ton.

OILS (FIXED) AND SPIRITS.—Castor is in good demand both for spot and future delivery. Calcutta, at $3\frac{1}{2}$ d. to $3\frac{3}{4}$ d. per lb.; French, first pressure, at $3\frac{1}{2}$ d. per lb.; second Belgian, at 3d.; second sulphur French, $2\frac{3}{4}$ d. 5 tons sold lately at this price. Olive is in limited demand, but for shipment prices show an inclination to advance. Malaga for shipment cost and freight is quoted at £34 10s. to £35 per tun. Spot price for Spanish oils £36 to £36 10s. Linseed, of Liverpool pressure, is very firm at 24s. 3d. to 25s. per cwt. Cottonseed: Liverpool refined is steady at 23s. 9d. to 24s. per cwt. Spirits of Turpentine are in moderate demand at 40s. 6d. per cwt.

POTASH SALTS.—Bichromate easier, $4\frac{1}{2}$ d. to $4\frac{3}{4}$ d. per lb. Chlorate dearer, $3\frac{1}{2}$ d. to $3\frac{3}{4}$ d. per lb. Cream of Tartar is unchanged, 74s. to 80s. per cwt. Pearlash is quiet at 33s. 6d. to 35s. per cwt. Potash in slow demand at 27s. per cwt. Prussiate is a shade firmer at 8d. per lb. Saltpetre, £21 10s. per ton.

LINSEED—Is exceedingly firm. Salcs of Turkish from store at 51s. per 416 lbs. have been effected, also of North American 25 tons at 47s. 6d. to 48s. River Plate has been offering at 43s. 3d. to 43s. 9d., and 400 tons have been sold for future delivery, 43s. 9d. for shipment during first half of this month, and 43s. 3d. in the latter half.

CANARYSEED—Is only nominal at 33s. 6d. to 34s. per 464 lbs. for Turkish.

SODA SALTS.—Bicarbonate £6 5s. to £6 15s. per ton. Borax continues firm at £16 to £16 10s. per ton. Caustic is very scarce and dearer, 76 to 77 per cent., £11 per ton; 70 per cent., £10 5s.; and 60 per cent., £9 5s. Crystals are firm at £3 5s. per ton. Nitrate is very firm, and only offered sparingly at 8s. 6d. to 8s. 9d. per cwt.

LONDON, THURSDAY, FEBRUARY 8, 1900.

Business in Drugs and Chemicals has not been especially active during the past week. Prices generally, however, remain decidedly firm, some having even still an upward tendency. Acid Carbollic continues very firm, while an advance in price of Salicylates and Salol would appear to be impending. Chlorate of Potash is dearer, as is also Refined Camphor, which in view of the continued advance in price of the crude is thought likely to go still higher. Quicksilver and Mercurials are steady. Bismuth Salts unchanged. Bromides firm. Iodides steady. Cod Liver Oil appears to be tending downwards. Glycerine rather firmer. Menthol lower. Cocaine unchanged. Citric Acid firmer. The following are the prices ruling for some articles of chief interest:—

ACETANILIDE.—There are still sellers at $9\frac{3}{4}$ d. to 11d. per lb., according to quantity and make.

ACID BORACIC—Steady at unchanged prices—viz., 25s. 6d. per cwt. for crystals and 27s. 6d. for powder.

ACID CARBOLIC—Remains very firm at $10\frac{3}{4}$ d. to 11d. per lb. for 34-35° ice crystal in bulk packing; 39-40° C. ice crystal, $11\frac{1}{2}$ d. to 1s.; and 39-40° C. detached crystals (the B.P. quality), 1s. $0\frac{1}{2}$ d. to 1s. 1d. per lb., according to make. Crude, 60° F., 2s. 9d. per

gallon; 75° F., 3s. 6d. per gallon. Liquid, 95-98 per cent. of pale straw colour, in 40-gallon casks, 1s. 7d. to 1s. 8d. per gallon; ditto, 25-30 per cent. of dark colour, $9\frac{1}{2}$ d. to 11d. per gallon.

ACID CITRIC—Very firm, makers' price being nominally 1s. 5d. per lb. for crystals in 5 cwt. casks, but they will only sell quite small quantity, and for prompt delivery at this or, in fact, at any price.

ACID OXALIC—Is quoted 3d. to $3\frac{1}{4}$ d. per lb. nett, free delivered London.

ACID TARTARIC—Unchanged at 1s. $0\frac{1}{2}$ d. to 1s. $0\frac{3}{4}$ d. per lb. for English on the spot, and $11\frac{3}{4}$ d. to 1s. for foreign.

AMMONIA COMPOUNDS.—Bromide, 2s. 2d. per lb. Carbonate, $3\frac{1}{2}$ d. to $4\frac{1}{2}$ d. per lb., according to make, quantity, and packing. Muriate: Chemically pure small crystals, 33s. to 36s. per cwt.; ditto commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac: First, 40s. per cwt.; seconds, 38s.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate strong and advancing. Gray, 24 per cent., London prompt, £11 17s. 6d. to £12; Hull prompt, £11 17s. 6d.; Leith prompt, £11 17s. 6d.; Beckton, February-April, £12; May-June, £11 17s. 6d.; Beckton, terms prompt, £11 17s. 6d. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY—Is quiet at £39 to £40 per ton for Regulus and £22 10s. to £23 per ton for crude Japan (black sulphide).

ARSENIC—Is firm. Prices remain, however, so far unchanged.

ASHES.—Pots, 28s. 6d.; Pearls, 34s.

ATROPINE—Firm at 15s. 6d. per oz. for the Sulphate B.P., and 17s. 10d. per oz. for the pure alkaloid.

BELLADONNA ROOT.—Really good root remains exceedingly scarce, while for fair quality 45s. per cwt. nett here is asked.

BISMUTH—Unchanged at 5s. per lb. for the commercial quality of the metal, 5s. 1d. per lb. for the subnitrate, and 5s. 8d. per lb. for the subcarbonate.

BLEACHING POWDER (CHLORIDE OF LIME)—Firm at £7 10s. per ton for English.

BORAX—Unchanged at 16s. 6d. per cwt. for crystals and 1s. per cwt. more for powder.

BROMIDES—Are firm but unchanged at 1s. $10\frac{1}{2}$ d. per lb. for Potassii Bromid, 2s. $1\frac{1}{2}$ d. per lb. for Sodii Bromid, 2s. 2d. per lb. for Ammon. Bromid, and 2s. and 2s. 2d. per lb. for Bromine in 60-lb. cases.

CAMPHOR.—Crude continues firm, and for arrival 300 piculs China have changed hands at 163s. 6d. to 164s. per cwt., c.i.f., for February-March and March-April shipment. For Japan importers continue to quote extreme prices, which has tended to check business. Refined is again dearer, English makers having advanced their price on Monday last 1d. per lb., to 2s. 1d. per lb. for Bell's and Flowers in ton lots, price of tablets being also higher in proportion.

CASTOR OIL—Very firm. Belgian, first pressings, spot, £30 10s.; Feb.-June, £30, f.o.b. Antwerp; second pressing, spot, £28 10s. per ton, ex wharf. Hull manufactured, guaranteed cold-drawn pure pharmaceutical, £32 per ton, in barrels; $3\frac{1}{2}$ d. per lb. in cases; pure firsts, £29 10s.; seconds, £28 10s. per ton, in barrels; firsts, $3\frac{7}{8}$ d. per lb. in cases; seconds, $3\frac{5}{8}$ d. per lb., ex-wharf, London.

CLOVES.—No Zanzibar or Penang were offered in auction. Privately, activity has prevailed for Zanzibar, resulting in large sales at higher rates, including March-May delivery at $3\frac{3}{8}$ d. to $3\frac{31}{32}$ d., and June-August at 4d. to 4 $1\frac{32}{32}$ d. Stems: At auction 100 bales Zanzibar were offered and bought in at $1\frac{7}{8}$ d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 2d. to 1s. 3d. per gallon; pure, 2s. Benzole rather easier at $9\frac{1}{2}$ d. per gallon for 50 per cent. for prompt delivery; and $7\frac{1}{2}$ d. for 90 per cent. Creosote, 3d. per gallon. Crude Naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 4d.; 90 per cent. at 190° C., 1s. 3d. Anthracene, A., $3\frac{3}{4}$ d. per unit; B., $2\frac{3}{4}$ d. Pitch, 36s. per ton f.o.b. Tar, refined and crude, 13s. per barrel, $2\frac{1}{2}$ d. per gallon.

COCAINE—Rather firmer at unchanged price, say 16s. 3d. per oz. for the Hydrochlorate in 25-oz. tins for 200-oz. lots, the pure being quoted 2s. 6d. per oz. more. From second-hand there is now practically nothing offering at below makers' price.

CODEINE—Very firm at 13s. 1d. to 13s. 6d. per oz., according to quantity for the pure and 1s. per oz. less for the Muriate, Phosphate, and Sulphate Salts.

COD LIVER OIL—Appears to be on the down grade; agents are seeking orders and quote 65s. to 75s. per barrel, according to brand, etc., for best new non-congealing Norwegian Oil in 25-gallon tinned barrels.

CREAM OF TARTAR—First White Crystals are quoted 73s. per cwt. on the spot; powder, 75s.; ditto 95 per cent., 76s. per cwt.

ERGOT OF RYE—3s. to 3s. 3d. per lb. is asked for good sound Russian, and as much as 3s. 6d. per lb. for fair Spanish.

GALLS—Are without alteration, and few sales in any description are reported. China to arrive quoted 65s., and Japan 61s. c.f. and i.

GINGER—At auction the small supply of Cochin was in small demand, and only a small quantity sold at steady rates. Of 311 bags and 53 cases offered, only 69 packages sold, partly without reserve, good cut B.'s at 60s., medium and small, rather roughly cut and scraped, at 54s. to 55s.; new crop washed, rough, medium, and small plump, slightly mouldy, at 32s. Japan: 611 bags at auction were all bought in, including fair limes at 25s.

GLYCERIN—Crude remains firm, while rather higher prices are quoted for refined, say, 56s. to 57s. 6d. for English and 58s. to 65s. for German, according to brand, for best white, chemically pure, double distilled 1260° quality, in tins and cases.

IODIDES—Continue fairly steady at 10s. 6d. per lb. for Potassii Iodid., 11s. 10d. per lb. for Sodii Iodid., 13s. 10d. per lb. for Ammon. Iodid., 13s. 10d. per lb. for Iodoform crystals, powder, and precipitated, 12s. per lb. for resublimed Iodine, and 7½d. per oz. for Crude Iodine.

MENTHOL—Is rather weaker, there being sellers of Kobayashi brand on the spot at 10s. per lb. in case lots (12 tins each 5lb. in a case).

MERCURIALS—Are firm at 3s. 2d. per lb. for calomel and 2s. 10d. per lb. for corrosive sublimate.

MORPHINE—Remains very firm at 5s. to 5s. 3d. per oz., according to quantity, for the Hydrochlorate Powder, Crystals costing 2d. per oz. more money.

OILS (FIXED) AND SPIRITS—Linseed firmer; on the spot, pipes, London, £23 15s.; barrels, £23 17s. 6d. Hull, spot, naked, £22 15s. Rape very firm; ordinary brown, on spot, quoted £25 10s. to £25 15s.; refined, spot, £27 to £27 5s. Ravison, naked, spot, £23 10s. Cotton firm; London, crude, spot, £22; refined, spot, £23 15s. to £24 5s., according to make; Hull, naked, refined, spot, £22 paid; crude, spot, £21. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut in better demand and dearer for shipment. Ceylon, on spot, £25 10s.; Cochin, spot, £28 10s. Palm: Lagos, on spot, quoted £27 10s. Lubricating: Pale American, spot, 8s. to 9s. 6d.; black, 7s. to 9s.; Russian black, 6s. to 6s. 6d.; pale, 8s. to 9s. 6d. Petroleum oil steadier inclined; Russian spot quoted 6½d. to 6¼d.; American, spot, 7½d. to 7¾d.; water white, 8¼d. to 8½d. Petroleum Spirit: American, 9¾d.; Deodorised, 10d. Turpentine further advanced; American, spot, 39s. 9d. to 40s.; March-May, 40s.; May, 39s. 3d. to 39s. 6d.

OPIUM—Market is firm at nominally unchanged prices, there being no business of any particular importance passing in the article.

PARAFFIN WAX—Unchanged at 2¾d. to 3d. per lb. for crude, and 3¼d. to 4d. for refined.

PHENACETIN—Makers quote 5s. 3d. per lb. for crystals and powder in 5-cwt. lots. There are, however, sellers from second-hand at something below these figures. Bayer's make is held for a fancy price, say, 8s. to 9s. 6d. per lb., according to quantity and packing.

PITCH—8s. 6d.

POTASH COMPOUNDS—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate, spot, London, crystals and powder, 4d. to 4½d. nett. Iodide 10s. 6d. per lb. Permanganate: Small crystals quoted, 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate: Yellow, English make, 7¾d.; Beckton, 7½d.; red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER—Steady at £9 12s. 6d. per bottle from the importer and 6d. less from second-hand.

QUININE—After the small shipments of bark from Java for last month comes the report that not only will the quantity of bark to be offered at next auctions in Amsterdam be small, but also that the Quinine contents of same will be low. In consequence, the market has hardened perceptibly, there being buyers of B&S and/or

Brunswick at 1s. 5½d. per oz. for spot and March, 1s. 5¾d. for May, and 1s. 5¾d. to 1s. 6d. per oz. for July delivery.

ROSIN—Strained, spot, 5s. 3d., ex-wharf. For shipment, 4s. 10½d., March-May and April-June sailer.

SALICINE—Remains very firm at late advance to 5s. 6d. per lb.

SALICYLATES—It is rumoured that an advance is impending in these, as also in Salol; meanwhile, prices remain nominally unchanged, but makers decline to book fresh orders; buyers even experience considerable difficulty in obtaining delivery against existing contracts.

SANTONINE—Makers still quote 11s. 3d. to 11s. 9d. per lb., according to quantity.

SHELLAC—The market remains quiet, and business privately on the spot is of a retail character, but prices are fully steady. For arrival no sales have transpired in TN Orange and quotations are unaltered, but a good business is said to have been done in AC Garnet for March-May shipment at 60s. c.f. and i. For March delivery 100 cases TN Orange have been sold at 63s. per cwt., which shows a slight advance in value. The supplies at auction to-day were moderate and much less than originally advertised. Second Orange met a fair demand at steady last sales' rates to rather better, fair TN selling on a basis of 62s. No Garnet was offered. The small quantity of Button partly sold at about previous prices. A total of 711 cases offered and about 500 cases sold at and since the sale. Second Orange: Of 627 cases about 450 sold, partly without reserve, fair bright free TN at 62s., ditto rather broken at 61s. to 62s., fair reddish at 61s., broken ditto at 60s., strong curly livery at 58s. to 59s., good cakey TN at 60s., blocky red at 59s. to 59s. 6d. Button: Of 84 cases 27 sold, partly without reserve, broken palish at 67s., fair seconds at 60s. to 62s.

SODA COMPOUNDS—Crystals, barrels quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 3¾d. per lb. Bicarbonate landed, £7 5s. Bromide, 2s. 1½d. Caustic, 70 per cent. white, £10 15s. to £11; 60 per cent., £1 less. Hyposulphite (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate quiet on spot; refined, £8 10s.; ordinary, £8 5s.

SPICES (VARIOUS)—Pepper (black): At auction no Singapore was catalogued. 63 bags Aleppy sold, grayish stalky, rather dusty, at 6d. 12 bags fair Ceylon sold at 6½d. White Pepper firmly held. Of 110 bags and 20 cases Singapore in auction only 38 packages sold; good bold, at 10½d. to 11d. No Penang offered. Chillies firm. 20 bags fine bright Japan bought in at 60s. Pimento firm. 302 bags sold at 3¼d. to 3¾d. for middling to fair. Cinnamon: At auction 23 bales Wild sold without reserve at 7½d. Cinnamon Chips and Bark: 231 packages Wild were difficult of sale, and all bought in. Nutmegs: Neglected, and 21 cases Penang were bought in. West Indian, 6 boxes and 91 barrels, etc., sold; 68's at 1s. 9d., 73's slightly wormy at 1s. 2d., 85's ditto at 1s. 1d., 97's long brown at 9d., 106's limes at 9d. Mace quiet, and 13 cases Penang bought in; good pale and reddish part mouldy at 1s. 7d. West Indian, 16 cases sold; good to fine pale, 1s. 9d. to 1s. 11d.; fair red, 1s. 5d. to 1s. 6d.; broken, 1s. 2d. to 1s. 3d.

STICKLAC—At auction 25 cases Madras offered and bought in at 57s. 6d.

SULPHATE OF COPPER—Is quoted £23 15s. to £24 10s. per ton on the spot, according to quantity and make.

SULPHONAL—Firm at makers' prices, which remain at 20s. per lb. for 10lb. lots in bulk paper-packing for both crystals and powder, there being practically nothing offering from second-hand below this figure.

TAR—Stockholm, 25s. to 25s. 6d.; Archangel, 18s. to 18s. 6d.

THYMOL—Remains very firm at 10s. 6d. to 11s. per lb., it being reported that fresh supplies of the raw material (Adjowan Seed or Wild Thyme) cannot become available for a considerable time to come.

TURMERIC—At auction 621 packages Madras met a slow demand and all bought in, including good bright finger at 35s., and ordinary dull at 32s. Privately there is little business to report, but previous rates are maintained for all descriptions, Bengal at 32s., Cochin split bulbs at 12s., and good bright Madras finger at 35s.

TURPENTINE—Has displayed increased activity (fully 7,000 to 8,000 barrels changed hands), large resales were placed on the market which were quickly absorbed, and prices closed strong, and at best. American, spot, 40s.; March-April, 39s. 9d. to 40s.; May, 39s. 3d. to 39s. 6d.; June, 37s. 3d.; July-December, fully 5,000 barrels sold at 33s. 10½d. and 34s., and 34s. 1½d. asked at the close.

Calendar for the Week.

Sunday, Feb. 11. Sexagesima Sunday. Sun rises 7.25; sets 5.5.

Monday, Feb. 12. Sun rises 7.23; sets 5.7.

Tuesday, Feb. 13. Sun rises 7.21; sets 5.9.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION, County Restaurant, at 9 p.m.—Conversational Evening on Trade matters.

PHARMACEUTICAL SOCIETY, 17, Bloomsbury Square, London, W.C., at 8 p.m.—Evening Meeting. Paper by Edmund White on "Aromatic Spirit of Ammonia."

ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, W.C.—Annual General Meeting.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY, Masonic Hall.—Annual Ball.

Wednesday, Feb. 14. O 1.50A. Sun rises 7.19; sets 5.11.

MANCHESTER PHARMACEUTICAL ASSOCIATION, Victoria Hotel.—J. Taylor on "The Outlook in Pharmacy."

NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION, Hotel Metropole West Clayton Street, at 8.30 p.m.—"Some Notes on the Pharmacopoeia," by F. R. Dudderidge, and "The Deterioration of Spt. Ether. Nit.," by F. W. Pittuck and G. F. Mersou.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY.—Paper on "Pharmaceutical Topics," by G. Squire.

Thursday, Feb. 15. Sun rises 7.17; sets 5.12.

CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—Papers by E. Divers and Masataka Ogawa; S. Young and Emily C. Fortey; E. J. Russell, and N. Smith, and A. G. Perkin.

CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, W., at 9 p.m.—W. A. Knight on "Insects which Infest Crude Drugs."

LINNEAN SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—J. C. Shenston on "Photography of British Plants." Dr. R. F. Scharff on "A New Land Planarian from the Pyreuees."

NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION, White Bull Hotel, Blackburn.—Annual Dinner.

Friday, Feb. 16. Sun rises 7.16; sets 5.14

GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masonic Chambers, West Regent Street, at 9.15 p.m.—A communication by J. Lothian and B. Cockburn.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY, School of Pharmacy, 6, Sandon Terrace, Upper Duke Street, at 8.30 p.m.—Paper by Dr. J. B. Nevins on the "History of Materia Medica."

ROYAL INSTITUTION, Albemarle Street, London, W., at 9 p.m.—H. Warrington Smyth, on "Life in Indo-China."

Saturday, Feb. 17. Sun rises 7.14; sets 5.16.

INTER-PHARMACY FOOTBALL LEAGUE, Wormholt Farm.—Metropolitan College v. Westminster. Referee supplied by the "Square."

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Alcock, Alexander, Beaumont, Bradley, Davis, Deck, Ferrall, Fleming, Forster, Gifford, Giles, Gilmour, Hadwen, Herbert, Irving, Mason, O'Halloran, Patridge, Poppelreuter, Priese, Reynolds, Robson, Walton, Waterhouse.

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PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule; as Maw's.—Warnes, 333, Gray's Inn Rd., W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Publications.—Valuable books in Chemical and Technical subjects for sale at reduced prices, post free; in good condition.—Technical Library, 15, Drummond Road, Bournemouth.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Attfield's Chemistry, Latest Edition. Cash.—L. F. Elmitt King Street, Newcastle, Staffs.

B.P. and Squire's Companion, Latest Editions.—E. A. Rixen, Stanley Road, Teddington.

Old Electric Lamps and Scrap Platinum for prompt cash. P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Publications Received.

GOLDEN RULES OF PHYSIOLOGY, by J. WALKER HALL, M.B. Ch. B. (Vict.) and J. ACWORTH MENZIES, M.D.C.M. (Ed.) "Golden Rules" Series, No. VI. Pp. 80. Price 1s. Bristol: John Wright and Co. 1900. From the Publishers.

MATRICULATION DIRECTORY, No. xxvii., January, 1900, with articles on the Special Subjects for June, 1900, and January and June, 1901. Pp. 142. London: University Correspondence College, 32, Red Lion Square, Holborn, W.C. From the Publishers.

NEWS IN BRIEF.

NEXT WEEK'S JOURNAL will be sent to every registered chemist in Great Britain, the total issue exceeding seventeen thousand copies.

THE EXHIBITION OF PHOTOGRAPHS by Mr. J. Craig Annan, now being held at the Royal Photographic Society's House, 66, Russell Square, London, W.C., will remain open from 10 a.m. to 4 p.m. till the end of the month.

MR. F. A. UPSHER SMITH, Demonstrator in Pharmacy at the Pharmaceutical Society's School of Pharmacy, has been successful in passing the Matriculation Examination of the University of London, held in January, his name appearing in the First Division.

MR. ALEX. NAPIER, of Newcastle-on-Tyne, who has been on the staff of Messrs. Armour and Co., has transferred his services to Messrs. Harkness, Beaumont, and Co., of Edinburgh, and will now represent that firm in the North of England and Midlands.

Mr. URE (*Linlithgow*) has brought in the Petroleum Bill rejected last year, or, at any rate, one very much like it, and Mr. Provand (*Glasgow*) is jogging the Ministerial memory about the Government Bill on the same subject, promised last session.

FOOTBALL.—The return match between the Metropolitan College of Pharmacy and Kensington Rangers was played at Acton on Saturday, February 10, and resulted after an even game, in a draw, one goal all.

MR. JAMES ELLIMAN, of Slough, has given ten beds to the Imperial Yeomanry Hospital, and he will maintain them for twelve months. This is equivalent to a donation of £1,500. Mr. Elliman has also given £1,000 towards the cost of a new drill-hall for the Slough Volunteers.

PRESENTATION OF MEDALS TO LORD RAYLEIGH AND SIR H. E. ROSCOE.—A special meeting of the Manchester Literary and Philosophical Society was held on Tuesday, for the presentation of the Wilde medal for 1900 to Lord Rayleigh, a Dalton medal to Sir Henry Roscoe, and the Wilde Premium for 1900 to Professor A. W. Flux. There was a large attendance.

ANOTHER BOILER RESTRICTION BILL made its appearance on Tuesday, viz., that of Mr. J. Samuel (*Stockton*), which aims at the certification of persons in charge of steam generating apparatus. Mr. Galloway (*S.W. Manchester*) has notified his intention of blocking the Boiler Bills, and it may be worth while for manufacturing chemists to urge other members to do likewise, and to keep an eye on Mr. Fenwick, Mr. Samuel, and Sir William Houldsworth, and their respective followings of registration enthusiasts.

KING'S COLLEGE EXTENSIONS.—The dinner postponed from last autumn, in aid of King's College, will be held next Wednesday in the hall of Lincoln's Inn, under the presidency of Mr. A. J. Balfour. In order to meet increasing demands for space, and to keep pace with modern requirements, the Council have been obliged to undertake very extensive additions to and improvements in the departments of physiology, bacteriology, anatomy, botany, geology, public health, architecture, and applied mechanics. For those purposes, and for the resulting equipments and adaptations, an expenditure of not less than £18,000 has to be met immediately. The Hon. W. F. D. Smith is the hon. treasurer.

SHEFFIELD CHEMISTS' BALL.—The annual ball, under the auspices of the Sheffield Pharmaceutical and Chemical Society, one of the objects of which is to benefit the Benevolent Fund of the Pharmaceutical Society, was held at the Masonic Hall on Tuesday, February 13, and was very successful. About seventy guests attended. At supper, the loyal toast was enthusiastically honoured, and Mr. G. Squire (president) proposed "Success to the Chemists' Ball," which was drunk with heartiness, and responded to by Mr. Carr. Messrs. H. Antcliffe and C. F. Carr were the M.C.'s, and the stewards were Messrs. G. Squire, G. T. W. Newsholme, J. B. Pater, A. R. Fox, and E. C. Exell. Mr. Only's band was in attendance, and a very enjoyable evening was spent.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, FEBRUARY 14, 1900.

Good and varied business has been done during the week, with advances in several important and staple articles, oils particularly. Heavy sales of Kola Nuts of good quality will be noticed together with Chilian Honey, Beeswax, and Quillaya Bark. A little more attention has been shown as regards Linseed and Canary Seed, of which fair amounts have moved off. In the Chemical Market Caustic Soda and Bleaching Powder are scarce, whilst Chlorate of Potash is dearer, and also Ammonium Sulphate.

AMMONIUM SALTS.—Sulphate, £12 per ton; Sal ammoniac, 38s. to 40s. per cwt.

BEEWAX.—Small sales of Chilian have been made at £7 5s. per cwt.

BLEACHING POWDER.—Is dearer and selling now at £7 to £7 10s. per ton.

CANARY SEED.—Business has been better, and some 800 bags of Turkish have changed hands at 31s. 9d. per 464 lbs., with an advance in holder's price to 32s. 6d. Early in the week 50 bags made 33s. 6d. Of Spanish, 30 bags sold for 45s. per 464 lbs.

CARNAUBA WAX.—7 bags of medium went for 62s. 6d. per cwt.; 80 bags of grey at 55s.; and yellow offers at 80s. per cwt.

CHILLIES.—27 bags of common Sierra Leone found buyers ex-quay at 32s. per cwt. A little has been done in good ditto privately.

COPPER SULPHATE.—Is in improved demand at the advanced rate of £24 10s. to £24 12s. 6d. per ton.

FOENUGREC.—About 10 tons of Syrian sold ex-store at 6s. 6d. per cwt.

HONEY.—60 barrels of Chilian in all have changed hands at 30s. per cwt. for Pile X., and 25s. 6d. for Pile I.

KOLA NUTS.—10 tons of fine dried fruit found buyers at 1½d. per lb. ex-quay, and 5 tons ex-store at the same price.

LINSEED.—Considerably more business has been done this week than of late. River Plate, "to arrive," Jan.-Feb. shipment, has been selling at 43s. per 416 lbs. 4 per cent. basis, and Calcutta ditto, Feb.-March, at 45s. 6d. ditto. 50 tons of Karachi went for 46s. 6d., and 35 tons of North American at 47s. 6d. to 48s.

OILS (FIXED) AND SPIRITS.—Castor of all sorts continues very firm, with higher rates expected. Calcutta is at 3½d. per lb.; French: 1st pressure at 3¼d.; 2nd pressure, 3d.; and 2nd Sulphur, 2½d. Sales include 250 cases of Calcutta at 3¼d.; also lots March-May and April-June shipment at 3⅜d. 15 tons of French, 1st pressure, at 3⅜d., and 18 tons of 2nd Sulphur at 2⅞d. per lb. Olive is steady at £36 to £36 10s. for Spanish, but the demand is limited. Linseed Oil of Liverpool make has experienced a further advance, and is firmly held for 24s. 6d. to 25s. per cwt. Cotton Seed Oil: Liverpool refined, packed for export in barrels, is firm at 24s. 6d. to 25s. Spirits of Turpentine have advanced to 41s. 9d. per cwt., and are very firmly held.

POTASH SALTS.—Chlorate dearer, 4d. per lb. Cream of Tartar quiet of sale at 74s. to 80s. per cwt.

QUILLAYA BARK.—Is firm at £13 5s. to £13 10s. per ton.

SODA SALTS.—Caustic is very firm and scarce at 76 to 77 per cent. £11 per ton; 70 per cent., £10 5s. per ton. Crystals, £3 5s. to £3 7s. 6d. per ton. Nitrate, 8s. 6d. to 8s. 9d. per cwt., in easy demand.

LONDON, THURSDAY, FEBRUARY 15, 1900.

Business in Drugs and Chemicals has been extremely quiet during past week. Prices, nevertheless, keep very firm, some articles showing a tendency to further advance in value. Carbolic acid is again dearer, as also is Chlorate of Potash. Camphor very firm; same may also be said of Salicine and Salicylic Acid and Salicylate of Soda. Salol has advanced in price. Quicksilver and Mercurials, Bromides, Iodides, and Bismuth Salts steady. Cod Liver Oil quiet.

Glycerin rather firmer. Cocaine also firmer. Citric Acid firm. Acid Tartaric and Cream of Tartar unchanged. The following are the prices ruling for some articles of chief interest:—

ACETANILIDE.—There are persistent rumours of an impending advance in price. The article meanwhile, however, remains dull and weak at nominally unchanged prices.

ACID CARBOLIC.—Very firm at 1d. per lb. advance, makers now quoting 35/36° ice crystals, in large bulk packing, 1s. per lb.; 39/40° ice crystals, 1s. 0½d. to 1s. 0¾d. per lb.; and 39/40° detached crystals (the B.P. quality), 1s. 1½d. to 1s. 2d. per lb. Crude, 60° F., 3s. 3d. per gallon; 75° F., 4s. per gallon. Liquid, 95-98 per cent. of pale straw colour, 1s. 7d. to 1s. 8d. per gallon; ditto 25-30 per cent. of dark colour, 11d. to 1s. per gallon in 40-gallon casks.

ACID CITRIC.—Remains firm, makers quote 1s. 5d. per lb. for crystals in 5 cwt. casks, but are not ready sellers thereat.

AMMONIA COMPOUNDS.—Bromide 2s. 2d. per lb., Carbonate 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt.; ditto, commercial, 30s. to 32s. 6d. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate steady; gray, 24 per cent., London prompt, £11 17s. 6d. to £12; Hull, prompt, £11 17s. 6d.; Leith, prompt, £11 17s. 6d.; Beckton, Feb.-April, £12; May-June, £11 17s. 6d.; Beckton terms, prompt, £11 17s. 6d.

BORAX AND ACID BORACIC.—Are steady at unchanged price.

BROMIDES.—Are firm, without alteration in value.

CASTOR OIL.—Dearer. Belgian first pressing, spot, £30 10s.; February-June, £30, f.o.b. Antwerp; second pressing, spot, £28 10s. per ton, ex wharf. Hull manufactured guaranteed cold drawn pure pharmaceutical, £32 10s. per ton in barrels, 3½d. per lb. in cases; pure firsts, £30; seconds, £29 per ton in barrels; first, 3½d. per lb. in cases; seconds, 3½d., ex wharf London.

CLOVES.—No Zanzibar were offered in auction; 2 cases picked Penang were bought in. Privately, Zanzibar continue strong at advancing prices, closing again ¼d. higher, but business has been of less volume, owing to the reservation of sellers. Sales have taken place, including spot, on a basis of 4 1/16d. for fair, Jan.-March delivery, at 4½d., sellers. For arrival no sales are reported, closing buyers March-May shipment at 4d., c.i.f.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon; pure, 2s. Benzole, 50 per cent., 10d. per gallon; 90 per cent., 8½d. Creosote, 3d. per gallon. Crude Naphtha, 30 per cent. at 120° C., 5d. per gallon; Solvent Naphtha, 95 per cent. at 160° C., 1s. 7d.; 90 per cent. at 160° C., 1s. 4d.; 90 per cent. at 190° C., 1s. 3d. per gallon. Anthracene: A, 3½d. per unit; B, 2¾d. Pitch, 36s. per ton, f.o.b. Tar: refined and for crude, 12s. 6d. per barrel, 2¼d. per gallon.

COCAINE.—Has become decidedly firmer at 16s. 3d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins, this being makers' present price, while there appear to be no sellers of good brands from second-hand below above figure.

COD LIVER OIL.—Dull at about prices quoted last week.

CODEIA.—Remains very firm at unchanged price.

CUTCH.—Business continues on a small scale at previous rates. The shipments of Cutch from Rangoon (as per Messrs. Bulloch Bros. and Co., Limited, telegram) from January 1 to February 13 to all parts were 1,480 tons, against 500 tons in 1899, and 680 tons in 1898.

GAMBIER.—Is without alteration, there being still no business to report; for arrival March-May steamer nominally quoted at 17s. 4½d.

GINGER.—Of 917 bags and 56 cases Cochin offered, only 116 packages sold at about previous rates. Small and ends rather roughly cut and scraped, little wormy, at 33s. 6d. to 34s. New crop Calicut rough bought in at 37s. for fair bright, plump, medium and small; old crop, medium and small, little bold but rather wormy, sold at 31s. 6d.; new crop, washed rough, bought in at 35s. for medium and small plump; old crop, small and wormy, sold at 26s. Jamaica: 115 barrels and 10 half-barrels offered, of which 55 barrels sold, common to fair bright at 52s. to 61s. 6d.

IODIDES.—Remain fairly steady at the prices quoted last week.

MERCURIALS.—No change in price to report.

MORPHIA.—Is unchanged at 4s. to 4s. 3d. per oz., according to quantity, for the Hydrochlorate Powder.

PHENACETIN.—Makers maintain their advanced price of 5s. 3d. per lb. for crystals and powder in 5 cwt. lots; there are, however, sellers from second-hand at a rather lower figure.

POTASH COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4½d. per lb. Bromide, 1s. 10½d. per lb. Chlorate, spot London, crystals and powder, 4½d. to 4¾d. nett. Iodide, 10s. 6d. per lb. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate yellow: English makes, 7¾d.; Beckton, 7¾d.; red, 1s. 2d. to 1s. 3d. per lb., according to quantity.

QUICKSILVER is still quoted £9 12s. 6d. per bottle from the importer, and 6d. per bottle less from second hand.

QUININE.—Has been extremely quiet, and business on a small scale, but prices are firm; the sales comprise about 10,000 oz. B&S and/or Brunswick, March delivery at 1s. 5¾d. and sellers, and May at 1s. 6d.

SALICINE.—Appears to be very scarce; makers are declining to look fresh orders at the advanced price of 15s. 6d. per lb., stating that they have none to offer.

SALICYLATES.—Makers have postponed any alteration in price for a few weeks in order, if possible, to be able to judge what the future price of the raw material (acid carboic) is likely to be, say, during the present year. Meanwhile, the agents for the makers say that they have instructions not to book further orders, for the present, at any price. As far as can be judged, an important advance in price of acid and of soda salicylate would appear to be inevitable.

SALOL.—Makers have advanced price 6d. per lb. to 3s. 8d. per lb.

SHELLAC.—The market remains quiet in all positions. On the spot only retail sales have occurred at steady rates. For arrival business continues suspended and quotations are nominal, March delivery TN is quoted buyers at 62s., August value, 64s.

SODA COMPOUNDS.—Crystals: Barrels quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 3¾d. per lb. Bicarbonate, landed, £7 5s. Bromide, 2s. 1½d. Caustic, 70 per cent. white, £10 15s. to £11; 60 per cent, £1 less. Hyposulphite (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Nitrate quiet on spot. Refined, £8 17s. 6d. ordinary, £8 12s.

SPICES (VARIOUS).—Black Pepper: 161 bags Singapore damages sold at 5¾d. to 6 1/16d., according to quality. White Pepper: 8 cases and 17 bags Singapore sold at full rates, good bold at 10½d. to 11½d., good fair at 9¾d. Capsicums easier: Of 165 bales Bombay only 22 sold, fair red on stalk at 35s. Cassia Vera: 50 bales Padang quills sold, coarse, partly broken, at 26s. Cassia Lignea: 6 boxes sold, without reserve, new selected at 43s. 6d. Broken Cassia: 200 bales new import offered and 100 bales sold at 32s. Cinnamon Chips and Bark in good supply, and mostly sold at previous rates: 578 bags wild sold, quillings at 1½d. to 2¾d., ordinary chips at 1d., coarse bark at 1d. to 1¼d. Mace slow of sale: 41 cases Penang bought in, fair to good pale at 1s. 7d. to 1s. 10d. 1 case of Bombay sold, fair red at 1s. 6d. Nutmegs: 9 packages West Indian sold, 79's at 1s. 3d., 102's at 10d., 120's at 8½d. to 9d. Pimento dearer: Of 551 bags 121 sold, ordinary to good at 3 7/16d. to 3¾d.

SULPHONAL.—Is firm at late advance in makers' prices to 20s. 6d. per lb. for both crystals and powder.

THURSDAY'S DRUG SALES.

To-day's drug auctions comprised sixteen catalogues, and included a very considerable number of lots. On the whole, the sales passed off quietly. Senna sold fairly well at slightly higher rates. Ipecacuanha showed a weaker tendency; otherwise, there is nothing special to which attention might be drawn, the following being the particulars:—

ACONITE ROOT.—16 bags Japan bought in at 28s. per cwt.

ALOES.—190 gourds Curaçoa part sold at 25s. per cwt., subject to approval, balance being bought in at 40s. 36 cases Cape all bought in at 27s. to 30s. per cwt. 10 cases Zanzibar sold at 42s. 6d. 47 kegs Socatrine were taken out at 75s. per cwt.

ANISEEDS.—40 bags good Spanish were taken out at 25s. per cwt.

ANNATTO SEEDS.—13 bags bought in at 3½d. per lb.

ANTIMONY.—30 cases crude Japan (black sulphide) bought in at £23 per ton.

ARECA NUTS.—30 bags bought in at 21s. per cwt.

ARGOL.—4 bags Cape part sold at 45s. per cwt. Other 26 bags sold at 55s. for good quality down to 35s. per cwt.

ASAFETIDA.—148 cases all bought in at 37s. 6d. per cwt., with exception of a few cases of very low quality offered without reserve, and which sold at 7s. to 19s. per cwt.

ASPHALT.—44 cases Syrian were taken out at 33s. per cwt.

BALSAM PERU.—5 cases were taken out at 7s. per lb.

BALSAM TOLU.—12 cases part sold prior to the auctions, balance being taken out at 1s. 7d. per lb.

BUCHU LEAVES.—17 bales, part sold at 1s. per lb. for good rounds, good longs being bought in at same figure.

CALUMBA ROOT.—75 bags sold at 25s. to 25s. 6d. per cwt., other 40 bags held for 26s. to 30s.

CAMPHOR.—1 case Formosa sold, subject to owner's approval, at 1s. 10d. per lb. 25 cases refined Japan bought in at 2s. 1d. for 1 oz. tablets, and 2s. 2d. per lb. for ¼ oz. tablets.

CARDAMONS.—142 cases were chiefly bought in, good bold Ceylon being held for 3s. 6d. per lb.; medium for 2s. 10d. per lb., 1 case of lower quality and slightly mouldy selling at 2s. 1d. per lb. Fair seed sold at 2s. 2d. per lb.; other 113 cases Ceylon part sold at 3s. for fairly bold pods down to 1s. 6d., 2 cases seeds realising 2s. 2d. per lb. 32 cases pods offered, without reserve practically all sold at 1s. 5d. to 1s. 8d. per lb.

CASCARILLA BARK.—10 bales chiefly bought in at 65s. per cwt., 1 bale selling at 42s. 6d.

CASTORUM.—2 boxes bought in at 70s. and 75s. per lb.

CHILLIES.—3 cases Japan taken out at 45s. per cwt.

CHINA SOY.—20 casks were bought in at 1s. 3½d. per gallon.

CINCHONA BARK.—Of 49 packages Crown and Grey 6 bales sold at 9½d. per lb., the damaged realising 6d. down to 1d. per lb. Balance bought in at 9d. to 1s. 1d. 20 bales Carthagena bought in at 7d. to 8½d. per lb.

COCA LEAVES.—6 packages chiefly bought in at 1s. 4d. to 1s. 6d. per lb., 1 case selling at 1s.

COLOCYNTH.—8 cases broken Turkey taken out at 1s. 7d. per lb., 9 cases Persian at 5d.

CROTON SEED.—84 bags were all bought in at 65s. per cwt. for good bold, bright seeds.

CUBEBS.—10 bags of only medium quality realised 22s. per cwt. Of other 84 bags, 11 bags sold at 20s. per cwt., balance being held for 25s.

CUMMIN SEEDS.—10 bags fair Malta were taken out at the nominal price of 40s. per cwt.

CUS CUS ROOT.—9 bales bought in nominally at 20s. per cwt.

DRAGON'S BLOOD.—2 cases good saucers sold at £12 5s. to £13 per cwt., while fair bright lump in bags was taken out at £17; other 6 cases bought in at £10 5s. 6 cases reeds offered, without reserve, realised £7 15s. to £7 17s. 6d. per cwt.

ESSENTIAL OILS.—3 cases Cinnamon Leaf taken out at 2d. per oz.; 4 cases Nutmeg at 2½d. per oz.; 2 cases Star Aniseed at 6s. 2d. per lb.; 10 cases Cajaputa at 2s. 8d. per bottle; 4 cases dementholised Japan Oil Peppermint, Kobayashi brand, at 3s. 9d. per lb.; 10 cases fair Commercial Oil Eucalyptus at 1s. 4d. per lb.; 2 cases Globulus at 2s. 1d.; 5 drums Citronella at 1s. per lb.; 26 cases Lemon Grass at 3d. per oz.; 1 case Distilled West Indian Oil of Lime sold at 3s. 3d. per lb. 1 case West Indian Oil of Orange at 5s. 11d. per lb.

GAMBOGE.—Two cases medium pipe taken out at £8 5s. per cwt.

GENTIAN ROOT.—26 bags of fair medium quality were taken out at 14s. per cwt.

GUAZA.—20 robbins of fair tops were taken out at 7d. per lb.

GUM ARABIC.—21 bales medium to fair Turkey sorts bought in at 70s. to 82s. 6d. per cwt.

GUM BENJAMIN.—Good seconds Sumatra realised £8 7s. 6d. to £9 5s., lower quality ditto selling at £6 12s. 6d. to £6 15s. per

cwt. 75 cases Penang all sold at 60s. to 61s. 6 cases medium Siam taken out at £9 15s. per cwt., 6 cases low quality ditto selling without reserve at 60s. per cwt.

GUM GALBANUM.—14 packages part sold at 1s. 3d. per lb. for fair almonds, dark, blocky, and inferior being taken out at 9d. to 1s. 1d.

GUM GUAJACUM.—1 case good bright lump bought in at 2s. 6d. per lb.

GUM KINO.—4 cases blackish Cochin were taken out at 2s. per lb.

GUM MYRRH.—15 bags dark siftings were bought in at 35s. per cwt., 8 casks of good quality at 85s.

GUM SANDARAC.—6 casks were taken out at 57s. 6d. per cwt.

GUM TRAGACANTH.—8 packages all bought in at £13 10s. to £15 per cwt., according to quality.

HONEY.—18 packages good Jamaica were bought in at 35s. per cwt., other 22 packages of only medium quality sold at 27s., subject to approval. 182 cases California bought in at 39s., 14 cases Italian at 34s.

IPECACUANHA.—14 bales fair Rio all bought in at 10s. to 10s. 6d. per lb., 9s. 9d. being refused for 1 case ICCD. Of 10 packages Carthagena 2 cases sold at 7s. and 1 case at 6s. 11d. per lb.; balance bought in at 8s. 6d.

JALAP.—4 bags fairly heavy tubers were taken out, 6d. per lb. being the limit.

KOLA NUTS.—97 bags were taken out at 2½d. to 3d. per lb.

KAMALA.—Nine cases were taken out at 6d. per lb.

LIME JUICE.—10 puncheons Jamaica bought in at 3s. per gallon.

LIQUORICE ROOT.—52 bales, all bought in at 14s. to 15s. for good natural, broken and cut. Ten bags good decorticated powder at 39s. 6d. per cwt.

MATICO.—16 bales were bought in at 3½d. per lb.

ORANGE PEEL.—26 cases all bought in at 9d. to 1s. per lb. for fair to good thin cut and 6d. per lb. for inferior quality.

ORRIS ROOT.—21 bags all bought in at 50s. to 55s. per cwt. for medium to fair Florentine.

RHATANIA ROOT.—74 bales were all taken out at 4d. to 4½d. per lb.

RHUBARB.—Fair round Shensi was taken out at 2s. 8d. per lb., flat at 3s., medium bold ditto at 2s. 2d., medium round selling at 2s., and inferior ditto at 1s. 6d., trimming root at 1s. 11d., pickings at 1s. 1d. to 1s. 2d. per lb. 21 cases Canton were all bought in at 11d. per lb., fair flat high dried at 9½d. to 10d. per lb., 2 cases round selling at 5½d. per lb. Without reserve, 4 cases round and flat Shensi sold at 9½d. per lb., other 4 cases at 5¾d., 2 cases flat at 1s. 1d., other 3 cases at 8¾d., bold flat Canton at 9½d. to 10d., round at 9½d. per lb.

ROSE OIL.—2 pots were bought in at 4d. per oz.

SARSAPARILLA.—Three bales low Honduras sold at 6d. per lb., subject to owner's approval. 22 bales Jamaica were held from 1s. 6d. to 1s. 8d. Twenty-six bales Lima, part sold at 1s. per lb. for 1 CCD.

SENA.—14 packages Alexandria, part fair, part broken leaf and off colour, were all bought in, 7d. per lb. being price mentioned. Other 53 packages Alexandria also bought in at 9d. per lb. down to 5d., 1 bale sea damaged selling at 5½d. per lb. 7 packages Alexandria pods taken out at 8d. 68 bales Tinnively all sold at 4d. per lb. for fair down to 3d. per lb. for inferior stained and broken leaf, 1 bale 4 CSD selling at ½d. per lb., other 36 bales all sold at about same parity, 4 bales good leaf fetching 7d. per lb.

SQUILLS.—20 bags were all bought in at 3d. to 3½d. per lb.

TAMARINDS.—40 casks East Indian were taken out at 10s. to 10s. 6d. per cwt.

TONQUIN BEANS.—Fair Angosturas were bought in at 3s. 6d. per lb., 1 case low inferior beans selling at 1s. 1d. per lb.

VANILLOES.—1 tin from Sydney bought in at 7s. 3d. per lb. for 3½" × 6", and one tin from Auckland at 7s. 3d. per lb. for 5" × 6".

WAX.—Fair Jamaica was bought in at £7 10s., medium East Indian at £5 15s., fair Madagascar sold at £7 2s. 6d. to £7 5s. per cwt., medium Zanzibar at £5 17s. 6d., fair ditto at £6 17s. 6d. to £7. Good Australian bought in at £7 15s.

Calendar for the Week.

- Sunday, Feb. 18.** Sexagesima Sunday. Sun rises 7.12; sets 5.18.
- Monday, Feb. 19.** Sun rises 7.10; sets 5.19.
- Tuesday, Feb. 20.** Sun rises 7.8; sets 5.21.
ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m. Professor R. W. Wood, of America, will read a paper on "The Diffraction Process of Colour Photography" or other subject.
- Wednesday, Feb. 21.** Sun rises 7.6; sets 5.23.
PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 36, York Place, Edinburgh.—Evening Meeting.—Papers will be read by Dr. L. Dobbin on "The Detection of Sulphates in Presence of Thiosulphates"; and by J. Rutherford Hill on "Strychnine Hydrochloride and Potassium Arseniate."
SCHOOL OF PHARMACY, Caledonian Salon, Holborn Restaurant, W.C.—Annual Dinner at 7 p.m.
WESTERN CHEMISTS' ASSOCIATION (of London), Westbourne Restaurant, Craven Road, W., at 9 p.m.—General discussion on Items of Interest.
- Thursday, Feb. 22.** £ 4.44 A. Sun rises 7.4; sets 5.25.
CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Notes on "Entomology," by R. E. Lownsbrough.
MIDLAND PHARMACEUTICAL ASSOCIATION, Mason University College, Birmingham.—Lecture by H. W. Jones, on "The Rise and Development of Modern Photographic Processes."
- Friday, Feb. 23.** Sun rises 7.1; sets 5.27.
GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Rest and Recreation.
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—Professor J. H. Poynting on "Recent Studies in Gravitation."
- Saturday, Feb. 24.** Sun rises 6.59; sets 5.29.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

What Offers?—One Cwt. English beeswax; new.—Thomas, Chemist, Newcastle Emlyn.

Moulds.—Suppository, Pessary, Bougie, Capsule; as Maw's.—Warnes, 333, Gray's Inn Rd., W.C.

What Offers?—Bound separate volumes "Pharmaceutical Journal," 1841 to 1853, 1858 to 1870. Good Condition.—Goodess, Chemist, Leicester.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Publications.—Valuable books in Chemical and Technical subjects for sale at reduced prices, post free; in good condition.—Technical Library, 15, Drummond Road, Bournemouth.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Chemical Balance, good condition. Also Hand Camera; about one guinea.—W. Nall, Chemist, Milnrow.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Microscopes.—Advertiser requires 5 or 6, second-hand, good condition. State price, objectives and maker's name.—Phlox, "Pharm. Journal" Office, 5, Serle St., London, W.C.

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Advertisements

Received too late for Classification.

QUALIFIED; 23½; disengaged. London and provincial experience.—A. COLLINS, Regent St., Halifax.

JUNIOR.—Family and Dispensing business, also photography, sundry, and cash. Indoors; alternate week half-day off. Plenty of work and exceptional chances of early promotion to smart man.—Usual references, etc., to LAKE'S Select Pharmacy, Tiverton.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Alcock, Baird, Barker, Bartlett, Booth, Botham, Chapman, Christy, Clark, Cross, Dowdy, Elliot, Fielding, Gilmour, Harri dance, Hill, Martin, Philp, Pickering, Richardson Smith, Sturton, Taylor, Winston.

NEWS IN BRIEF.

DR. GEORGE COULL is to address the Chemists' Assistants of Glasgow on Friday, March 2, on the subject of "Stereo-Chemistry."

MR. JOHN JOHNSTON, of Aberdeen, member of the Pharmaceutical Council, has been appointed on the Commission of the Peace for the City of Aberdeen.

SOME "DISPENSING NOTES," by Harold Wyatt, jun., will be considered by Liverpool pharmaceutical students on Thursday next at the School of Pharmacy, 6, Sandon Terrace, Upper Duke Street, Liverpool.

MR. F. PILKINGTON SARGEANT, Principal of the Leeds College of Pharmacy, and Demonstrator in Toxicology, etc., at the Medical School of the Yorkshire College, has been elected a Fellow of the Chemical Society.

AN EXTRA MEETING of the Chemical Society will be held on Thursday, March 8, at 8.30 p.m., when a lecture on "Recent Researches on Nitrification" will be given by Professor Warington, F.R.S.

TICKETS FOR THE ANNUAL SUPPER of the Edinburgh Chemists', Assistants', and Apprentices' Association, which will be held at the Imperial Hotel, on Friday, March 9, can be obtained from the secretary, Mr. James Lennox, 139, Prince's Street, Edinburgh.

"THE PHYSICAL TESTS OF THE PURITY OF DRUGS" is the subject of a paper by Mr. George Ward to be read at a meeting of the Bradford and District Chemists' Association, held on Tuesday, February 27, at the County Restaurant, at 8.30 p.m.

ALL PUBLIC AND POOR LAW DISPENSERS are invited to attend at St. Bride's Institute, Bride Lane, Ludgate Circus, on Wednesday, February 28, at 8 p.m., when Mr. F. Davis will read a paper on "Some Points in Practical Pharmacy." A special invitation is extended to lady dispensers.

THE LONDON COLLEGE OF CHEMISTRY AND PHARMACY will hold a "Smoker" at the Ganden Hotel, Clapham, on Thursday, March 1, when Mr. Wootton, the principal, will take the chair. All old students will be cordially welcomed.

THE PAPER ON "QUININE," by Mr. H. A. Martin, read at a meeting of the Chemists' Assistants' Association on February 8, should have been published in this week's Journal, but is held over for the present, having been unavoidably crowded out by pressure of other matter.

MESSRS. HARKER, STAGG, AND MORGAN, we understand, have recently been compelled to make very extensive additions to steam manufacturing plant and machinery in their laboratories in order to keep pace with the continually increasing demands on this department of their business.

THE MARCH EXHIBITION of the Royal Photographic Society, at 66, Russell Square, London, W.C., will be provided by the National Photographic Record Association, and will be opened at 8 p.m. on Wednesday, March 7, by Sir Benjamin Stone, M.P. Mr. J. Craig Annan's exhibition will close on Wednesday, February 28.

LITERARY ANATOMY is sometimes curious, as the following instances, collected by *Practical Medicine*, tend to show:—A colonel was "shot in his ticket office," a man was fatally "shot through his door," another received a fatal wound "in his window." He kissed her "upon her reappearance." A poor woman was "shot in the oil regions." The man was fatally "stabbed in the rotunda." Another was "kicked on the highway." A tramp was "kicked upon his sitting down."

TRADE NOTES.

"DYLISSIA" PREPARATIONS.—These preparations, offered by Messrs. Durant and Co., 19, Mount Pleasant, London, W.C., only require to be tried to be appreciated. Dylissia soap is superfatted, pleasantly perfumed, and one of the most satisfactory things of its kind on the market; it lathers freely, and is most agreeable in use. The Dylissia shaving stick is an equally well-made and satisfactory article. Dylissia cream is a preparation with a wool-fat basis, which is supplied both for toilet and medical purposes, and is well suited for either. Dylissia powder is a fine, absorbent, and delicately perfumed toilet preparation, and, like the other specialties of Messrs. Durant and Co., is put up in an attractive style.

SKINNER'S INVALID DELICACIES.—Messrs. G. H. Adams and Co., 101, Leadenhall Street, London, E.C., are the agents in this country for this excellent line in delicacies for invalids, imported from Queensland, and including preserved "turtle for invalids," "invalid turtle jelly," potted dugong, etc., etc. Though tinned, the turtle preparations are of exceptional quality, soups made therefrom being highly nourishing, and possessing a delicious flavour. The potted dugong is prepared from choice parts of young dugong; it is a favourite Queensland relish, and is useful for invalids because of the readily-assimilated fat it contains.

VIROL.—The preparation of bone-marrow known as Virol is now being pushed extensively. It was introduced as a perfect fat food, and has been described by medical experts as an ideal form of fat for children and invalids who cannot take codliver oil. Virol is palatable, easily digested, possesses great nutrient properties, and contains iron in the natural form of red bone marrow. It is supplied by Bovril, Limited, in jars to retail at various prices, from 1s. upwards.

TELEGRAPHIC ADDRESS.—Kay Brothers, Limited, of Stockport, desire their customers to know in future their registered telegraphic address will be "Linsced, Stockport."

FRAGRANT FROSTILLA.—Messrs. Thos. Christy and Company intimate that the labels and literature in connection with Holmes' Fragrant Frostilla have now been so worded as to place the preparation outside the scope of duty. It will, therefore, for the future be supplied unstamped at the price of 7s. 3d. per dozen.

THE BUSINESS OF MESSRS. T. AND H. SMITH AND CO., wholesale druggists and manufacturing chemists, Edinburgh and London, carried on by the trustees and executors of the late Peter Shanklie Smith, has been made over to his sons, Henry Ewing Smith and Thomas Connell Smith, chemists and druggists, who will carry on the business under the same name as previously. Arrangements have been made whereby those gentlemen who have conducted the business as trustees continue to superintend the departments with which they have been identified. The old staff remains with the firm and the business will be continued on the same lines as formerly.

NEWSHOLME'S PORTABLE AMMONIUM CHLORIDE INHALER.—Mr. G. T. W. Newsholme, 27, High Street, Sheffield, has recently introduced a very simple, compact, and portable apparatus for the inhalation of ammonium chloride. A glass tube, closed at one end, has a sponge placed at the bottom; the open end is fitted with a rubber cork, through the centre of which is suspended a glass bulb containing glass wool; near the edge of the cork an inhaler tube is inserted. When required for use, ten drops of ammonia solution is placed on the sponge, and ten drops of acid solution on the glass wool in the bulb. The inhalers are sold at 1s. 9d. each. Spare fittings can be obtained separately.

NEWSHOLME'S POCKET SPITTOON.—To prevent the spread of tuberculosis through the inhalation of the dried and pulverised expectoration of consumptives Mr. Newsholme has also brought out and registered a pocket spitoon, designed on the lines suggested by the Medical Officer of Health for the City of Sheffield. The spitoon is made of stout blue glass with a funnel-shaped neck, fitted with a metal cap. It is of a convenient size for the pocket, and is retailed at 1s. 6d. An Antiseptic Inhaler has also been introduced by Mr. Newsholme. It consists of plaited straw, and is made to fit over the nose and mouth; in this is placed a pad, held in position

by a piece of flexible cane, the necessary solution being dropped upon the pad. Special solutions are prepared for use in catarrh, influenza, bronchitis, and pulmonary affections. It is elegant in appearance and cheap, the price being 1s., thus placing a most effective inhaler within the reach of all classes.

BARCLAY'S 1900 PHOTO CATALOGUE.—Messrs. Barclay and Sons, Limited, 95, Farringdon Street, London, E.C., have this year practically doubled the number of pages in their price list of photographic apparatus and materials, etc. A special feature of the list is that portion devoted to spectacles, the illustrations showing the different styles almost as well as the goods themselves. The photographic section, however, comprises some 160 pages, that devoted to spectacles, barometers, etc., comprising some twenty pages. All chemists who do a photographic trade will find a copy of this list extremely useful.

SYPHONS AND SELTZOGENES.—Messrs. Idris and Co., Ltd., Pratt Street, Camden Town, London, N.W., in addition to their extensive mineral water works, have for many years manufactured their own syphons, owing to the difficulty of procuring syphons with pure tin tops. From simply manufacturing for their own use, Messrs. Idris and Co. now possess what is probably the largest syphon factory in the United Kingdom, with the largest home syphon trade and an important export business. The special attention of one of the directors is devoted to this department, which includes silver-plating, glass engraving, etc., the different processes being conducted by a staff of mechanics skilled in the respective branches of syphon making.

CHEMISTS' OWN-NAME SPECIALTIES.—Messrs. Lorimer and Co., Limited, Britannia Row, Islington, London, N., who claim to be the pioneers of chemists' own-name specialties, have issued a well-printed illustrated price list of their goods, together with an alphabetical list of "own-name" specialties corrected to date (February). The list also contains alcohol percentage tables, a table for making any quantity of percentage solutions, and notes on the metric system of weights and measures.

PETROLEUM EMULSION, ETC.—Messrs. Harker, Stagg, and Morgan, 15, Laurence Pountney Lane, London, E.C., direct attention to their petroleum emulsion, a preparation for which they have an enormous sale. Specially purified petroleum jelly is used in its manufacture, and the firm claim for it permanence and palatability, and that it will keep without change for a very considerable time. Petroleum Emulsion with Hypophosphites, contrary to the opinion sometimes expressed that the hydrocarbon has but little medicinal value, appears to have gained an established position as a remedy, and to be in steadily increasing demand. This excellent product of Messrs. Harker, Stagg, and Morgan will certainly assist in maintaining their reputation.—Deemetinised Ipecacuanha, to the manufacture of which the firm has given special attention, still continues to be used as an effective remedy in dysentery. Concentrated Oil of Lemon, ten times the strength of the ordinary essence, retains in a concentrated form the full flavour of the lemon fruit. It is more satisfactory in use than many of the so-called terpenes oils of foreign manufacture. Messrs. Harker, Stagg, and Morgan make a series of concentrated infusions which really represent the fresh article when diluted, as an inspection of samples will prove. The firm also make a Liquid Annatto (Horseshoe brand) and Golden Butter colouring, which are great favourites in the Midlands, both preparations being of a high degree of strength and not communicating the slightest objectionable flavour to the articles for which they are used.

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

John Woodrow Dennis and Fred Woodrow Dennis, trading as John W. Dennis and Son, Chemists and Druggists and Wine and Spirit Merchants, 77, Eastgate, Louth. F. W. Dennis will continue to carry on the business of Chemist and Druggist and Wine and Spirit Merchant, at 77, Eastgate, Louth, under the same style as formerly, while J. W. Dennis will continue to carry on in his own name, and on his own account, at Northgate, Louth, the manufacture and sale of his specialties.

Arthur Simmons Davis and Ernest Isaac Davis, trading as the Elite Portrait Company, 267, High Holborn. Debts will be received and paid by E. I. Davis, who will in future carry on the business.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, FEBRUARY 21, 1900.

Castor-oils have become very firm in tone, with higher rates both spot and forward. More attention has been given to canary-seed during the week, and prices have an upward tend. Good prices are obtainable both for beeswax and better sorts of Carnauba, and several lots have changed hands. A slight advance has taken place in potashes, and at the time of writing they are being firmly held. As regards chemicals prices rule high, with a consequence that business is circumscribed. Further advances have taken place in chlorates and in sulphate of copper.

AMMONIA SALTS.—Salammoniac is firm, 38s. to 40s. per cwt. Sulphate is steady at £12 per ton.

BEEWAX.—25 sacks of Chilian sold for £7 5s. per cwt., and 40 packages of Gambia at £7 per cwt.

BLEACHING POWDER.—Is exceedingly firm at £7 to £7 10s. per ton.

CANARYSEED.—Has been in better inquiry, and sales are fairly numerous; about 500 bags of Turkish have changed hands at 32s. to 33s. 6d. per 464 lbs.

CARNAUBA WAX.—16 bags of good medium went for 73s. per cwt. from store.

COPPER SULPHATE.—Is dearer, £25 per ton.

COPPERAS.—Is firm at 37s. to 39s. per ton.

LINSEED.—Is firm, but idle. Early in the week 858 bags of River Plate sold at auction for 45s. 6d. to 48s. 3d. per 416 lbs., ex quay; and 152 bags Turkish from quay at 49s.

OILS (FIXED) AND SPIRITS.—Castor is firm, but quieter. Sales include Calcutta, 25 cases spot, at 3 $\frac{3}{4}$ d. per lb.; 100 cases forward, January to March shipment, 3 $\frac{1}{4}$ d. per lb.; 100 cases March to May, 3 7-32d. per lb. 3 $\frac{1}{2}$ d. per lb. is now asked for spot parcels. French, 1st pressure, is quoted at 3 $\frac{1}{4}$ d., and 2nd at 3 $\frac{1}{8}$ d. per lb. Olive is held for £36 to £36 10s. per tun for Spanish, and business has been done at the former figure. Linseed oil has gone up a shade, and is in fair demand at 24s. 9d. to 25s. per cwt. Cottonseed oil is in slow demand at 24s. 6d. to 25s. per cwt. Spirits of Turpentine continue steady at 41s. 3d. per cwt.

POTASH SALTS.—Chlorate, 4 $\frac{1}{2}$ d. per lb.; Cream of Tartar, 74s. to 80s. per cwt.; Bichromate, 4 $\frac{1}{2}$ d. per lb. Pearlash quiet at 33s. 6d. to 35s. per cwt.; Potashes have advanced to 27s. 3d. and 27s. 6d. per cwt., and are firm and in fair request. Saltpetre, £21 10s. per ton.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax, £16 per ton. Caustic, 73 to 77 per cent., £11 per ton; 70 per cent., £10 5s. per ton, and very scarce. Crystals, £3 5s. to £3 7s. 6d. per ton. Nitrate is steady with fair business at the improved price of 8s. 6d. to 8s. 10 $\frac{1}{2}$ d. per cwt.

LONDON, THURSDAY, FEBRUARY 22, 1900.

Business in Drugs and Chemicals has been somewhat quiet during past week. Prices as a rule, however, continue exceedingly firm, and in some cases with a further upward tendency. There has been another flutter in Quinine, which advanced tangibly in value, relapsing again slightly later on. Bromides have also advanced in value. Acid Carbolic, Salicylates, and Salol continue very firm. Acid Citric steady. Acid Tartaric firm; same may be said of Glycerin. Quicksilver and Mercurials very firm. Cod Liver Oil dull and weak. Codeine very firm. Opium and Morphine unchanged, as also are Bismuth Salts. Borax and Acid Boracic steady. The following are the prices actually ruling for some articles of principal interest.

ACETANILIDE.—Is still unchanged, quotations varying from 9 $\frac{1}{2}$ d. to 1s. 5d. per lb., according to quantity and make, the higher figure being asked for a special make of so-called Antifebrine.

ACID BORACIC.—Steady at 25s. 6d. per cwt. for Crystals and 27s. 6d. per cwt. for Powder.

ACID CARBOLIC—Strong and in fair demand at 11½d. to 1s. for the 35°-36° C. ice crystal, in 2½ cwt. drums and overcasks; 1s. 0¼d. to 1s. 0¾d. for the 39°-40° C. ice crystal; and 1s. 1½d. to 1s. 1¾d. for the 39°-40° C. detached crystals, which is now the form and quality required by the B.P.; crude, 60° F., 3s. 3d. per gallon; 75° F., 4s.; liquid, 95 to 98 per cent. of pale straw colour, 1s. 7d. to 1s. 9d. per gallon; ditto, 25 to 30 per cent. of dark colour, 10d. to 1s. per gallon, in 40 gallon casks.

ACID CITRIC—Market is fairly steady at 1s. 4½d. to 1s. 5d. per lb., according to quantity and make for Crystals in 5-cwt. casks.

ACID OXALIC—Is still quoted 3d. to 3¼d. per lb., net, free delivered London.

ACID TARTARIC—Quotation for English remains nominally 1s. 0½d. to 1s. 0¾d. per lb., but makers are not willing sellers; foreign, 11¾d. to 1s. per lb.

AMMONIA COMPOUNDS—Bromide 2s. 3d. per lb. Carbonate 3½d. to 4½d. per lb., according to make, quantity, packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 16s. 10d. per lb. Sulphate firm; gray, 24 per cent., London, prompt, £11 17s. 6d. to £12; Hull, prompt, £11 17s. 6d.; Leith, prompt, £12 to £12 2s. 6d.; Beckton, Feb.-April, £12; May-June, £11 17s. 6d.; Beckton terms, prompt, £11 17s. 6d. to £11 18s. 9d. Sulphocyanide, 1s. 1d. to 1s. 3d. per lb., according to quantity and packing.

ANTIMONY—Regulus, £38 10s. to £39 10s. per ton; Crude (Black Sulphide), £22 10s. to £23 per ton.

ASHES—Pots, 28s. 6d.; Pearls, 34s.

ATROPINE—Firm at 15s. 6d. per oz. for the Sulphate B.P. and Salicylate and 17s. 10d. per oz. for the pure Alkaloid.

BELLADONNA ROOT—Continues scarce and dear, 45s. per cwt. being asked for fair quality on the spot.

BISMUTH—The commercial quality of the metal is unchanged at 5s. per lb., the Subnitrate being quoted 5s. 1d. per lb., and the Subcarbonate 5s. 8d. per lb.

BLEACHING POWDER (CHLORIDE OF LIME)—English is quoted £7 per ton.

BORAX—Crystals are still quoted 16s. 6d. per cwt. and Powder 17s. 6d.

BROMIDES—Makers to-day advanced their price 1d. per lb., quoting now Potassii Bromid. 1s. 11½d. per lb.; Sodii Bromid., 2s. 2½d. Ammon. Bromid., 2s. 3d. per lb., with a reduction of 1d. per lb. for half-ton lots. Bromide is so far unchanged at 2s. to 2s. 2d. per lb., according to quantity, in 60-lb. cases.

CAMPHOR—Market for crude is quiet, but prices continue very firm. China, for March-May shipment, cabled 173s. per cwt., c.i.f., while buyers only offer 167s. 6d. Japan, for Feb.-March steamer shipment, is offering at 175s. per cwt., c.i.f., without, however, finding buyers. English refiners maintain their price of 2s. 2d. per lb. for bells and flowers, tablets being quoted higher in proportion, while German refiners quote bells slightly below price named.

CASTOR OIL—Dearer. Belgian, first pressing, spot, £30 10s.; April-June, £30, f.o.b.; Antwerp, second pressing, spot, £28 10s. per ton, wharf. Hull manufactured, guaranteed cold-drawn, pure pharmaceutical, £35 10s. per ton in barrels, 4d. per lb. in cases. Pure firsts, £31; seconds, £30 per ton in barrels; firsts 3½d. per lb. in cases; seconds 3½d., ex-wharf, London.

CINCHONA BARK—The second of the series of these auctions was held to-day. Larger, but still moderate, supplies were catalogued, the total of all kinds amounting to 2,129 packages against 1,610 packages at the opening sale of the year. A good demand prevailed and a fair proportion found buyers, at and since the sale, at a further advance, the prices obtained for manufacturing bark being fully up to the last Dutch sale, the average unit being 2d., against 1½d. at the previous London auctions. Cinchonidine Bark averaged 2½d. per unit. Ceylon: 228 packages offered and 140 sold. Succirubra, stem chips and shavings, ordinary to good rich from 3½d. to 10½d., fair root at 4¾d., Ledger branch at 2¼d. East Indian: 1,252 packages offered and 850 sold. Red stem, chips and shavings, fair to good at 4¾d. to 5¾d., ordinary to fair at 2¾d. to 4d.; root, ordinary to good at 2½d. to 4¼d.; Officinalis chips and shavings, inferior to good rich at 3¾d. to 8¾d., branch at 2¼d. to 3¾d.; renewed stem chips, good to fine at 7¼d. to 9½d.; Ledger stem chips, fair to good rich at 6¾d. to 9d., ordinary at 3¾d. to 4¾d., branch at 3½d. to 5¼d.; Hybrid stem chips at 3¾d. to 4d.;

good Ledger root at 6½d. Java: 80 bags and 9 cases offered and 63 bags sold. Ledger stem chips at 8¼d. to 9d., ditto branch at 5d. to 6¾d., root at 5½d. South American: 184 bales Calisaya offered and 128 bales sold, fair to good Bolivian cultivated quilts at 7½d. to 11½d.; damaged flat at 6d. to 8½d. 376 packages soft Colombian offered and 61 packages sold, cultivated quilly chips at 10¾d., ordinary chips 5½d. to 6¾d.

CLOVES—Zanzibar: Out of 190 bales at auction that were offered 141 bales sold at full rates, fair to medium, at 4½d. to 4¼d. Penang: 4 cases of good bright picked were bought in at 8d. Amboyna: 67 bags of fair, rather stalky, were bought in at 5d. Privately, Zanzibar have been quiet, and only a moderate business done, the prices being steady at the close. The sales comprise spot at 4¼d., Jan-March delivery at 4¼d. Stems: 40 bales Zanzibar were bought in.

COAL TAR DISTILLATION PRODUCTS—Toluol, commercial, 1s. 2d. per gallon; pure, 2s. Benzole, 50 per cent., 10d. per gallon; 90 per cent., 8d. Creosote, 3d. to 5d. per gallon, according to quantity, etc. Crude Naphtha, 30 per cent. at 120° C., 4½d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 7d. per gallon; 90 per cent. at 160° C., 1s. 3d.; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene: A, 3¾d. per unit; B, 2¾d. Pitch, 38s. per ton, f.o.b. Tar, crude, and/or-refined, 12s. 6d. per barrel; 2d. to 2¼d. per gallon.

COCAINE—Makers quote the Hydrochlorate 16s. 3d. to 16s. 9d. per oz., in 25 oz. tins, the lower figure being for 200 oz. lots. The market has, however, assumed a distinctly firmer tone, and there are practically no sellers of the brands most in favour at a lower figure than named above.

CODEINE—Is very firm at 13s. 1d. to 13s. 6d. per oz. for the pure and 1s. per oz. less for the muriate, phosphate, and sulphate salts.

COD LIVER OIL—Market appears to be drifting downwards, 65s. to 67s. 6d. per barrel, according to brand, being nominally the quotation for best new non-congealing Norwegian oil in tin-lined barrels of 25 gallons.

CREAM OF TARTAR—Quiet, at 73s. per cwt. for first white crystals, on the spot; powder, 75s.; ditto, 95 per cent., 76s. per cwt.

ERGOT OF RYE—There has been more inquiry for the article this week, but holders continue very firm in their ideas.

ESERINE (PHYSOSTIGMINE)—Unchanged at 2s. 3d. per gramme for the Sulphate and Salicylate and 3s. 6d. per gramme for the pure.

GENTIAN ROOT—15s. 6d. to 16s. per cwt. is asked for good dry root, on the spot.

GINGER—Jamaica: 133 barrels offered and 73 sold, ordinary to fair bright at 57s. to 58s. The small supply of Cochin met little demand, and only a few bags sold at previous rates. 281 bags and 78 cases were offered and 40 bags sold, Calicut rough, fair bright medium and small, rather lean at 34s.

GLYCERIN—Is decidedly firmer at 55s. to 57s. 6d. per cwt., according to quantity and make for good English, while German is quoted 57s. 6d. to 67s. 6d. per cwt., according to brand, for best white double-distilled, chemically pure, 1260 quality, in tins and cases (2 or 4 × 56 lb. tins in a case). Crude is dearer, as much as £2 per ton more being asked than price hitherto ruling for the quality most suitable for refining purposes. The higher price asked for the crude has, however, rather tended to check business.

IODIDES—Unchanged and fairly steady at 10s. 6d. for Potassii Iodid., 11s. 10d. per lb. Sodii Iodid., 13s. 10d. per lb. for Ammon. Iodid., 13s. 10d. per lb. for Iodoform, cryst., powder, or precip., 12s. per lb. for Iodine resublimed, and 7½d. per oz. for crude Iodine.

IPECACUANHA—Quiet but fairly steady at 10s. 6d. to 11s. per lb. according to quality, for Rio and 6s. 9d. to 7s. 6d. for Carthage.

LYCOPodium—Is firm at 1s. 11d. to 2s. per lb. for sifted.

MENTHOL—Somewhat weaker at 9s. 6d. to 10s. per lb., according to brand, quantity, and holder.

MERCURIALS—Are very firm in sympathy with the metal, makers, however, so far, made no change in their prices, which remain at 3s. 2d. per lb. for calomel and 2s. 10d. per lb. for corrosive sublimate.

MORPHINE—Is steady at 5s. to 5s. 3d. per oz., according to quantity, for the Hydrochlorate powder, the crystal salt being quoted 2d. per oz. more money.

OILS (FIXED) AND SPIRITS.—Linseed has further advanced, closing firm. On the spot pipes, London, £24 10s. to £24 15s.; barrels, £24 10s. to £24 15s. Hull, spot naked, £23. Rape steady: Ordinary brown on the spot quoted £25 10s.; refined spot, £26 15s. to £27; Ravison naked spot £23 15s. Cotton quiet: London crude spot, £22 to £22 5s.; refined spot, £23 10s. to £24, according to make; Hull naked refined spot quoted £22; crude spot, £20 15s. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut firm: Ceylon on the spot, £25 15s.; near, £24 15s.; Cochin spot, £29. Palm: Lagos on the spot, quoted £28 10s. Lubricating: Pale American spot, 8s. to 9s. 6d.; black, 7s. to 9s.; Russian black, 6s. to 6s. 6d.; pale, 8s. to 9s. 6d. Petroleum Oil steady: Russian spot quoted 6½d. to 6¾d.; American spot, 7¾d. to 7½d.; water white, 8½d. to 8¾d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. Turpentine quiet: American spot, 40s. 1½d. to 40s. 3d. to 40s. 4½d.

OPIUM—Market remains excessively quiet, with practically no business of any importance passing, either in soft shipping, druggists', or manufacturing kinds.

PARAFFIN WAX—Decidedly dearer, at 3¼d. to 3½d. per lb. for crude, and 4d. to 4¾d. per lb. for refined.

PHENACETINE—Makers' price continues at 5s. 3d. for crystals or powder in 5 cwt. lots. There are, however, still sellers from second-hand at 4s. 6d. to 4s. 9d. per lb., according to brand. Bayer's make continues to be held for a fancy price.

PILOCARPINE—Quiet, but firm, at 41s. 6d. per oz. for the Nitrate and Muriate Salts, in 8 oz. lots.

PITCH—8s.

POTASH COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4½d. per lb. Bromide, 1s. 11½d. per lb. Chlorate: Spot London, crystals and powder, 4½d. to 4¾d. net. Iodide, 10s. 6d. per lb. Permanganate small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate: Yellow, 7¾d. for English makes; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity.

QUICKSILVER—Is very firm at £9 12s. 6d. per bottle from the importer, there being practically nothing offering from second-hand.

QUININE.—The report current last week that shipments of Bark from Java for first half of February were only 180,000 lbs. caused quite a flutter in the speculative market, and B. and S., and Brunswick Sulphate was bought eagerly for 1,000 oz. lots, in 25 oz. tins, at 1s. 6¾d. per oz. for March delivery; 1s. 6¾d. to 1s. 6¾d. for May; and at 1s. 6¾d. for June. Market has, however, since quieted down, and there are now sellers at ¾d. per oz. below above figures. Messrs. Howards and Sons have raised their price for sulphate 1d. per oz., quoting 1s. 8d. per oz. for 1 oz. vials, in 100 oz. lots.

ROSIN—Dearer, at 5s. 6d. to 5s. 9d. per cwt. for strained, on the spot, 5s. 1½d. to 5s. 2d. per cwt. being asked for April-June and July-September shipment, per sailing vessel.

SALICINE—Continues very scarce and price is firm at late advance to 15s. 6d. per lb. A further rise would appear by no means improbable.

SALICYLATES.—Acid Salicylic and Soda Salicylate are nominally unchanged in price. Makers, however, continue to decline all fresh orders, and can only deliver slowly against existing contracts.

SALOL—Market is very firm at late advance to 3s. 8d. per lb.

SANTONINE.—While makers' price continues firm and unchanged at 11s. 3d. to 11s. 9d. per lb., there are sellers from second at 10s. 6d. per lb. and even perhaps below this figure, which tends to make buyers cautious to cover their requirements in the article only from hand to mouth.

SHELLAC.—The demand on the spot is slow, and only restricted sales have taken place at previous rates. The "Future" market is steady, although quiet, with a further sale of 100 cases TN March delivery at 63s., closing buyers at 62s. 6d. and August at 64s. 6d.

SODA COMPOUNDS.—Crystals, barrels, quoted 60s., bags 57s. 6d.; Ash, £6 to £7, according to percentage, etc. Bichromate landed £7 5s.; Bicarbonate landed £7 5s.; Bromide, 2s. 2½d.; Caustic, 70 per cent, white, £10 15s. to £11; 60 per cent., £1 less; Hyposulphite (Antichlor) 7s. to 9s., according to make; Iodide, 11s. 10d. per lb.; Nitrate quiet on spot, refined, £8 17s. 6d., ordinary £8 12s. 6d.

SPICES (VARIOUS).—Black Pepper: At auction 583 bags Singapore went off with difficulty, only 8 bags selling at 6½d. for fair. 139 bags Trang bought in at 6½d., also 109 bags Penang at 5¾d. White Pepper inactive, and 148 bags Singapore in auction were

bought in, fair to fine, at 9¾d. to 11d. 57 bags fair Siam bought in at 9¾d., and 301 bags fair brown limes Penang at 8¾d. to 8¾d. Chillies quiet, 80 bales Zanzibar were bought in at auction, fair at 47s. Capsicums freely offered, and a small quantity sold at again lower rates. Of 558 packages Bombay 37 bales sold, fair bright red cherry pods, at 32s. 6d. to 33s.; long red on stalk, bought in at 35s. Pimento slow of sale, and 292 bags were bought in. Cassia Lignea quiet but steady, 350 cases in auction were offered and only 40 cases sold, new selected at 44s.; fine old bought in at 49s. to 50s. Cassia Chips: 200 bales offered and bought in. Cinnamon: At auction 155 bales, chiefly wild, offered and mostly bought in, a few bales quill selling at 1d. Cinnamon chips and bark neglected and in good supply; 520 bags offered, chiefly wild, and 69 bags sold privately, price not reported. Nutmegs: At auction 3 cases Penang offered but taken out. Mace slow of sale; 3 cases Penang offered and sold, dull pale and reddish at 1s. 6¾d.; 2 cases Bombay fair red, part broken, bought in at 1s. 7d.; Bombay, wild, 7 cases good bright offered and bought in at 5d.

SULPHATE OF COPPER—Is quoted £24 to £24 10s. per ton, on the spot.

SULPHONAL—Makers are firm at the late advance to 20s. 6d. per lb., with a certain reduction for quantity, for both Crystals and Powder in bulk packing, there being now practically nothing offering at cheaper rates from second hand.

TAR.—Stockholm, 26s.; Archangel, 18s. 6d.

THYMOL—Continues firm at 10s. 6d. to 11s. per lb.

Metric Measures of Mass with Imperial Equivalents.

THE GRAMME (Gm.) equals 15.432 grains, and was originally the mass of one-thousandth part of a cubic decimetre of water at 4° C.; it is now equal to the mass of one-thousandth part of a solid cylinder of iridio-platinum 39 Mm. high and the same in diameter, a copy of which is in the possession of the Board of Trade.

The subdivisions of the gramme are the

Decigramme (Dgm.)	= 0.100 Gm.	= 1.543 grain.
Centigramme (Cgm.)	= 0.010 Gm.	= 0.154 grain.
Milligramme (Mgm.)	= 0.001 Gm.	= 0.015 grain.

The multiples of the gramme are the

Dekagramme (Dkgm.)	= 10.0 Gm.	= 0.3527 oz.
Hectogramme (Hgm.)	= 100.0 Gm.	= 3.5274 oz.
Kilogramme (Kilo.)	= 1000.0 Gm.	= 2.2046 lbs.
Myriagramme (Mygm.)	= 10.0 Kilo.	= 22.0462 lbs.
Quintal (Q.)	= 100.0 Kilo.	= 1.9684 cwt.
Millier or Tonne (T.)	= 1000.0 Kilo.	= 0.9842 ton.

CONVERSION OF METRIC TO IMPERIAL UNITS.

Grammes × 15.432 = Grs.	Grammes ÷ 31.104 = Ozs. (Troy).
Grammes ÷ 0.065 = Grs.	Grammes × 0.035 = Ozs. (Av.).
Grammes ÷ 1.296 = Scr. (Ap.).	Grammes ÷ 28.344 = Ozs. (Av.).
Grammes ÷ 3.888 = Drs. (Ap.).	Kilogram. × 2.205 = Pounds.
Grammes × 0.032 = Oz. (Troy).	Kilogram. ÷ 0.454 = Pounds.

CONVERSION OF IMPERIAL TO METRIC UNITS.

Grains ÷ 15.432 = Gms.	Ounces (Troy) × 31.104 = Gms.
Grains × 0.065 = Gms.	Ounces (Avoir.) ÷ 0.035 = Gms.
Scruples (Ap.) × 1.296 = Gms.	Ounces (Avoir.) × 28.344 = Gms.
Drachms (Ap.) × 3.888 = Gms.	Pounds (Avoir.) ÷ 2.205 = Kilo.
Ounces (Troy) ÷ 0.032 = Gms.	Pounds (Avoir.) × 0.454 = Kilo.

GRAINS AND OUNCES TO GRAMMES, AND GRAINS PER FLUID OUNCE TO GRAMMES PER 100 MILLILITRES.

	Grains to Grammes (Gm.)	Ounces to Grammes. (Gm.)	Grains to the Ounce — Grammes to 100 ML.
1 ..	0.06479	28.350	0.228
2 ..	0.12958	56.699	0.456
3 ..	0.19437	85.049	0.684
4 ..	0.25916	113.398	0.912
5 ..	0.32395	141.748	0.140
6 ..	0.38874	170.097	1.368
7 ..	0.45353	198.447	1.597
8 ..	0.51832	226.796	1.825
9 ..	0.58311	255.146	2.053

EXPLANATION OF TABLE.—The first column represents the number of grains or ounces. Thus: 4 grains = 0.25916 Gm., 4 ounces = 113.398 Gm. The fourth column shows how many grammes to 100 millilitres (ML) are equivalent to a given number of grains to 1 fluid ounce, thus: 4 grains to 1 fl. oz. = 0.912 Gm. to 100 ML.

Calendar for the Week.

Sunday, Feb. 25. Quinquagesima Sunday. Sun rises 6.57; sets 5.30.
Monday, Feb. 26. Sun rises 6.55; sets 5.32.
Tuesday, Feb. 27. Sun rises 6.53; sets 5.34.
 BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION, County Restaurant, at 8.30 p.m.—"The Physical Tests of the Purity of Drugs," by George Ward.
 ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8.0 p.m.—"Electricity in Connection with Photographic Action," by A. Friese-Greene.
Wednesday, Feb. 28. Sun rises 6.51; sets 5.36.
 EDINBURGH CHEMISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION, 36, York Place, at 9.15 p.m.—"Gold and Gold Beating," by G. H. C. Rowland, and "Notes on the Pottage Herbarium," by J. Rutherford Hill.
 PUBLIC AND POOR LAW DISPENSERS' ASSOCIATION, St. Bride's Institute, Bride Lane, Ludgate Circus, E.C., at 8 p.m.—"Some Points in Practical Pharmacy," by F. Davis.
Thursday, March 1. ● 11.25 M. Sun rises 6.49; sets 5.37
 CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—Papers by H. A. D. Jowett; F. S. Kipping and Harold Hall; E. Divers and T. Haga; A. Lapworth and E. M. Chapman.
 CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Paper: Subject not announced.
 LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 8 p.m.—Papers on "Botanic Nomenclature," by C. B. Clarke; and on "Some Foraminifera of Tithonian Age from the Limestone of Nesseldorf," by F. Chapman.
 LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY, 6, Sandon Terrace, Upper Duke Street, at 8.30 p.m.—"Dispensing Notes," by H. Wyatt, jun.
 LONDON COLLEGE OF CHEMISTRY AND PHARMACY, Gauden Hotel, Clapham, at 8.0 p.m.—Smoking Concert.
Friday, March 2. Sun rises 6.47; sets 5.39.
 GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Dr. Geo Coull on "Stereo Chemistry."
 ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—Major R. Ross on "Malaria and Mosquitos."
Saturday, March 3. Sun rises 6.44; sets 5.41.
 ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Lord Raleigh on "Polarised Light."

Publications Received.

HUNDERTFÜNFZIG JAHRE EINER DEUTSCHEN DROGENHANDLUNG 1750-1900. Ein Beitrag zur Geschichte ihrer Firma herausgegeben am 7. Februar, 1900. Von Brückner, Lampe and Co., Leipzig, Berlin, Hamburg. From the Publishers.

OUR PATENT LAWS. Revised Edition, to suit the present situation, with an additional article on "American Competition," closely bearing on the subject, by JAMES KEITH, C.E. Pp. 20, London: Unwin Brothers, January, 1900. From the Publishers.

JAAROVERZICHTEN BETREFFENDE DEN HANDEL IN KOLONIALE PRODUCTEN, 1899. Bijvoegsel van "De Indische Mercur." Februari 13, 1900. Pp. 80. Amsterdam: J. H. De Bussy. From the Publishers.

REPORT ON THE HEALTH, SANITARY CONDITION, ETC., OF THE BOROUGH OF HASTINGS, for the quarter ending December 31, 1899. By A. SCARLYN WILSON, D.P.H., Medical Officer of Health. Hastings: Town Clerk's Office. From the Town Clerk.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Cask finest Lofoten non-freezing Cod Liver Oil, 70s.—Floyd & Co. (Lim.), Bury St. Edmunds.

Moulds.—Suppository, Pessary, Bougie, Capsule; as Maw's.—Warnes, 333, Gray's Inn Rd., W.C.

2 lb. Pot. Iodid., 19s.; 2 oz. Morph. Hydroch., 10s.—Eastman, Forest Lane, Stratford.

What Offers for 38 volumes "Pharm. Journal" (1841 to 1879)? Bound in half calf; good condition.—Lines, Market Place, Hertford.

What Offers, in cash or exchange, for 4 gross Ivory floating soap, 3 by 2 tablets, wrapped in box, clean and new?—Oldham, Chemist, Wisbech.

Forty-three Materia Medica Micro. Slides by Möller and Rodig, price 30s.; also a very fine Objective, 4 inch, by Swift, 22s.—Callaway, Salisbury.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Herbarium (Sale or Exchange) consisting of 174 specimens, arranged into 56 natural orders. 2 guineas. (Correctly named).—R. W. Tildesley, Parkgate, Rotherham.

Sells Like Magic.—Straw Hat Polish; shop boy or apprentice can make it; cent. per cent. profit. Instructions and recipe, 2s.—Huntley, Chemist, Kidderminster.

Offers solicited for 40 volumes of "Pharm. Journal," strongly bound in good library bindings, and in perfect condition. Dates 1859-79.—F., 194, Staveley Road, Wolverhampton.

Good Painted Lantern Slides (second-hand), including Religious, Temperance Effects, Mottoes, Comic, 4½d. each; Boer War, 6d. each. Lists free.—T. Wing, Photographer, Chatteris.

Magazine Hand Camera, excellent, cost £2 new, 15s. on approval. Kemshead's Chemistry, enlarged, 1s. Hogg's "The Microscope," published 6s., sell 2s.—Williams, Chemist, Llanfyllin.

Pharmaceutical Journal, and "Chemist and Druggist," practically complete, from about 1860 to date; about half of them bound, remainder unbound; what offers? Room wanted.—H., 4, King's Parade, Clifton.

50,000 Choicest Microscopical Objects of every variety. Catalogues free. New and second-hand Microscopes by all leading makers. Cabinets, Mounting Materials, etc.—Suter, 10, High-week Road, Tottenham, Middlesex.

Copper Drying Oven, 4 by 6 by 5 in.; Water-bath, 8 by 8 in., 4 holes with covers. 5 in. Copper Water-bath, 5 rings; Sikes' Hydrometer, doubly gilt; Mohr's Burette and polished stand; Erdman's Float; 10 C.c. Pipette; Brass Troy Weights (cup), ¼ oz. to 16 oz.; Ganot's Physics. Offers requested.—Gossling, East Borough, Wimborne.

Otto Roses, Virgin, ounce, original (gilt), 25s.; Neroli, extra, ounce, original, 7s. 6d.; Ylang-Ylang, ounce, original, 7s. 6d.; Otto Jasmin, ounce, 15s.; Otto Violet, ounce, 21s.; Geranium, Bulgarian, 4 oz. bottle, 10s.; Lavender, Mitcham, 1 lb., original, 25s. Carriage paid, cash returned if sold.—Warnes, 333, Gray's Inn Rd., W.C. Salcable Patents wanted.

Solid Mahogany, Brass-Bound Telescopic Camera, 12 by 8½, extending to 16 in., taking largest size, 7½ by 9; 3 mahogany holders and dark slide; single lens (Ross), 3 in. diameter, focus about 12 in.; solid mahogany legs; £4, or exchange. Carte de Visite, solid mahogany box camera, size 6 by 6 by 4, extending to 6; 3-shot dark slide; double lens; 2 in. diameter rack and pinion, about 5 in. focus. Cost £6, take £3, or exchange.—C. R., 56, Coombe Rd., Croydon.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once

MINIMS, DRACHMS AND FLUID OUNCES TO MILLILITRES, AND PINTS TO LITRES.

	Minims to Ml.	Drachms to Ml.	Ounces to Ml.	Pints to Litres.
1	0.05916	3.552	28.412	0.568
2	0.11832	7.103	56.825	1.136
3	0.17748	10.655	85.237	1.705
4	0.23664	14.205	113.649	2.273
5	0.29580	17.758	142.065	2.841
6	0.35496	21.309	170.474	3.409
7	0.41412	24.860	198.886	3.977
8	0.47328	28.412	227.298	4.545
9	0.53244	31.964	255.711	5.111

EXPLANATION OF TABLE.—The first column represents the number of minims, drachms, fluid ounces, or pints. Thus: 4 minims = 0.23664 Ml.; 4 drachms = 14.206 Ml.; 4 fl. oz. = 113.649 Ml.; 4 pts. = 2.273 Litres.

EXCHANGE COLUMN—*continued.*

OFFERED.

£21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Pharmaceutical Journal, present (enlarged) series. Stat^e lowest price for volumes or separate numbers to Analyst, "Pharm. Journal" Office, 5, Serle Street, London, W.C.

Wanted, recent editions Clowes' and Colman's Quantitative Analysis, Gattermann's Practical Organic Chemistry, Greenish's Materia Medica.—Davis, 90, Cotham Brow, Bristol.

FREE FORMULÆ

A 4 pp. SHEET OF FORMULÆ is given with

ROUSE'S CARMINE 1s. 8d. per oz. Tin, with Labels, Post free or through Wholesale.

How highly these Formulæ are appreciated by the Trade may be judged by the subjoined extracts from letters received by us:—

C. D. B., Hull, writes:—"I was much pleased with the Carmine, and with the preparations made from it; the latter are admirable."

F. W. B., Manches er:—"Some time ago I had some of your excellent Carmine, and made a lot of Tooth Paste, which pleased me very much."

J. J. G., Folkestone:—"I have tried your Carmine, and made some Liquid Cochineal according to your formula, which turned out an excellent preparation."

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Notices to Correspondents.

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

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Allan, Barrie, Bartlett, Bostock, Daykin, Epton, Ford, Forster, Grier, Harwood, Hearson, Herman, Hewlett, Hill Hodge, Hudson, Hymans, Knight, Lloyd, Lothian, Maben, Martin, Meadows, Philp, Smith, Stonham, Symes, Taylor, White, Williams, Wilson.

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NEWS IN BRIEF.

BACTERIA AND SEWAGE is to be the subject of the Friday evening discourse at the Royal Institution on March 9, the lecturer being Professor Frank Clowes.

THE CHEMISTS' ASSISTANTS OF BIRMINGHAM are to hold a smoking concert at the Exchange Restaurant, Stephenson Place, Birmingham, on Wednesday next, March 7, at 9 p.m.

THE CHEMISTS' ASSISTANTS' ASSOCIATION did not hold its usual weekly meeting on Thursday, March 1, owing to the fact that no paper was forthcoming for the occasion.

THE ANNUAL DINNER of the Chemists' Assistants' Association will be held in the King's Hall, Holborn Restaurant, London, on Thursday, March 8. Tickets (5s. each) may be obtained of Mr. Herbert Hymans, 34, Devonshire Street, W.

THE CHEMISTS' BALL COMMITTEE met on Wednesday, when the Secretary reported that there was a surplus fund from the 1900 ball of £34 14s., and it was decided to hand over twenty-five guineas to the Benevolent Fund of the Pharmaceutical Society.

THE SALE OF MESSRS. BURROUGHS, WELLCOME, AND CO.'S PREPARATIONS came up for discussion by the Council of the P.A.T.A. at its recent meeting, and it was decided to invite the firm to meet a deputation of a few members of the Council on the subject.

MESSRS. T. AND H. SMITH AND CO., of London, Edinburgh, and Glasgow, have been exhibiting at their Edinburgh house a case of medicinal drugs which has been prepared for the Paris Exhibition. The collection chiefly consists of alkaloid derivatives of opium, one specimen of "codeine" being valued at £300.

OXALIC ACID was employed by James Blount (40), an insurance agent, of Ashton-under-Lyne, to relieve himself of the depression of mind with which he had been troubled for some time past. A verdict of "Suicide whilst temporarily insane" was subsequently returned by a jury on Thursday, February 22.

DR. COULL'S LECTURE on "Stereo-Chemistry" to the Glasgow Assistants' Association, announced to take place this week (March 2), has, we understand, been interchanged with the "Spelling Bee" which was to be held on Friday, March 9, at the Masonic Chambers, West Regent Street, Glasgow.

THE NOTTINGHAM CHEMISTS' ASSOCIATION is to hold its annual dinner at the Albert Hotel, Derby Road, Nottingham, on Thursday, March 8. Tickets (4s. each) should be obtained of the Hon. Secretary, Mr. A. Eberlin, 2, Chapel Bar, Nottingham, not later than Monday, March 5.

SALE OF FOOD AND DRUGS ACT, 1899.—Mr. Hedderwick has given notice that on Monday, March 6, he will ask the President of the Board of Agriculture whether any, and what, steps have been taken by the Board in exercise of its powers under section 4 of the above-mentioned Act to settle the standard of quality in respect to milk, butter, and cheese. It will be interesting to know what official tests will be required, say in the case of Stilton.

THE REPORT OF THE EXECUTIVE COMMITTEE OF THE P.A.T.A., submitted at a meeting of the Council, held on February 22, stated that since the last meeting of the Council sixty retail members and seven manufacturers had joined the Association. Also that the Chemists' Defence Association, Limited, had been registered on November 23 last, with a nominal capital of £10,000, and up to the present 600 shares had been allotted.

WITH REGARD TO HOMOEOPATHIC MEDICINES, the P.A.T.A. Executive reported that an attempt had been made to bring about an understanding between makers of those articles with a view to regulating wholesale and retail prices, but while the principal makers were willing to negotiate on those lines, Messrs. Ashton and Parsons declined to co-operate, hence an amicable arrangement had not yet been arrived at.

THE OVER-STOCKING OF PROTECTED ARTICLES was brought under the notice of the Council of the P.A.T.A., and the Chairman suggested that, inasmuch as the Association cannot be held responsible

in any way for the inability of members to dispose of their stocks, they should only purchase in such quantity as would meet their every-day wants, and not, on account of the extra discounts, to purchase a large stock, which would probably take a considerable time to dispose of.

THE KINNINMONT PRIZE, which takes the form of a gold medal and books, is competed for in an annual competition, instituted by Mr. Alexander Kinninmont, held in Glasgow in May or June of each year, and is open to chemists' assistants in Glasgow and the neighbouring counties. The subjects of examination are botany, magnetism, and electricity. Intending competitors should send in their names before the end of April to the Secretary, Mr. W. L. Currie, 223, Byres Road, Dowanhill, Glasgow.

THE POSITION OF PARLIAMENTARY BILLS directly or indirectly affecting pharmacists may be briefly indicated as follows:—

Companies.—Second Reading threatened on Mondays, Tuesdays, and Thursdays.

Boilers.—No. 1, Second Reading March 7; No. 2, Second Reading March 7; No. 3, Second Reading March 7; No. 4, First Reading March 1.

Companies Amendment (Begg).—Second Reading April 4.

Midwives.—On the Notice Paper for Second Reading most Wednesdays.

Registration of Firms.—Second Reading May 2.

Shops.—Second Reading March 6.

THE INCOME-TAX ADJUSTMENT AGENCY, LIMITED, writes to point out that so many persons fail to recover overcharges through not lodging their claims in time, that it is desirous of reminding our readers that no claim for repayment of tax deducted from rents, dividends, annuities, etc., in respect of the year ended April 5, 1897, will be allowed unless the same be lodged before April 5 next. Where the income has been received and tax paid, a claim can now be made for four years. With few exceptions, all persons whose incomes do not exceed £700 are entitled to exemptions or abatements, even when the income is said to be "free of income-tax," and on an income not exceeding £400 the amount repayable might amount to £42. All claims should, however, be made with the least possible delay, as the time allowed for making some of them is strictly limited.

Marriage.

BATES—KIRBY.—On February 26, at the Parish Church, Bicester, by the Rev. G. P. Crawford, Vicar, John Bates, M.P.S., to Florence Ellen, daughter of the late George Kirby, solicitor.

TRADE NOTES.

NEW PHOTOGRAPHIC LABELS, ETC.—Chemists who deal in photographic requisites, and are about to renew their supply of labels and other printed matter relating to photography, should write to Messrs. James Townsend and Son, Medical Label Printers, of Exeter and London, for specimens of their printing for photographic chemists. The specimen labels submitted to the Editor are clearly printed in colours, with chemists' own name and address, the circulars *re* amateur photography being exceedingly pretty, printed on coloured paper half-pink and half-green.

PROTARGOL SOLOIDS.—Messrs. Burroughs, Wellcome, and Co., Snow Hill Buildings, London, E.C., submit a specimen of protargol soloids, gr. 4. This preparation will be issued in two strengths, gr. 1 and gr. 4, thus enabling suitable quantities of solution of any desired strength to be quickly prepared. Protargol soloids gr. 1 and gr. 4 are both issued in bottles containing 100 in each.

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

Alexander Ingram and Matthew Wright Talbot, Medical Practitioners, Preston. The practice will in future be carried on by M. W. Talbot in his own name.

RECEIVING ORDERS IN BANKRUPTCY.

Sydney Firth, Physician and Surgeon, Avenue Road, Grantham.

Thomas Bottomley, Chemical Manufacturer, residing at Scholes, near Liversedge, Yorks, and carrying on business at Tannerfield Works, Hightown, Liversedge.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, FEBRUARY 28, 1900.

During the week good business has been done in Castor Oils, which close very firm, with good demand. Chilian Honey has been selling well for full rates, and Beeswax has made good prices. Of West African produce, Chillies have engaged some attention, and a parcel of dried Kola Nuts made a shade better price than that lately ruling. The Chemical market is but slightly changed, Carbonate of Ammonia and Muriate being the only advances.

AMMONIA SALTS.—Carbonate, $3\frac{3}{4}$ d. to 4d. per lb. Muriate scarce, £24 10s. to £32 per ton. Sal ammoniac, 38s. to 40s. per cwt. Sulphate is steady at £12 per ton.

BEE SWAX.—10 sacks of Chilian sold at £7 12s. 6d. to £7 15s. per cwt.

BLEACHING POWDER.—£7 to £7 10s. per ton.

CANARY SEED.—Sales include 170 bags of Turkish at 32s. 6d. per 464 lbs.; price at present ruling is 32s. 6d. to 33s. 6d.

CARNAUBA WAX.—Maranham grey made 72s. 6d. per cwt.

CHILLIES.—Sierra Leone fruit, common to fair, sold to the extent of 37 bags, at 42s. 6d. to 45s. per cwt., together with 20 bags of fair on private terms.

HONEY.—Chilian is in good demand, and 250 barrels have changed hands, Pile 1 at 24s. to 25s. per cwt., Pile 2 at 23s. 6d., and Pile X at 30s. 6d. per cwt.

KOLA NUTS.—7 bags of dried sold at $1\frac{3}{4}$ d. per lb.

LINSEED.—Is firm, with River Plate offering at 46s. to 48s., quay, and Calcutta forward at 46s. per 416 lbs. Sales include 200 tons of River Plate forward, February shipment, at 43s. 9d. to 44s.

OILS (FIXED) AND SPIRITS.—Castor is brisk and in good demand, Calcutta at $3\frac{1}{2}$ d. per lb., 1st French at $3\frac{1}{4}$ d., and 2nd Belgian at $3\frac{1}{6}$ d. Sales of about 1,200 cases of Calcutta have been effected at $3\frac{1}{4}$ d. to $3\frac{5}{8}$ d. for forward delivery, January to June shipments. Olive is steady, with sales of Spanish at £36 10s. per tun (about 70 barrels). Linseed Oil is again a trace higher, 25s. 6d. per cwt. Cotton Seed Oil is easier, 24s. 3d. to 24s. 9d. per cwt. Spirits of Turpentine is 41s. 3d. per cwt., and steady.

POTASH SALTS.—Bichromate, $4\frac{1}{2}$ d. per lb. Chlorate, $4\frac{1}{2}$ d. per lb. Pearlashes, 33s. 6d. to 35s. Potashes, 27s. 3d. to 28s. 6d. per cwt., and firm. Prussiate, 8d. per lb. Saltpetre, 21s. per cwt.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is firmer, 16s. per cwt. Caustic scarce, 76 to 77 per cent., £11 per ton; 70 per cent., £10 5s. per ton. Crystals are firm at £3 5s. to £3 7s. 6d. per ton. Nitrate is higher at 8s. $7\frac{1}{2}$ d. to 9s. per cwt.

LONDON, THURSDAY, MARCH 1, 1900.

Business has again been quiet in drugs and chemicals during the past week. A very firm undertone, however, continues to prevail, some articles still showing a tendency towards a further advance in value. Quinine, after being very flat, is again better. Bromides, Mercurials, and Quicksilver very firm, while in Salicine, Salol, and Salicylates an advance would appear to be impending; has, in fact, already taken place as regards Salicine. Carbolic continues very firm, and especially for early delivery. Cocaine very steady. Glycerin firm. Cod Liver Oil dull. Opium and Morphine very quiet. Codeine firm. Citric and Tartaric steady, and especially the latter. Cream of Tartar quiet. It may reasonably be hoped that the favourable news from the seat of war may give a flip to business generally, not excepting the drug and chemical trade. The following are the prices ruling for some articles of chief interest:—

ACETANILIDE.—Remains very quiet at unchanged price.

ACID CARBOLIC.—Market remains firm, especially for prompt delivery, at $11\frac{1}{2}$ d. to 1s. for 35-36° ice crystal in bulk packing, other qualities and packing being quoted in proportion. Crude, 60° F, 3s. $2\frac{1}{2}$ d. per gallon; 75° F, 4s. Liquid, 95-98 per cent. of pale straw colour, 1s. 7d. to 1s. 9d. per gallon; ditto, 25-30 per cent. of dark colour, 10d. to 1s. per gallon, in 40-gallon casks.

ACID CITRIC.—Is steady but unchanged.

ACID OXALIC.—There is no change to report.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, $3\frac{1}{2}$ d. to $4\frac{1}{2}$ d. per lb., according to make, packing, and quantity. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate firm; gray, 24 per cent., London prompt, £12; Hull prompt, £12; Leith prompt, £12 1s. 3d. to £12 2s. 6d.; Beckton February-April, £12; Beckton terms, prompt, £11 17s. 6d. Nitrate, £32 10s. per ton. Phosphate, 5d. per lb. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

BORAX AND BORACIC ACID.—Are steady at unchanged prices.

BROMIDES.—Are very firm at the late advance; a further rise would appear not improbable.

CAMPHOR.—Has become quiet, and business in the crude article is at a standstill, but quotations are firm, with sellers of China March-May shipment at 170s., and Japan at 177s. 6d., importers asking 182s. 6d. c. f. and i. Refined is firm at unchanged prices.

CASTOR OIL.—Firm; Belgian, first pressing, spot, £31; April-June, £30 10s., f.o.b.; Antwerp, second pressing, spot, £28 10s. per ton, ex wharf. Hull manufactured, guaranteed cold drawn pure pharmaceutical, £33 10s. per ton in barrels, 4d. per lb. in cases. Pure firsts, £31; seconds, £30 per ton in barrels; firsts, $3\frac{5}{8}$ d. per lb. in cases; seconds, $3\frac{1}{2}$ d., ex-wharf, London.

CLOVES.—At auction 14 cases Penang bought in, fair bold picked at $7\frac{1}{2}$ d., small dark ditto at $5\frac{1}{2}$ d. 148 bales Zanzibar offered and 114 bales sold at firm rates, barely fair at $4\frac{1}{2}$ d. Privately, Zanzibar opened steadily at yesterday's improvement, closing strong and active at a further advance of 3-32d. Some bales have changed hands, comprising March-May delivery, at $4\frac{1}{4}$ d., chiefly June-August at $4\frac{5}{8}$ d. to $4\frac{3}{8}$ d., closing sellers at $4\frac{3}{8}$ d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 90 per cent., 1s. $2\frac{1}{2}$ d. per gallon; pure, 2s. Benzole, 50 per cent., 9d. per gallon; 90 per cent., $7\frac{1}{2}$ d. Creosote, $3\frac{1}{4}$ d. to 5d. per gallon, according to quantity, etc. Crude Naptha, 30 per cent. at 120° C., 5d. per gallon. Solvent Naphtha, 95 per cent., at 160° C., 1s. $5\frac{1}{2}$ d. per gallon; 90 per cent. at 160° C., 1s. $2\frac{1}{2}$ d.; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene, A, $3\frac{3}{4}$ d. per unit; B, $2\frac{3}{4}$ d. per unit. Pitch, 38s. per ton, f.o.b. Tar, refined, 15s. per barrel, $3\frac{1}{4}$ d. per gallon; crude, 12s. 6d. per barrel, $2\frac{1}{2}$ d. per gallon.

COCAINE.—Is firm at 16s. 3d. to 16s. 9d. per oz., according to quantity, for the hydrochlorate, in bulk packing and for 100-oz. lots.

CODEINE.—Is firm at unaltered price—viz., 13s. 1d. to 13s. 6d. per oz., according to quantity, for the pure, and 1s. per oz. less for the salts.

COD LIVER OIL.—Is quiet and still weak in price at nominally unchanged quotations.

CREAM OF TARTAR.—Remains very steady.

CUTCH.—Continues slow of sale, and business is unimportant at previous rates.

ESSENTIAL OILS.—Remain very quiet at previous quotations for all descriptions, and few sales have transpired.

GALLS.—Show little alteration, the demand being slow for all descriptions, and sales restricted. China to arrive are still quoted 65s., and Japan 61s. c. f. and i.

GAMBIER.—The market for arrival remains firm, with sales of 50 tons January-March steamer at 16s. 6d. On the spot business has been retail, including old landing at 16s. 6d.

GINGER.—At auction the small supply of Cochin went off quietly at steady rates. Of 211 bags and 120 cases offered 39 packages sold, small, rather roughly cut and scraped, at 45s.; washed rough new crop, bright, medium and small, at 33s. 6d. Japan: 241 bags offered and bought in, fair lined at 28s. Jamaica quiet but steady. Of 178 barrels offered 78 barrels sold, low middling to fair, at 55s. to 63s.; common to middling lean Rhatoon, first of the new crop, at 46s. to 50s. 6d.

GLYCERIN.—Market remains firm for both crude and refined, without, however, any special alteration in value.

IODIDES.—Are steady at unchanged price.

MERCURIALS.—Are very firm, in sympathy with Quicksilver, prices being, however, so far, unchanged.

MORPHINE.—Market is quiet and unchanged, at 5s. to 5s. 3d. per oz. for the hydrochlorate powder.

OILS (FIXED) AND SPIRITS.—Linseed quiet and easier; on the spot, pipes, London, £24 17s. 6d. to £25; barrels, £25. Hull, spot, naked, £22 10s. Rape firm; ordinary brown, on the spot, quoted £25 10s.; refined, spot, £26 10s. to £27; Ravison, naked, spot, £23 15s. Cotton easier; London crude, spot, £21 15s.; refined, spot, £23 5s. to £23 15s., according to make. Hull naked, refined, spot, quoted £21 2s. 6d.; crude, spot, £20 2s. 6d. Olive,

Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut firm. Ceylon, on the spot, £25 15s. Cochin, spot, £29 to £29 10s. Palm: Lagos, on the spot, quoted £29. Lubricating: Pale American, spot, 8s. to 9s. 9d.; black, 7s. to 9s. Russian, black, 6s. to 6s. 6d.; pale, 8s. to 9s. 6d. Petroleum Oil steady; Russian spot quoted 7d. to 7½d.; American, spot, 7½d. to 7¾d.; water white, 8¾d. to 9d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. Turpentine: There is no business to speak of. American, spot, 40s. 1½d.; March-April, 40s. 3d.

OPIUM—Continues extremely quiet, there being practically nothing doing in the article.

PHENACETIN.—Makers still quote both crystals and powder 5s. 3d. per lb. for 5-cwt. lots. There are, however, cheaper offers from second hand.

POTASH COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot, London, crystals and powder, 4½d. to 4¾d. net. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals 5s. per cwt. more. Prussiate, yellow, 7¾d. per lb. for English makes; 7½d. for Beckton; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton, ex-ship. Muriate, 80 per cent., £9 per ton.

QUICKSILVER—Is very firm at £9 12s. 6d. per bottle, it having been expected that price would be still further advanced by the importer to-day.

QUININE.—It is reported, although the report lacks absolute confirmation, that yesterday's sale of Quinine by public auction in Batavia (Java) went off well, buying orders which had been sent out at full limits not having been executed, in consequence of better prices having ruled than was anticipated would be the case. Here the article is rather steadier at about 1s. 6d. per oz. for B&S and/or Brunswick Sulphate on the spot in 100-oz. tins for 1,000-oz. lots for prompt and ½d. to ¾d. per oz. more for later delivery. Prices are expected to further advance.

SALICINE.—Makers now quote nominally 20s. to 21s. per lb., but decline all orders.

SALOL AND SALICYLATES—Are so far unchanged. It is, however, rumoured that negotiations are pending which may result in prices being further tangibly advanced.

SHELLAC.—The market in all positions is quiet, and no business of importance has occurred, but prices are steady, TN Orange on the spot at 62s. for fair, afloat 60s., and February-April shipment 62s. c. f. and i. 100 cases March delivery have been sold at 62s. and buyers.

SODA COMPOUNDS.—Crystals, barrels, quoted 60s.; bags, 57s. 6d. Ash, £6 to £7, according to percentage, etc. Bichromate, 3¾d. per lb. Bicarbonate, landed, £7 5s. Bromide, 2s. 2½d. Caustic, 70 per cent., white, £10 15s. to £11; 60 per cent., £1 less. Hyposulphite (Antichlor), 7s. to 9s., according to make. Iodide, 11s. 10d. per lb. Nitrate quiet; on spot, refined, £8 17s. 6d.; ordinary, £8 12s. 6d.

SPICES (VARIOUS).—Black Pepper: No Singapore was offered in auction. 12 bags of Tellicherry sold out of 63 bags offered, damaged at 6d. White Pepper very quiet; 118 bags Penang were bought in, including fair brown limed at 8¾d. No Singapore offered. Chillies quiet, and 15 packages Japan were bought in, fine bright, at 60s.; mixed yellowish and seedy at 52s. Capsicums dull. 50 bales Bombay were bought in, long, red on stalk, at 32s. Pimento firm and in fair demand; of 360 bags offered 182 bags sold, ordinary to good, at 3¾d. to 3½d. Cassia Lignea: 100 cases offered and bought in, fine old, at 51s. Cinnamon chips steady but quiet; 60 bags fair bought in at 4½d. Nutmegs steady but quiet; of 6 cases Penang 1 case sold, 143's, partly shrivelled, at 8d.; 3 cases Ceylon sold, 140's, defective, at 8½d. West Indian: 5 cases 44 barrels, etc., sold, 64's, at 2s. 1d.; 113's and 114's at 9½d. to 11d.; 130's at 9d.; 143's, defective, at 3d. Mace quiet but firm; of 21 cases Penang offered 2 cases sold; pale and reddish, rather wormy, at 1s. 7d. to 1s. 8d. 8 cases Bombay bought in. 1 case Ceylon sold, thin curly red, at 1s. 4d. West Indian: 25 packages sold, fair to good pale, at 1s. 6d. to 1s. 8d.; fair red at 1s. 5d.

SULPHONAL—Unchanged, at 20s. 6d. per lb. from the makers for both crystals and powder.

TARTARIC ACID—Is firm but without change.

TURMERIC—Has been very quiet, and few sales have occurred, but prices are steady and unchanged. Bengal quoted nominally 33s., in the absence of supplies; Cochin split bulb retail sales at 12s.; Madras quoted 32s. 6d. to 35s. for good bright finger.

THURSDAYS' DRUG SALES.

To-day's drug auctions passed off quietly, the number of catalogues, as also of lots, being small, owing, no doubt, partly to the fact that only goods which have not been up before are offered at these alternate fortnightly sales. There were no changes of any importance. Cardamoms selling well, as also did Sumatra Gum Benzoin and Buchu Leaves, the following being the particulars:—

ALOES.—45 boxes East African, catalogued as Uganda, sold readily at 40s. to 45s. per cwt. Other 5 cases East Indian sold at 70s. to 72s. 6d. per cwt.

ARGOL.—17 bags Cape were all bought in at 37s. 6d. to 42s. 6d. per cwt.

ASAFETIDA.—73 cases were all bought in at 60s. for fair quality, down to 35s. per cwt.

BALSAM TOLU.—8 cases were taken out at 1s. 9d. per lb.

BUCHU LEAVES.—14 bales part sold at 1s. for good round and 10d. for stalky. Other 16 bales part sold at about same parity.

CARDAMOMS.—29 packages Ceylon, part sold at 3s. 9d. per lb. for fair bold, down to 1s. 5d. per lb. for small and inferior. 6 cases Wild were taken out at nominally 4s. per lb. Of another lot of 80 cases, part realised as much as 4s. per lb. for good bold, down to 1s. 10d. per lb., according to quality. Another lot of 65 cases Ceylon practically all sold at 3s. 2d., down to 1s. 1d. per lb., 1 bag Seed realising 2s. 1d. per lb. Other 127 packages also sold readily at 3s. per lb., down to 1s. 4d. per lb. for poor, broken and wormy.

CINCHONA BARK.—20 serons Crown and Grey Bark sold readily at 11d. per lb. down to 6d. for inferior, country damaged.

CIVET.—8 horns of not very excellent quality were taken out at 8s. per oz.

COLOCYNTH.—6 cases Turkey were bought in at 1s. 7d. per lb.

ESSENTIAL OILS.—8 cases Eucalyptus were taken out at the somewhat fancy price of 3s. per lb. 1 case West Indian oil of limes bought in at 3s. 6d. per lb., 1 case Citronella at 1s. 3d. per oz.

GUAZA (HERBA CANNABIS INDICA).—84 robbins were all bought in at 5d. to 7d. per lb.

GUM AMMONIACUM.—7 bags medium to fair, part almondy, part dark, lump sold at 36s. to 38s. per cwt.

GUM BENZOIN.—59 cases Palembang (each about 1¾ cwt. net, in 8 tins) part sold at 65s. per cwt., subject to owner's approval. 45 cases Sumatra bought in at £6 7s. 6d. to £6 15s. per cwt. for inferior seconds. Other 113 cases part sold at £10 for very fine seconds down to £6 5s. to £6 17s. 6d. for lower quality.

GUM GUAIAECUM.—7 boxes part sold at 1s. per lb. for fine glossy, 9½d. per lb. for medium, down to 1½d. per lb. for low inferior quality in damp condition.

GUM SANDRAC.—13 casks and 2 bags were bought in at 35s. to 55s. per cwt.

IPECACUANHA.—20 bales Rio part sold at 10s. 10d. to 11s. 3d. per lb. for medium to fair quality, balance being bought in at 11s. 6d. 11 cases fair Carthage were all bought in at nominally 8s. 3d. per lb., other 3 packages selling at 7s. 3d. to 7s. 4d. per lb.

MUSK SEEDS.—2 packages sold at 1s. 6d. per lb.

ORANGE PEEL.—24 packages were all bought in at 1s. per lb. for good bright thin cut, and at 6d. to 10d. per lb. for the lower qualities.

QUININE.—2 casks, each containing 120 4 oz. bottles Howard's Sulphate, were bought in at 1s. 8d. per oz. 1 case containing 7 100 oz. tins bearing the name of a firm hitherto not known as manufacturers of Quinine, was taken out at 1s. 6d. per oz., it transpiring that 1d. per oz. less than this figure was the limit.

RHUBARB.—25 cases Canton sold cheaply at 10d. to 1s. for flat and at 9d. to 10½d. per lb. for round and 8½d. for flat and round mixed. 7 cases offered without reserve sold at 7¾d. per lb. for flat and 6d. per lb. for round.

SENNA.—12 packages Alexandria part sold at 6½d., good half leaf sold at 6½d. per lb.; 4 cases good bold leaf, of fair colour, being bought in at 1s. 5 bales pods realised 9d. to 9½d. per lb.

TONQUIN BEANS.—10 cases Paras were all bought in; other 9 cases part sold at 1s. per lb., balance of better quality being bought in at 1s. 9d. to 2s. per lb.

WAX.—Fair New Zealand was taken out at nominally £7 10s. per cwt. Less money would, however, have been accepted. 51 mats fair Madagascar part sold at £6 15s. to £7 5s., 1 case fair Zanzibar realising £6 17s. 6d. per cwt. 18 cases white Calcutta were bought in at £7 2s. 6d. per cwt., 7 packages fair Jamaica at £7 10s. to £7 12s. 6d. Of other 8 casks 2 casks sold at £7 5s., remainder being bought in at £7 7s. 6d. per cwt. Other 6 packages all sold at £7 5s. per cwt.

Calendar for the Week.

- Sunday, March 4.** First Sunday in Lent. Sun rises 6.42; sets 5.43.
- Monday, March 5.** Sun rises 6.40; sets 5.44
 DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION, Town Hall, at 8.30 p.m.—Annual General Meeting; Election of Officers.
 SOCIETY OF CHEMICAL INDUSTRY, Burlington House, Piccadilly, W., at 8 p.m.—Papers by R. W. Allen and Arthur Marshall.
- Tuesday, March 6.** Sun rises 6.38; sets 5.46.
 NORTH-EAST LANCASHIRE CHEMISTS' ASSOCIATION, White Bull Hotel, Blackburn.—Special Meeting to Select a Candidate for the Council Election.
 ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—Lecture on "Some Beauty Spots of English Scenery," by John A. Hodges.
- Wednesday, March 7.** Sun rises 6.36; sets 5.48.
 MIDLAND CHEMISTS' ASSISTANTS' ASSOCIATION, Exchange Restaurant, Birmingham, at 9.0 p.m.—Smoking Concert.
 PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 11 a.m.—Meeting of the Council.
 ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8.0 p.m.—Opening of the March Exhibition by Sir Benjamin Stone, M.P.
- Thursday, March 8.** Sun rises 6.34; sets 5.50.
 CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8.30 p.m.—Professor Warington on "Recent Researches on Nitrification."
 CHEMISTS' ASSISTANTS' ASSOCIATION, Kiug's Hall, Holborn Restaurant, London, W.C.—Annual Dinner.
 NOTTINGHAM AND NOTTS CHEMISTS' ASSOCIATION, Albert Hall, Derby Road, at 8 p.m.—Annual Dinner.
- Friday, March 9.** Sun rises 6.31; sets 5.51.
 EDINBURGH CHEMISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION, Imperial Hotel.—Annual Supper.
 GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Dr. Coull's Lecture on "Stereo-Chemistry."
 ROYAL INSTITUTION, Albemarle Street, London, W., at 9 p.m.—Professor Frank Clowes on "Bacteria and Sewage."
- Saturday, March 10.** Sun rises 6.29; sets 5.53.
 ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m.—Lord Rayleigh on "Polarised Light."

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

- Potass. Iodid.**, 2 lb., 19/-; Morph. Hydroch., 5/-, 4oz. 19/-.—Eastman, Chemist, Stratford.
- Moulds.**—Suppository, Pessary, Bougie, Capsule; as Maw's.—Warnes, 333, Gray's Inn Rd., W.C.
- Microscope**, large, excellent. Cost £7 7s. Sacrifice, £3 15s. Great bargain.—Weddle, Chemist, Gateshead.
- Photographic Mounts**, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.
- Good Painted Lantern Slides** (second-hand), including Religious, Temperance Effects, Mottoes, Comic, 4½d. each; Boer War, 6d. each. Lists free.—T. Wing, Photographer, Chatteris.
- Otto Roses**, Virgin, ounce, original (gilt), 25s.; Neroli, extra, ounce, original, 7s. 6d.; Ylang-Ylang, ounce, original, 7s. 6d.; Otto Jasmin, ounce, 15s.; Otto Violet, ounce, 21s.; Geranium, Bulgarian, 4 oz. bottle, 10s.; Lavender, Mitcham, 1 lb., original, 25s. Carriage paid, cash returned if sold.—Warnes, 333, Gray's Inn Rd., W.C. Saleable Patents wanted.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum for prompt cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Wootton's "Problems in Chemical Physics and Specific Gravities"; second-hand copies. 1/- will be sent in return for every copy received in fair condition by the Secretary, London College, 323, Clapham Road, S.W.

FREE FORMULÆ

A 4 pp. SHEET OF FORMULÆ is given with

ROUSE'S CARMINE 1s 8d. per oz. Tin, with Labels, Post free or through Wholesale.

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Publications Received.

AIDS TO PRACTICAL PHARMACY FOR MEDICAL STUDENTS. By A. CAMPBELL STARK. Revised according to the Pharmacopœia of 1898. Pp. xiii. + 170; foolscap 8vo. Price 2s. 6d. cloth, 2s. paper covers. London: Bailliere, Tindall, and Cox, King William Street, Strand, W.C. 1900. From the Publishers.

KIRKE'S HANDBOOK OF PHYSIOLOGY. By W. D. HALLIBURTON, M.D., F.R.S. Sixteenth edition, with upwards of 650 illustrations, including coloured plates. Pp. xxiv. + 872. Price, 14s. London: John Murray, Albemarle Street, W. 1900. From the Publisher.

THE FLOWERING PLANT: As illustrating the First Principles of Botany. By J. R. AINSWORTH DAVIS, M.A., F.C.P. Third edition, Pp. xv. + 195. Price 3s. 6d. London: Charles Griffin and Company, Limited, Exeter Street, Strand, W.C. From the Publisher.

THE PHOTO-MINIATURE. A Magazine of Photographic Information. Edited by JOHN A. TENNANT. Vol. 1., no. 9. Lantern Slides. Pp. 427-479. Price 6d. London: Dawbarn and Ward, Limited, 6, Farringdon Avenue, E.C. From the Publishers.

Notices to Correspondents.

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

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Abram, Barlow, Bates, Burrell, Condy, Cowdery, Cross, Currie, Dunning, Eberlin, Ferrall, Foster, Gadd, Gilmour, Gray Hill, Hooper, Hornblow, Hymans, Jesper, Jones, King, Knight, Lewis, Maben, Meldrum, Metcalfe, (Miss) Moore, Oliver, Ruff, Sholl, Smith, Thursfield, Turner, Warren, Wilson, Windridge, Wyles.

NEWS IN BRIEF.

THE PHARMACEUTICAL SOCIETY'S PROFESSORS have been included in the list of teachers recognised by the new regulations of the London University.

MR. H. F. BOURNE, M.P.S., who for several years has managed the business of Messrs. Guyer and Shapley, 11, Strand, Torquay, has now purchased the business.

THE MANX PHARMACY BILL has been under consideration by the Legislative Council of the Isle of Man, on its return from the House of Keys, and, after some discussion, it was decided to ask the Keys for a conference on the measure.

LORD RAYLEIGH, F.R.S., will not deliver the second of his course of lectures on "Polarised Light" at the Royal Institution on Saturday afternoon, March 10, owing to the sudden death of his mother, the Dowager Lady Rayleigh.

THE RETURN "CUP MATCH" in connection with the Inter-Pharmacy Football League, between the Metropolitan College and London College, was played at Wormholt Farm, Shepherd's Bush, on Saturday last, resulting in a win for the "Metros." by eight goals to one.

EXETER CHEMISTS AND DRUGGISTS are to hold their annual supper at Wilson's Guildhall Restaurant on Tuesday, March 13, at 9 p.m., Mr. T. C. Milton, President of the local association, in the chair. Tickets (3s. 6d. each) may be obtained of the Hon. Secretary, Mr. H. Wippell Gadd, Fore Street, Exeter.

CAPTAIN W. B. ROBINSON (director of Messrs. Robinson and Sons, Limited, Chesterfield) is the officer selected to go out to South Africa in command of the second contingent of Derbyshire and Notts. Volunteers, consisting of 110 men, who have been ordered to hold themselves in readiness to proceed to the front.

MR. SAMPSON HANBURY, of Wyvenhoe Park, Colchester, died on Monday, March 5, aged 73. He was the elder brother of the late Mr. Daniel Hanbury, F.R.S., of the firm of Allen and Hanburys, Plough Court, Lombard Street. Mr. Hanbury was a director of the City and South London Railway.

THE SECOND SMOKING CONCERT in connection with the London College of Chemistry and Pharmacy Football Club, was held on March 1, at the "Gauden" Hotel, Clapham Road, when a large number of past and present students attended, and spent a very enjoyable evening. Being "Ladysmith Day" the toast of "The Queen," proposed by Mr. Wootton (Principal), was received with great enthusiasm, the National Anthem being sung with much fervour. A good musical programme had been arranged, the feature of the evening being the violin solos by Messrs. Douglas and Kieft

INTER-PHARMACY FOOTBALL LEAGUE.—Owing to a protest by the South London School of Pharmacy, the second contest with the "Square" team was replayed on Saturday last at Shepherd's Bush. It will probably be remembered that in the first match the "Square" team gained an easy victory by seven goals to nil. On the present occasion "Muters" showed much better form than previously, but were unable to cope with the superior play of the "Square" men, who, playing up-hill, and against a slight wind in the first half, scored two goals. On changing over the "Square" forwards put in numerous shots, out of which four found their billet, the game thus ending in another victory for the "Square" by six goals to nil. This was the last match for the "Square" in the round for the Cup; they are now equal with the "Metros." who, if they win the rest of their matches, will play the final with the "Square."

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

James Dow and William Rees Williams, Veterinary Surgeons, Bridgend, Glamorgan. Debts will be received and paid on behalf of J. Dow and W. R. Williams by their attorney, Samuel Henry Stockwood, solicitor, Bridgend.

William Dobie and William Scatterty, Physicians and Surgeons, Keighley. Debts will be received and paid by W. Dobie.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, MARCH 7, 1900.

Since last report canary seed and castor oil have increased in price, whilst linseed oil and cottonseed oil are easier. At auction Calabar beans found buyers at a low rate ex quay, but Chilian honey and Quillaya bark fully maintained recent good prices. A steady tone is prevalent in chemicals generally, and chlorate of potash has again advanced.

AMMONIA SALTS.—Carbonate, 3 $\frac{3}{4}$ d. per lb. Sal Ammoniac is very firm, £38 to £40 per ton. Sulphate is firm, £12 5s. per ton.

CALABAR BEANS.—13 bags went for 3 $\frac{1}{4}$ d. per lb., ex quay.

CANARYSEED—Has commanded more attention, and closes at 33s. 6d. to 34s. per 464lbs. for Turkish, 400 bags selling early in the week at 32s. 6d. and 200 later at 33s.

COPPERAS.—37s. per ton Welsh, 39s. Lancashire.

COPPER SULPHATE—Is very firm at £25 to £25 5s. per ton.

HONEY—60 barrels of Chilian made 25s. 6d. per cwt. for Pile I. and 30s. to 30s. 6d. for Pile X.

LINSEED—The market is very quiet, but prices are steady, sales are small, and confined to River Plate "feeding" quality, ex quay at 48s. per 416 lbs. In Calcutta seed nothing is offered.

OILS (FIXED) AND SPIRITS.—Castor oils are very firm as to price, but the amount of business done is not great. Calcutta has sold forward January to March shipment at 3 $\frac{7}{8}$ d. per lb., spot lots offered at 3 $\frac{3}{8}$ d., French 3 $\frac{1}{4}$ d. to 3 $\frac{5}{8}$ d. per lb., Belgian 2nd quality 3 $\frac{1}{8}$ d. per lb. Olive Oil: Spot price for Spanish is £36 to £36 10s. per tun. Prices for shipment have become firmer, owing to decline in the rate of exchange. Linseed: Oils of Liverpool make are selling steadily at 24s. 9d. to 25s. 3d. per cwt. Cottonseed Oil: Liverpool refined is quiet at 24s. to 24s. 6d. per cwt. Spirits of Turpentine are in fair demand at 41s. 3d. per cwt.

POTASH SALTS.—Bichromate, 4 $\frac{1}{2}$ d. per lb.; chlorate, 4 $\frac{1}{2}$ d. to 5d. per lb. Cream of tartar is unchanged. Pearlashes are selling slowly at 33s. 6d. to 35s. per cwt.; potashes at 27s. 3d. to 27s. 6d. Saltpetre, 21s. per cwt.

QUILLAYA BARK.—20 tons Chilian made £13 5s. to £13 7s. 6d. per ton.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax, 16s. to 17s. per cwt. Caustic: 76 per cent., £11 per ton; 70 per cent., £10 5s. per ton. Crystals are firm at £3 5s. to £3 7s. 6d. Nitrate is firm on the spot at 8s. 9d. to 9s. per cwt.

LONDON, THURSDAY, MARCH 8, 1900.

There has been rather more business passing in Drugs and Chemicals during the week, and especially during the past day or two, in consequence probably, firstly, of the more favourable news from South Africa, and, secondly, from the fact that the Budget proposals now being known, an end has been put to the certain feeling of uncertainty which previously prevailed. Of course, the advance in duty on spirits will have affected price of Ethers, Tinctures, etc., also to a moderate extent that of Chloralhydrate. Oil of Cloves is again dearer, as also is Borax. Glycerin firmer. Cod Liver Oil dull and weak. Quicksilver and Mercurials very firm, as also are Bromides. Quinine, although firm, as far as makers' quotations are concerned, has turned very sick in the speculative market. Salicylates and Salol remain unchanged, but very firm. Acid Carbohc steady. Price of Salicine has not yet been settled by the makers. Iodides steady, as also is Sulphonal. Cocaine rather firmer. Opium and Morphine very quiet. Codeine firm. Citric Acid quiet. Tartaric and Cream of Tartar steady. The following are prices ruling for some articles of principal interest:—

ACETANILIDE—Is still quoted 11d. per lb., down to 9 $\frac{1}{2}$ d. per lb. for 1 cwt. lots.

ACID BORACIC.—Prices are now 26s. per cwt. for crystals and 28s. per cwt. for powder.

ACID CARBOLIC—Remains somewhat quiet, but prices are steady at 11 $\frac{1}{2}$ d. to 1s. per lb. for the 35°-36° C. ice crystal, in 2 $\frac{1}{2}$ cwt. drums and overcasks; 1s. 0 $\frac{1}{2}$ d. to 1s. 1d. per lb. for 39°-40° ditto; and 1s. 2d. per lb. for 39°-40° C. detached crystals (the P.B. quality). Crude, 60° F., 3s. per gallon; 75° F., 3s. 9d. Liquid, 95-98 per cent. of pale straw colour, 1s. 7d. to 1s. 9d. per gallon, in 40

gallon casks; ditto, crude, 25-30 per cent. of dark colour, 10½d. to 1s. per gallon, in same packing.

ACID CITRIC—Is somewhat quiet at 1s. 4½d. to 1s. 5d. per lb. for crystals in 5cwt. casks.

ACID GALLIC—Is firmer, in sympathy with Acid Tannic, makers quoting 2s. 2d. to 2s. 6d. per lb., according to quantity, make, and packing.

ACID OXALIC—Is still quoted 3d. to 3½d. per lb. net free delivered, London.

ACID TANNIC—Makers are very firm, in consequence of the continued dearness of raw material, and now quote 2s. 3d. per lb. for the leviss. P.B. quality, down to 2s. 2d. per lb. for 2-cwt. lots.

ACID TARTARIC—Is firm at 1s. 0½d. to 1s. 1d. per lb. for English, and 1s. per lb. for foreign.

AMMONIA COMPOUNDS—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate firm; gray, 24 per cent., London, prompt, £12 2s. 6d.; Hull, prompt, £12 1s. 3d.; Leith, prompt, £12 2s. 6d.; Beckton, March-April, £12; Beckton terms prompt, £11 17s. 6d. to £11 18s. 9d. Nitrate, £32 10s. per ton. Phosphate, 5d. per lb. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY—Regulus is quoted £38 10s. to £39 10s. per ton, and Japan Crude (Black Sulphide), £22 10s. to £23 10s. per ton.

ASHES—Pots 28s. 6d., Pearls 34s.

BISMUTH—Unchanged, at 5s. per lb. for the commercial quality of the metal; 5s. 1d. per lb. for the Subnitrate Salt, and 5s. 8d. per lb. for the Subcarbonate.

BLEACHING POWDER (CHLORIDE OF LIME)—Is still quoted £7 per ton for English.

BORAX—Has advanced in value, and is now quoted 17s. per cwt. for crystals and 18s. per cwt. for powder.

BROMIDES—Are very scarce for immediate delivery, and prices are firm at 1s. 11½d. per lb. for Potassii Bromid, 2s. 2½d. per lb. for Sodii Bromid, 2s. 3d. per lb. for Ammon. Bromid. Bromine is firm at 2s. to 2s. 2d. per lb., according to quantity, in 60lb. cases.

CAMPHOR—Continues very quiet, refined being firm at unchanged price—viz., 2s. 2d. per lb. for English Bells and Flowers; while crude is dull at nominally unchanged quotations.

CASTOR OIL—Firm; Belgian, first pressing, spot, £31; April-June, £30 10s., f.o.b. Antwerp, second pressing, spot, £28 10s. per ton, ex-wharf; Hull manufactured, guaranteed cold-drawn pure Pharmaceutical, £33 10s. per ton in barrels, 4d. per lb. in cases; pure firsts, £31; seconds, £30 per ton, in barrels; firsts, 3½d. per lb., in cases; seconds, 3½d. per lb. ex-wharf, London.

CHLORAL HYDRATE—In consequence of the increased duty (attendant on the higher rate of duty on spirits) of 1d. per lb., this article may be considered to be 1d. per lb. dearer at 4s. per lb. for crystals and 3s. 10½d. per lb. for cake.

CLOVES—At auction no Penang were catalogued, and out of 120 bales Zanzibar that were offered 60 bales sold at about steady rates, fair at 4½d. Privately, Zanzibar remain quiet and barely steady. A small business has been done, comprising March-May delivery at 4½d. and sellers and June-August at 4¾d., closing sellers at 4 13-32d.

COCAINE—Is rather firmer, makers' prices remaining unchanged at 16s. 3d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins, while there are practically no sellers from second-hand of the brands most in favour at anything tangibly below makers' prices.

CODEINE—Continues very firm at 13s. 6d. per oz. nett, down to 13s. 1d. for 500 oz. lots, and 1s. per oz. less for the Muriate Phosphate and Sulphate Salts.

COD LIVER OIL—The market continues weak, the very finest brands of new Norwegian oil being quoted 58s. 6d. to 60s. per barrel, in tin-lined barrels of 25 gallons.

COAL TAR DISTILLATION PRODUCTS—Toluol, commercial, 1s. 3d. per gallon; pure 2s. Benzole, 50 per cent., 9½d.; 99 per cent., 7½d. to 8d. per gallon. Creosote, 3½d. to 6d. per gallon, according to quantity. Crude Naphtha, 30 per cent. at 120° C., 6d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 6d. per gallon; 90 per cent. at 160° C., 1s. 2d.; 90 per cent. at 190° C., 1s. 2½d. per gallon. Anthracene: A, 3¾d. per unit; B, 2¾d. Pitch, 38s. per ton, f.o.b. Tar, refined, 15s. to 15s. 6d. per barrel; 3d. per gallon; crude, 12s. 6d. per barrel; 2¼d. per gallon.

CREAM OF TARTAR—First white crystals are quoted 73s. per cwt.; powder, 75s.; ditto 95 per cent., 76s. per cwt.

CUTCH—Quiet, and 89 boxes offered were nearly all bought in, only 19 boxes selling, without reserve, ordinary block at 10s.

ESSENTIAL OILS—Remain extremely quiet, with no business of any importance passing.

ETHER—Owing to the increased duty of 6d. per gallon on spirits, price of ether has been advanced 3d. per lb.

GALLS—Business in all descriptions continues limited, but prices are steady and unchanged. China for arrivals are still quoted 65s., and Japan 61s. c.f. and i. Persian continue to be firmly held, Blues at 95s., and Greens at 85s., with small sales thereof of the latter; White quoted 65s.

GAMBIER—The market remains firm, but quiet, and little business has occurred. Whole bales on the spot now quoted 17s. for old landed; for arrival the nominal price is 16s. 9d. for Feb.-April shipment.

GINGER—At auction no cut kinds were offered, and a moderate supply of 437 bags of Cochin went off slowly, and only 82 bags sold at about steady rates, fair bright medium and small, little wormy, washed rough at 32s., dullish rather lean ditto at 30s. Japan: 100 bags offered and bought in, fair lined at 26s. Jamaica steady, but quiet: Of 145 barrels and 3 half-barrels, old import, offered 33 barrels sold, middling to good middling at 55s. to 61s. 6d. Green Ginger: 2 barrels offered and sold at 67s.

GLYCERIN—Is decidedly firmer. Crude continues very scarce and dear, the few parcels that offer being eagerly snapped up at prices considerably above the parity of prices ruling for the refined article, which latter is quoted 57s. to 58s. 6d. per cwt., according to quantity and make, for English, and 58s. to 67s. 6d. per cwt. for German, according to brand, etc., for best white double-distilled, chemically pure 1260° quality in tins and cases (2 or 4 × 56lb. tins in a case).

IODIDES—Are steady at 10s. 6d. per lb. for Potassii Iodid., 11s. 10d. per lb. for Sodii Iodid., 13s. 10d. per lb. for Ammon. Iodid., 13s. 10d. per lb. for Iodofom. cryst. powder and precip., 12s. per lb. for Iodine resublimed, and 7½d. per oz. for crude Iodine.

MENTHOL—Is rather firmer; it is, however, still possible to buy good dry white crystals, in case lots, on the spot, at 9s. per lb.; while for arrival, a tangibly higher price is quoted.

MERCURIALS are very firm at unchanged prices—viz.: 3s. 2d. per lb. for 3s. 2d. Calomel, and 2s. 10d. per lb. for Corrosive Sublimite.

MORPHINE—Quiet, but steady, at 5s. to 5s. 3d. per oz. for the Hydrochlorate Powder, and 2d. per oz. more for the Crystal Salt.

LYCOPodium—Is very firm, and as much as 2s. 5d. per lb. has been paid for sifted.

OILS (FIXED) AND SPIRITS—Linseed: A slow market. On the spot pipes, London, £25; barrels, £25; April, £24 10s.; Hull spot naked, £22 15s. Rape quiet: Ordinary brown on the spot quoted £25 5s.; refined spot, £26 10s. to £27; Ravison naked spot, £23 10s. Cotton quiet: London crude spot, £20 10s. to £20 15s.; refined spot, £23 to £23 10s., according to make; Hull naked refined spot, £20 17s. 6d.; crude spot, £19 15s. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut steady, spot easier forward: Ceylon on the spot, £25 15s.; Cochin spot, £29 to £29 10s. Palm: Lagos on the spot quoted £29. Lubricating: Pale American spot, 8s. to 9s. 9d.; black, 7s. to 9s.; Russian black, 6s. to 6s. 6d.; pale, 8s. to 9s. 9d. Petroleum Oil quiet: Russian spot quoted 6¼d. to 7½d.; American spot, 7½d. to 7¾d.; water white, 8¾d. to 9d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. Turpentine quiet: American spot, 40s. 3d.; April, 40s. 3d.; May, 39s.

OIL OF CLOVES—In consequence of further advance in value of cloves, price of the oil has been further advanced 2d. per lb.

OPIUM—Market has remained exceedingly quiet for some considerable time, there having been practically nothing doing, either in Persian Manufacturing Druggists or soft shipping kinds, prices remaining nominally unchanged.

ORRIS ROOT—Best select Florentine is quoted at 60s. to 65s. per cwt.; fair to good sorts 50s. to 55s.

PARAFFIN WAX—Crude is quoted 3¼d. to 3½d. per lb., and Refined 4d. to 4¾d. per lb.

PHENACETIN—Makers still quote 5s. 3d. per lb. nett for crystals or powder, in 5-cwt. lots, while second-hand offers at 6d. to 9d. per lb. below this figure. Bayer's make is held for the fancy price of 7s. 6d. per lb., in bulk packing.

PITCH—9s.

POTASH COMPOUNDS—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4½d. per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot London, crystals, 4½d. net; powder, 4½d. Carbonate, 90 per cent., £19 10s. per ton, ex ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent., to 80 per cent., £22 per ton. Iodide, 10s. 6d.

per lb. Nitrate, refined, £21 5s. per ton. Permanganate small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate: Yellow English makes, 7½d.; Beckton, 7¼d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton, ex ship. Muriate, 80 per cent., £9 per ton.

QUICKSILVER—Is very firm at £9 12s. 6d. per bottle, both from the importer and from second hand.

QUININE.—While makers are very firm, the agents for the favourite B&S brand quoting 1s. 6½d. per oz. for 1,000-oz. lots in 100 oz. tins, there has been quite a slump in the speculative market for this article, and B&S and/or Brunswick has been done as low as 1s. 5d. per oz. for spot delivery. Market manipulations, combined with weakness of some of the speculative holders, are said to be the cause of the decline, and a speedy recovery is confidently looked for by those who may be presumed to be the best judges on the subject.

ROSIN.—Strained spot, 5s. 6d. to 5s. 9d. per cwt. ex wharf, and 5s. 1½d. per cwt. to arrive April-June and July-September shipment per sailing vessel.

SALICINE.—The makers do not appear to be able to agree what price shall be, whether 20s. 6d. or 21s. 6d. per lb. There are, however, sellers from second hand at 19s. to 19s. 6d. per lb.

SALICYLATES AND SALOL—Remain very firm, but so far without change in makers' prices.

SANTONINE.—There have been sales from second hand as low as 9s. 3d. per lb., makers' price being 11s. 3d. to 11s. 9d. per lb., but stock in second hand appears now to be practically exhausted, and the possibility of makers still further advancing their price is now even hinted at.

SEEDLAC.—At auction 50 bags Kurrachee offered and 10 bags sold, fine pale red at 58s., subject.

SHELLAC.—The market remains quiet, and privately few sales have occurred in any position. At auction to-day good supplies were catalogued, a large proportion of which consisted of Second Orange, without reserve, which sold most irregularly at variable prices. In some cases a material decline was established, while in others steady last sales' rates were obtained. The nominal value of fair TN is 61s. Garnet was all bought in. Button: Only a few cases sold at easy rates. A total of 1,200 cases was offered and 565 cases sold. Second Orange: Of 786 cases 529 sold, chiefly without reserve, fine SR in diamond matted at 72s., TN qualities ranging from 57s. to 64s. for ordinary livery to good bright. Garnet: 71 cases offered and bought in, comprising blocky AC and common weak flat at 57s. Button: Of 343 cases 36 sold, mostly without reserve, fair to good firsts at 68s. to 72s., fair seconds at 61s., cakey ditto at 60s., ordinary circle 2's at 56s., good dark at 55s.

SODA COMPOUNDS.—Crystals: Barrels quoted 60s.; bags, 57s. 6d. Ash, £5 to £6, according to percentage, etc. Acetate, £14 per ton, ex ship. Arseniate, 45 per cent., £13 10s. per ton. Bichromate, 3¾d. per lb. Bicarbonate, 3¾d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 76 per cent., £11; 74 per cent., £10 12s. 6d.; 70 per cent., £10 2s. 6d.; 60 per cent., £9 2s. 6d. Chlorate, 4½d. per lb. Hyposulphite (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, 95 per cent., 8s. 9d. per cwt. Nitrite, 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. per ton. Sulphate (Salt Cake), £1 7s. 6d. per ton. Glauber Salts, £1 10s. per ton. Sulphide Crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: At auction there was a slow demand and chiefly bought in, comprising 25 bags ordinary Singapore at 6d., and 54 bags Penang, weight 40 lb., dust 2.58 per cent., at 6d. Of 160 bags Tellicherry, only 10 bags damages sold at 6¼d., the remainder good taken out at 6¼d. White Pepper neglected and all bought in, comprising 90 bags fine Singapore at 10¾d., and 61 bags fair brown lined Penang at 8½d. Chillies quiet, and 6 bags fair bright, but seedy. Japan were bought in. Capsicums freely offered and cheaper. Of 393 packages Bombay, 62 bales sold, without reserve, fair bright cherry pods at 29s. to 29s. 6d.; 74 bags from Egypt sold, fine bright Natal character at 62s. to 65s.; dull reddish at 60s. to 60s. 6d. Pimento quiet, and in slow demand. Of 470 bags offered, only 18 sold, fair to good at 3½d. to 3¾d. Broken Cassia dull; 160 bales in auction were all bought in. Cassia Buds: 14 bags Wild offered, and sold, without reserve, at 21s. 6d. Cinnamon: out of 550 packages, chiefly Wild, only 34 packages sold at 1½d. Cinnamon Chips and Bark neglected, and of 470 bags offered, 53 bags sold, good quillings at 6¼d.; fair chips at 3¾d.; and Wild bark at ½d. to 1½d. Nutmegs rather firmer; 15 cases Penang offered, and 1 case sold, 80's defective, at 1s. 3d.; remainder bought in, including 65's and 66's at 2s. 4d. to

2s. 5d. 5 cases Singapore sold, 80's at 1s. 7½d. 9 cases Bombay sold, fair broken at 4d. No Mace was offered in auction. Cassia Vera: 209 bags Japan offered, and 100 bags sold at 22s. 20 bales Padang Quills were bought in at 30s.

SULPHATE OF COPPER—Is quoted £24 to £24 10s. per ton for spot delivery.

SULPHONAL.—Second-hand holders appear to be cleared out, and makers, therefore, now have it all their own way, their price being 20s. 6d. per lb. for both crystals and powder, in bulk packing with a reduction of 6d. per lb. for not less than 10 lbs. in one delivery.

THYMOL—Firm at 10s. 3d. to 10s. 6d. per lb. from the makers.

TURMERIC—In slow demand, and 59 bags in auction were bought in, fair bright lean Madras finger at 31s.; also ordinary rough Cochin split bulbs.

VANILLA.—The quantity brought forward at the auctions to-day comprised 787 tins, and, with a moderate demand, about one-half sold at lower prices, good to fine qualities being 1s. to 2s. cheaper, and middling 2s. to 4s., whilst ordinary qualities steady, unchanged. Seychelles: Of 639 tins, 256 tins sold, fair to good colour, 7 to 8 inch, at 21s. 6d. to 23s.; 7 to 7½ inch at 19s. to 22s. 6d.; 6½ to 7 inch at 17s. 6d. to 21s.; 3 to 6½ inch at 15s. 6d. to 19s.; common, 5 to 8 inch, at 15s. 6d. to 18s.; 3 to 7 inch at 13s. 6d. to 17s. Mauritius: Of 58 tins 19 sold, good colour, 6½ to 7 inch, at 21s. 6d. to 22s.; 4 inch at 17s. Bombay: Of 39 tins 15 sold, common to fair, 4 to 6 inch, at 13s. to 15s. Tahiti: Of 27 tins 4 sold, fair, 4 to 6 inch, at 6s. 2d. to 6s. 3d. Australian: Of 18 tins 2 sold, brown, fair flavour, 7½ to 8 inch, at 18s.; 5 inch at 15s. The remainder and American bought in.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Morph. Hydroch., one ounce 5/-, 4 ounces 19/-.—Eastman, Forest Lane, Stratford.

Moulds.—Suppository, Pessary, Bougie, Capsule; as Maw's.—Warnes, 333, Gray's Inn Rd., W.C.

Air Bed, in very good condition; price £2, cost £6.—Mrs. Beighton, Crawford Cottage, Richmond, Surrey.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Clinicals, one dozen each, 30 seconds, 21/-; ordinary, 16/-; each engraved "English make," plated cases; any post free.—Warnes, 333, Gray's Inn Road, W.C.

Handsome Range solid mahogany drawers, cut-glass knobs, centre cupboard, equal to new; quantity shop rounds, jars, etc.; all cheap.—91, Newport St., Bolton.

Good Painted Lantern Slides (second-hand), including Religious, Temperance Effects, Mottoes, Comic, 4½d. each; Boer War, 6d. each. Lists free.—T. Wing, Photographer, Chatteris.

Otto Roses, Virgin, ounce, original (gilt), 25s.; Neroli, extra, ounce, original, 7s. 6d.; Geranium, Bulgarian, 4 oz. bottle, 10s.; Lavender, Mitcham, 1 lb., original, 25s. Carriage paid, cash returned if sold.—Warnes, 333, Gray's Inn Rd., W.C. Patents wanted.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Armour's Pepsine Tabloids, uncoated; Fcls' Germicide Soap.—Eastman, Forest Lane, Stratford.

Calendar for the Week.

Sunday, March 11. Second Sunday in Lent. Sun rises 6.25; sets 5.55.
Monday, March 12. Sun rises 6.23; sets 5.57.
Tuesday, March 13. Sun rises 6.21; set 5.59.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 8 p.m.—Evening meeting. "The Commerce of Drugs," by E. M. Holmes.

BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION, County Restaurant, at 9 p.m.—"Through the Pyrenees and Andorra," with lantern illustrations, by C. Greening.

EDINBURGH CHEMISTS', ASSISTANTS', AND APPRENTICES' ASSOCIATION, 36, York Place, at 9.15 p.m.—"Dispensing Notes and Queries," by William Duncan.

EDINBURGH PHARMACY ATHLETIC CLUB, 36, York Place, at 9.15 p.m.—Annual General Meeting.

EXETER ASSOCIATION OF CHEMISTS AND DRUGGISTS, Wilson's Guildhall Restaurant, at 9 p.m.—Annual Supper.

ROYAL COLONIAL INSTITUTE, Whitehall Rooms, Hotel Metropole, Whitehall, Place, S.W., at 8 p.m.—Paper on "A School of Tropical Medicine" (with lantern illustrations), by Dr. Patrick Manson.

ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8.0 p.m.—"The Illumination of Developing Rooms," by E. Howard Farmer.

Wednesday, March 14. Sun rises 6.18; sets 6.0.
 PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 12 noon.—Meeting to arrange for the Annual Dinner in May next.

MANCHESTER PHARMACEUTICAL ASSOCIATION, Victoria Hotel.—"Pharmacy Notes," by J. H. Hoseason; followed by a Discussion on the Companies Bill.

SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY, at 8.30 a.m.—Paper by one of the members.

Thursday, March 15. Sun rises 6.16; sets 6.2.
 CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—Papers by H. B. Baker, A. Scott, R. L. Taylor, Edward Divers and Tamemasa Haga, Julian L. Baker and T. H. Pope.

CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Short Papers by Members.

LIVERPOOL PHARMACEUTICAL STUDENTS' SOCIETY, 6, Sandon Terrace, Upper Duke Street.—Musical and Social Evening.

LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 8 p.m.—Report on the botanical results of an expedition to Mount Roraima in British Guiana, and a paper by A. W. Waters.

Friday, March 16. O 8.12 M. Sun rises 6.14; sets 6.4.
 GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—"The Distribution of Plants in Time and on the Earth," by T. S. Barrie.

ROYAL INSTITUTION, Albemarle Street, London, W., at 9 p.m.—Sir Benjamin Stone, M.P., on "Pictorial Historical Records."

Saturday, March 17. Sun rises 6.12; sets 6.6.
 INTER-PHARMACY FOOTBALL LEAGUE, Wormholt Farm.—Metropolitan College v. Muter's. Referee supplied by London College.

ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m.—Lord Rayleigh on "Polarised Light."

TRADE NOTES.

SYPHON REPAIRING.—Messrs. Idris and Co., Limited, Pratt Street, Camden Town, London, N.W., issue a pamphlet on "Syphon Repairing," containing numerous useful hints which should greatly assist those pharmacists who manufacture mineral waters and have occasion to repair their syphons. It is fully illustrated, showing specimens of the tools required, and how to handle them, section of syphon, method of cleaning, etc. Messrs. Idris will be happy to send a copy of the pamphlet free of charge to any syphon users.

ADDITIONAL DUTY ON SPIRIT.—Messrs. C. R. Harker Stagg and Morgan, 15, Laurence Pountney Lane, London, E.C., intimate that in consequence of the imposition of an additional duty of 6d. per gallon on proof spirit they are compelled to raise their prices for all preparations which they manufacture containing spirit or by its aid. On and after March 6 the prices will be advanced as follows:—Rectified spirit, 1s. per gallon; alcohol absolute, 2d. per lb.; æther pur., 3d. per lb.; æther acetic, 2d. per lb.; chloral hydras, 3d. per lb.; chloroform pur., 3d. per lb.; decocta and liquors, 1d. per lb.; extracts liquid, 2d. per lb.; infusions, 1d. per lb.; perfumes, 3d. per lb.; spiritus æther. nit., 2d. per lb.; spiritus ammon. arom. B.P., 2d. per lb. Tinctura—Rectified spirit, 2d. per lb.; tincturæ, 60 per cent. alcohol and lower strengths, 1d. per lb. The price of all other preparations containing alcohol will be advanced in similar proportion.

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PROPRIETARY MEDICINES.

Goods not in Stock procured to order.

Advertisements

Received too late for Classification.

SOUTH AFRICA.—ASSISTANTS open to accept situations in South Africa should apply to LENNON LIMITED, 75, Leadenhall St., London, E.C., who frequently hear of vacancies.

WANTED, an APPRENTICE in a good-class Chemist's business. Comfortable home, time for study; low premium, by arrangement.—Apply, AJAX, "Pharm. Journal" Office, 5, Serle St., W.C.

Notices to Correspondents.

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

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Attfield, Barnes, Bartlett, Bennett, Cocks, Forster, Gadd, Geddes, Gilmour, Gray, Green, Hill, Hooper, Keen, Lawrie, Lennox, Metcalfe, O'Halloran, Palmer, Parker, Righton, Robinson, Schaer, Walton, Whitehead.

NEWS IN BRIEF.

"SOME MODERN EXPLOSIVES" is the title of a lecture to be delivered at the Royal Institution on Friday evening next, March 23, by Sir Andrew Noble.

MR. WILLIAM S. L. JOHNSTONE, M.P.S., of Coventry, has purchased the business lately carried on by Mr. Bell at 56a, Wilmslow Road, Withington, Manchester.

"THIRST QUENCHERS" FOR TOMMY ATKINS.—Messrs. Robert Gibson and Sons, Limited, of Manchester and London, have given and sent out to the soldiers in South Africa five thousand tins of "Thirst Quenchers."

LEICESTER CHEMISTS are to meet at the Victoria Coffee House on Thursday, March 22, to consider the clauses in the Companies Bill which affect the interests of chemists. Mr. T. Howard Lloyd is to take the chair.

THE PHOTOGRAPHIC EXHIBITION arranged by the National Photographic Record Association is now open in the rooms of the Royal Photographic Society, 66, Russell Square, W.C. Admission from 10 a.m. to 5 p.m., on presentation of visiting card.

LIVERPOOL CHEMISTS will hold the annual dinner of the fifty-first session of their Association at the Exchange Station Hotel, on Thursday, March 22, at 7.15 p.m. Tickets (5s. each) may be obtained of the wholesale houses in the city, or of Mr. R. C. Cowley, 6, Sandon Terrace, Upper Duke Street, Liverpool.

THE THIRD CINDERELLA DANCE of the session, in connection with the Chemists' Assistants' Association, will be held in the Dorset Hall, Portman Rooms, Baker Street, W., on Thursday, March 22. Tickets may be obtained of the Hon. Secretaries, Mr. C. Morley, 3, Bucklersbury, E.C., and Mr. H. H. Robins, 113, Ridley Road, Forest Gate, E.

SHOPS BILL.—This is postponed until Tuesday, April 24, when its chances will be remote. Mr. Provand has come to the fore with a Bill to amend the Shop Hours Act, and its second reading is tabled for Friday, April 27. He is supported by Mr. Samuel Smith (Flint), and Mr. Seton-Karr (St. Helens).

SHEFFIELD COLLEGE OF PHARMACY.—On Tuesday, March 13, the students of this College, through the kindness of Major W. G. Blake, J.P., of Mylnhurst, Ecclesall, and Mr. F. A. Kelley, of Holly Court, Ecclesall, visited their grounds and conservatories, and were shown round by the head gardener of each place. Among the specimens in flower were: *Ac ypha sanderiana* (Euphorbiaceæ), *Garrya eliptica* (Incompletæ), both with pendulous inflorescences—the latter borne on a fine tree on the terrace of Major Blake's grounds—*Epidendrum stamfordianum*, *Dendrobium luehianum* and *Laelia harpophylla* (Orchidaceæ), *Freesia refracta* (Liliaceæ), *Skimmia japonica* (in fruit), as well as an interesting show of cinerarias, camellias, callas, begonias, primulas, azaleas, spiræas, acacias, etc.

A COMBINATION OF GERMAN CHEMICAL MANUFACTURERS has been formed for the purpose of showing their products as a collective exhibit at the Paris International Exhibition to represent the chemical industries of Germany. The objects to be shown are arranged in eight sections, of which the second is to comprise products relating to pharmaceutical chemistry, and Dr. E. A. Merck, of Darmstadt, has undertaken to arrange the different exhibits, numbering about thirteen hundred, of a value of more than £12,000. These exhibits are classified in twenty-five groups, which occupy six large show cases, and some days ago Messrs. E. Merck invited a number of local officials, professors and others to an inspection, which was very numerously attended.

CONVERSION OF BUSINESS.—Mr. Benjamin Robinson, Church Street, Pendleton, Manchester, has decided to convert his business into a private limited liability company, to be registered and carried on in future as the firm of "Benjamin Robinson and Company, Limited." The undertaking being strictly private, no shares will be offered either to the trade or the public. The directors will be Mr. B. Robinson as chairman, his two sons, Mr. W. B. Robinson and Mr. E. H. Robinson, and Mr. R. S. Noar, who for upwards of twenty years has taken an active part in the business.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, MARCH 14, 1900.

There is no great change in prices since last report, the tone of the market is steady, and the business done has been quite up to the average. Considerable amounts of Chilian Honey have been disposed of readily and at good prices, and Beeswax has been largely dealt in at firm rates. There is a good demand experienced in the Chemical market for Caustic Soda, Bleaching Powder, and Chlorates, with an advance in Copper Sulphate.

AMMONIA SALTS.—Carbonate, 3 $\frac{3}{4}$ d. per lb. Sal ammoniac is firm at 38s. to 40s. per cwt. Sulphate is very firm at £12 7s. 6d. per ton.

BEESWAX.—4 blocks of Sierra Leone made £6 15s. per cwt. 10 sacks of Chilian sold at £7 10s. per cwt. and American at £7 5s.

BLEACHING POWDER.—Is extremely firm at £7 10s. per ton.

CANARY SEED.—Is without demand, and is simply nominal at 33s. 6d. per 464lb. for Turkish.

CARNAUBA WAX.—Ordinary grey has been seeling in retail amount at 80s. per cwt.

COPPER SULPHATE.—Is dearer and now sells at £26 per ton.

COPPERAS.—Steady at 37s. to 39s. per ton.

GINGER.—25 bags of Sierra Leone were sold ex store privately.

HONEY.—Pile 1 Chilian early in the week sold at 25s. 6d. Later 30 barrels found buyers at 25s. to 25s. 6d. per cwt. privately; whilst at auction 27 barrels Pile 3 brought 22s. 6d. to 23s. 3d. per cwt.

KOLA NUTS.—4 bags of dried changed hands at 1 $\frac{1}{2}$ d. per lb.

LINSEED.—Is very inanimate, with plenty offering on the spot, but few buyers, crushers having large stocks on hand. River Plate future delivery near has been offering at 44s. 9d. per 416lb., March delivery 44s., and Calcutta March and April at 44s. 9d. per 416lb.

OILS (FIXED) AND SPIRITS.—Castor is quiet on the spot, with only small sales, mostly of French, at 3 $\frac{1}{4}$ d. to 3 $\frac{5}{8}$ d. per lb. Calcutta offers at 3 $\frac{3}{4}$ d. and French second at 3 $\frac{1}{8}$ d. Olive only enjoys a small retail business at £36 to £36 10s. per ton. Linseed is steady at 24s. 9d. to 25s. 6d. per cwt. Cotton Seed is quiet at 23s. 3d. to 23s. 9d. per cwt., a slight decline since last week. Spirits of Turpentine are selling moderately well at 41s. per cwt.

POTASH SALTS.—Bichromate, 4d. to 4 $\frac{1}{2}$ d. per lb. Chlorate, 4 $\frac{3}{4}$ d. to 5d. per lb. Pearl Ash is very nominal at 33s. 6d. to 35s. per cwt. Pot Ashes sell moderately at 27s. 3d. to 27s. 6d. per cwt. Prussiate, 8d. per lb. Saltpetre, 21s. per cwt.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is firmer, £16 to £16 10s. per ton. Caustic, 76 to 77 per cent., £11 per ton; 70 per cent., £10 5s. per ton. Crystals, £3 5s. to £3 7s. 6d. per ton. Nitrate is improved in inquiry, and sells at 8s. 9d. to 9s. per cwt.

LONDON, THURSDAY, MARCH 15, 1900.

Business in Drugs and Chemicals has been very quiet during the past few days, but, with the exception that Quinine Sulphate, Acid Carbolic, and Menthol are lower, there are no changes in value of any particular importance to record. Iodides are rather unsettled; Cod Liver Oil nominally dearer; Glycerin firm, Morphine quiet; Codeine firm; Opium steady; Camphor quiet; Quicksilver and Mercurials firm; Salicylates and Salol unchanged, it being reported that makers have decided to make no alteration in prices for the moment; Acid Tartaric and Cream of Tartar steady; Acid Citric quiet. The following are prices actually ruling for some articles of chief interest:—

ACETANILIDE.—Continues dull and weak at 9 $\frac{1}{2}$ d. to 11d. per lb. according to quantity, etc.

ACID CARBOLIC.—Refined is about 1d. per lb. lower as against prices quoted last week. Crude is quiet at 2s. 9d. per gallon for the 60° F. and 3s. 6d. per gallon for the 75° F. Liquid, 95 to 98 per cent. of pale straw colour, 1s. 7d. to 1s. 9d. per gallon in 40-gallon casks; ditto, 25 to 30 per cent. of dark colour, 10d. to 1s. per gallon in 40-gallon casks.

ACID OXALIC.—Quiet and unchanged.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure small crystals, 33s. to 36s. per cwt. Sal ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate steady; gray, 24 per cent., London, prompt, £12 1s. 3d. Hull, prompt, £12 to £12 1s. 3d. Leith, prompt, £12 5s. Beckton, March-April, £12. Beckton, terms prompt, £11 17s. 6d. Nitrate, £32 10s. per ton. Phosphate, 5d. per lb. Sulpho cyanide, 1s. 1d. to 1s. 2d. per lb.

BLEACHING POWDER (CHLORIDE OF LIME).—English is still quoted £7 per ton.

BORAX AND ACID BORACIC.—Are steady at the late advance.

CAMPHOR.—Crude is quiet, but steady, with, however, but little business passing. China near at hand is quoted, buyers at 165s. per cwt. c.i.f., and Japan at 170s. For refined Hamburg reduced price 1d. per lb. to 1s. 11d. per lb. for Bells and Flowers in ton lots for spot delivery and 1s. 11½d. forward. English refiners maintain their price of 2s. 1d. per lb. for Bells and Flowers in ton lots.

CASTOR OIL.—Belgian, first pressing, spot, £31; April-June, £30 10s., f.o.b., Antwerp; second pressing, spot, £28 10s. per ton, wharf; Hull manufactured, guaranteed cold drawn pure Pharmaceutical, £33 10s. per ton in barrels, 4d. per lb. in cases. Pure firsts, £31; seconds, £29 10s. per ton, in barrels; firsts, 3½d. per lb. in cases; seconds, 3½d., ex-wharf, London.

CINCHONA BARK.—These periodical auctions, the third of the series, were held to-day. Increased supplies were catalogued, amounting to 4,440 packages of all descriptions, as compared with 2,129 packages at the preceding sales. The proportion of old import Bark was large, about one-third of the offerings, which had an adverse effect on the sale. A somewhat dragging demand prevailed, and prices were irregular, but good rich bark realised full rates, the average of the auctions, however, being rather below the previous London sale, with a unit of barely 2d., against a full 2d. in February last. The quantity which changed hands at and since the sale was fully 2,000 packages, being considered satisfactory. Ceylon: 168 packages offered and about 100 packages sold, according to analysis. Succirubra, fair stem chips and shavings, at 4¾d. East Indian: 1,967 bales and 111 cases offered and about 1,200 packages sold. Red, stem chips and shavings, fair to good at 3½d. to 5½d., ordinary to fair at 2¾d. to 3¾d.; root, fair to good at 3½d. to 4¾d.; fair silvery quill at 5½d.; renewed chips and shavings, fair to good at 3d. to 4¾d.; officinalis, stem chips and shavings, fair to good rich at 5d. to 7½d.; ordinary to fair at 2¼d. to 4¾d.; renewed ditto, fair to good rich at 4¾d. to 7¾d.; fair root at 3d.; ledger, stem chips, fine rich at 11d.; fair to good at 5d. to 7d.; root, good ledger at 6¾d.; ordinary to good Hybrid at 3¾d. to 5d. Java: 439 bales and 10 cases offered and about 120 packages sold, good ledger chips and branch at 8d. to 9¾d. South American: 96 bales Bolivian cultivated Calisaya offered and 31 bales flat sold at 9¾d.; quills all bought in. Soft Columbian: 853 bales offered, the bulk old import, and 84 bales sold at 5½d. Cuprea: 677 bales of old import offered and 100 bales sold at 2d. Red: Of 113 bales 70 sold, damages at 3¼d. to 4¾d. Carthagena: 6 bales offered and sold at 4d., subject.

CLOVES.—At auction no Zanzibar were catalogued, and 26 cases Penang offered were bought in, good bright picked at 8d. Privately there has been little done, and the prices of Zanzibar are easier. A few hundred bales have changed hands at 4 7-32d. for Jan.-March delivery, and 4 9-32d. for June-August. Stems: 100 bales Zanzibar bought in at 1¾d.

COAL TAR DISTILLATION PRODUCTS.—Toluol commercial, 1s. 1d. per gallon; pure, 2s. 6d. Benzole, 50 per cent., 10d. per gallon; 90 per cent., 8d. per gallon. Crocote, 3d. to 6d. per gallon, according to quality. Crude Naphtha, 30 per cent. at 120° C., 6d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 6d.; 90 per cent. at 160° C., 1s. 2d.; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene: A, 3¾d. per unit; B, 2¾d. Pitch, 38s. per ton, f.o.b. Tar: Refined, 14s. per barrel, 2½d. per gallon. Crude, 12s. 6d. per barrel, 2d. per gallon.

COD LIVER OIL.—Has had a decided advance in value, some agents quoting 65s. to 72s. 6d. per barrel, according to brand, while others state that they are at the moment unable to offer.

GALLS.—Continue quiet, and business in all descriptions is unimportant. China, on the spot, is scarce; for arrival, 67s. 9d., c. f. and i., is quoted. Japan, to arrive, sellers at 61s., c. f. and i.

GINGER.—In auction a small supply of Cochin was dull of sale, and were nearly all bought in. Of 367 bags and 38 cases offered, 61 bags damages sold, the remainder bought in; fair bright Calicut rough, at 38s.; ditto washed, rough medium and small plump, at

35s.; 38 cases medium and small, roughly cut and scraped, bought in at 47s. Japan: 100 bags offered and bought in; fair lined, at 26s. Jamaica sold at barely steady to lower rates for common quality. Of 403 barrels offered, 289 barrels sold, common to good common at 50s. to 52s.; middling to good middling, 54s. 6d. to 60s. 6d.; new crop Rhaton, low to fair, at 44s. to 48s. 6d.

MENTHOL.—Is decidedly weaker in consequence of the forced sale at to-day's drug auctions. Price is nominally 8s. 9d. to 9s. per lb. for good dry white crystals.

OILS (FIXED) AND SPIRITS.—Linseed, steady spot, quiet, forward. On the spot, pipes, London Ordinary, £24 7s. 6d. to £24 10s.; barrels, £24 10s.; Hull, spot, naked, £22 10s. Rape firm. Ordinary brown, quoted £25 5s. to £25 10s.; refined spot, £26 15s. to £27; Ravison, naked spot, £23 10s. Cotton easier. London Crude, spot, £20 5s.; refined, spot, £22 to £22 15s. according to make. Hull naked refined spot, £20 2s. 6d.. Crude spot, £18 15s.; Olive Mogador, £35; Spanish, £36 10s.; Levant, £35. Cocomnut, easier. Ceylon, on spot, £25 15s.; Cochin, spot, £28 10s., accepted. Palm Oil: Lagos, on spot, quoted £29. Petroleum Oil, Russian spot, quoted 7d. to 7½d.; American spot, 7½d. to 7¾d.; water, white, 8¾d. to 9d. Lubricating pale American, spot, 9s. to 10s. 9d.; black, 7s. to 9s.; Russian, black, 6s. 6d. to 7s.; pale, 8s. 9d. to 10s. 3d. Petroleum Spirit, American, 9¾d.; Deodorised, 10d. to 10½d. Turpentine, closing strong, American, spot, 40s. 3d. to 40s. 4½d.

OPIUM.—Steady, there having been some business passing for America both here and in Smyrna, on basis of 9s. to 9s. 6d. per lb. for fair to good manufacturing kinds.

PHENACETIN.—Makers are firm at 5s. 3d. per lb. for both crystals and powder, in 5 cwt. lots, while there is less desire on part of second-hand holders to sell at much below the basis.

POTASH COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4½ per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot London, crystals, 4½d.; powder, 4½d. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English makes, 8d.; Beckton, 7¾d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton, ex-ship. Muriate, 80 per cent., £9 per ton.

QUININE.—Has remained extremely quiet, with only a small business passing, but prices are steady. About 20,000 ozs. B&S and/or Brunswick have been sold, on the spot at 1s. 5½d. to 1s. 5¼d., and June delivery at 1s. 5½d. to 1s. 5¾d. The agents for the favourite B&S brand of sulphate remain firm at 1s. 6½d. per oz. for 1,000-oz. lots.

SODA COMPOUNDS.—Crystals: Barrels quoted 60s.; bags, 57s. 6d. Ash, £5 to £6, according to percentage, etc. Acetate, £14 per ton, ex-ship. Bichromate, 3¾d. per lb. Bicarbonate, 3¾d. Bromide, 2s. 2½d. per lb. Caustic, 76 per cent., £11; 74 per cent., £10 12s. 6d.; 70 per cent., £10 12s. 6d.; 60 per cent., £1 less. Chlorate, 4½d. per lb. Hyposulphate (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, 95 per cent., 8s. 9d. per cwt. Nitrate, 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Sulphate (salt cake), £1 7s. 6d. per ton. Glauber salts, £1 10s. per ton. Sulphide crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: At auction no Singapore was offered; 200 bags Penang, weight 4 lb., dust, 2.58 per cent., bought in at 5¾d., and 225 bags fair Lampong at 6d. White Pepper in little demand; 70 bags Singapore were bought in, good fair, at 9½d. No Penang offered. Cayenne Pepper: One case Napaul bought in at 1s. Chillies quiet but steady; 40 bags good bright Japan bought in at 57s. Capsicums: At auction, 30 Robbins Bombay were bought in, fair bright, long on stalk. Pimento firm but quiet, and of 492 bags offered only 91 bags sold in small lots at 3¼d. to 3½d. for fair to good. Cassia Buds: 20 bags wild offered and sold without reserve at 21s. Cassia Vera: 100 bales coarse Padang quills offered and bought in at 27s. Cinamon: 145 packages wild bought in, quills at 2d., bark at 1d. Nutmegs steady; of 17 cases Penang offered 10 cases sold, 98's at 1s. 3d., 114's, rather mixed, at 11½d.; of 11 cases Bombay 5 sold. Ceylon: 1 case sold, 117's at 10½d. West Indian: 2 cases and 16 barrels partly sold, including 98's at 1s. 1d. Mace quiet and barely steady. Of 22 packages Penang offered 16 packages sold without reserve, fair red to palish, at 1s. 5d. to 1s. 7d. West Indian: 3 packages sold, good palish, at 1s. 7d.

THURSDAY'S DRUG SALES.

To-day's Drug auctions passed off quietly, and there are no changes in value of any special importance to record. The following are the particulars:—

- ACONITE ROOT.**—11 bags Japan were taken out at 28s. per cwt.
- ALOES.**—136 boxes Curaçoa sold readily at 31s. per cwt. for fair, down to 19s. 6d. per cwt. for the inferior lots. 6 cases East Indian, in skins, realised 34s. per cwt. 4 casks Zanzibar fetched 33s. 40 kegs Socotrine were bought in at 75s. per cwt.
- ARECA NUTS.**—30 bags part sold at 16s. per cwt., balance taken out at 17s.
- ARGOL.**—18 bags Cape part sold at 49s. per cwt., rest bought in at 38s. per cwt. downwards, according to quality.
- BALSAM COPAIBA.**—4 barrels of inferior quality were taken out at 1s. 3d. per lb.
- BALSAM PERU.**—4 cases offered, without reserve, sold cheaply at 6s. 3d. per lb.
- BALSAM TOLU.**—8 cases were taken out at 2s. per lb.
- BUGHU LEAVES.**—33 bales were all bought in at 1s. per lb. downwards.
- CALABAR BEANS.**—5 bags were taken out at 6d. per lb.
- CAMPHOR.**—5 cases Japan refined in $\frac{1}{2}$ -oz. tablets were bought in at 2s. per lb. 45 boxes English Flowers sold cheaply at 1s. 11d. per lb.
- CAMPHOR OIL.**—30 cases good clear were taken out at 30s. per cwt.
- CANELLA ALBA.**—8 bales part sold, at 40s. per cwt.
- CARDAMOMS.**—25 packages Ceylon were chiefly bought in, only 4 cases selling at 1s. 8d. per lb., 1 pocket seed realising 2s.; another lot of 19 cases sold at 1s. 5d. to 1s. 6d. per lb. for small Malabar and at 6d. per lb. for shells; another lot of 23 cases were all bought in at 1s. 8d. to 1s. 10d. per lb.; another lot of 19 cases also chiefly bought in at 1s. 9d. to 2s. 6d. per lb.; another lot of 140 cases part sold at 2s. 10d. per lb. for good bold, and 2s. 8d. for long wilds; another lot of 62 cases all sold up to 3s. 5d. for good bold, one case realising the high price of 4s. 3d. per lb.
- CASCARILLA BARK.**—38 bales all bought in at 80s. per cwt. for good bold down to 30s.
- CHILLIES.**—4 cases Japan, each 2 cwt., were taken out at 50s. per cwt.
- CHINA SOY.**—17 casks were bought in at 1s. 3d. per gallon.
- CINCHONA BARK.**—20 serons Crown bark part sold at 1s. 2d. per lb. down to 5d. for IC paraffin damaged. Other 14 bales Crown and Grey sold at 9 $\frac{1}{2}$ d. per lb. for the best lots. 5 bales yellow realised 6d. per lb. 4 packages red were bought in at 2s. to 4s. per lb.
- COCAINE.**—2 tins each of 25oz. or scenering's Hydrochlorate were bought in at 15s. per oz.
- COD LIVER OIL.**—10 barrels old Norwegian sold at 56s.; 25 barrels new oil were bought in at 75s. per barrel.
- COLOMBO ROOT.**—75 bags fair quality taken out at 30s. per cwt.; good at 60s.
- COLOCYNTH.**—4 cases Turkey apple part broken were taken out at 1s. 6d. per lb.
- CUBEBS.**—41 bags of fair quality were taken out at 26s. per cwt.
- CUS CUS ROOT.**—9 bales were taken out at 10s. per cwt.
- CUMMIN SEED.**—20 bags good Malta were taken out at the fancy price of 40s. per cwt.
- DRAGONS' BLOOD.**—7 cases dampish dull lump bought in at £10, fair to good at £12 to £20, good siftings selling at 75s. per cwt.
- ESSENTIAL OILS.**—20 cases Eucalyptus of fair commercial quality were bought in at 11d. per lb.; 39 cases ditto part sold at 9d., subject to owner's approval. 5 cases West Indian distilled Oil of Limes taken out at 3s. 6d.; other 3 cases sold at 3s. 2d. 36 cases Lemon Grass, of somewhat dark colour, bought in at 3d. per oz. 1 case Citronelle at 1s. 3d. per oz.; 4 drums ditto sold at 11d. per lb., subject to owner's approval. 5 cases Oil Nutmeg bought in at 2d. per oz.; 19 cases Cajeputa at 2s. 6d. per bottle; 8 cases Pimento at 8s. 6d. per lb.; 8 W. Qts. English Oil of Carraway at 5s. per lb.; 5 cases Cassia at 4s. 6d. per lb.; 21 cases Cinnamon at 4d. per oz. (only 3d. being bid); 10 cases dementholised Japan Oil Peppermint at 3s. 9d. per lb.
- GENTIAN ROOT.**—1 bale sold at 13s. 6d. per cwt.
- GUAZA.**—135 robbins and 98 ditto Siftings, part sold at 4d. to 4 $\frac{1}{2}$ d. per lb., and at 3d. per lb. for the Siftings.
- GUM ARABIC.**—2 casks white Mogador taken out at 47s. 6d. per cwt. 2 cases fair grain at £6 10s.
- GUM BENZOIN.**—Of 12 cases Siam, fair small almonds fetched £8 15s.; ditto, of less desirable quality, £6 15s. per cwt. Good

almondy was held for £15 10s. to £16; bean size for £9 10s. to £11. Only fair Sumatra seconds were bought in at £7 10s.; good ditto at £9 10s. 1 case Palembang sold at 57s. per cwt.; other 89 cases were bought in at 35s. to 60s. per cwt.

GUM ELEMI.—1 case of good quality was taken out at 150s. per cwt., only 110s. being bid.

GUM EUPHORBIIUM.—4 cases Mogador sold cheaply at 16s. per cwt.

GUM GUAIAACUM.—4 cases part sold at 1s. 4d. per lb. for good glassy, subject to owner's approval.

GUM KINO.—1 case fair Cochin was taken out at 2s. per lb.

GUM MYRRH.—15 bags siftings realised 20s. per cwt. 5 cases picked pale blocky Gum part sold at £5 10s. down to £4 2s. 6d., according to quality. 7 cases good pickings were taken out at 65s. per cwt.

HONEY.—6 packages fair Jamaica sold cheaply at 25s. 6d. per cwt. Of 6 casks and 2 cases ditto 3 casks sold at 27s., balance being taken out at 30s. to 34s.

IPECACUANHA.—Of a lot of 15 bales Rio about half sold at 10s., balance being taken out at 10s. 6d. to 11s. per lb.; another lot of 23 packages Rio, of rather inferior quality, part damaged, was bought in at 10s. down to 8s. per lb. 4 cases Carthagenas were all bought in; other 18 packages also met with no demand, and had to be taken out.

KAMALA.—5 cases, offered without reserve, sold at 3d. to 3 $\frac{1}{4}$ d. per lb.

LIME JUICE.—62 pkgs. West Indian bought in at 2s. 3d. per gallon; only 1s. 9d. being bid.

LIQUORICE ROOT.—5 bags decorticated impalpable powder taken out at 41s. per cwt. 52 bags cut root part sold previously, part bought in at 16s. per cwt.

MENTHOL.—11 cases Japan offered, without reserve, sold cheaply at 7s. 9d. per lb. for fair dry white crystals, and 8s. 1d. to 8s. 3d. per lb. for the favoured Kobayashi brand, which shows a decided fall in value of the article.

ORANGE PEEL.—6 casks and 2 cases thin cut were all bought in at 8d. per lb. for the cases; other 33 packages were held for 9d. to 1s. per lb.; other 12 cases inferior red thin cut, part dark, were taken out at 2d. to 4d. per lb.

ORRIS ROOT.—7 bags damaged Florentine offered without reserve, sold at 28s. to 29s. per cwt.

QUININE SULPHATE.—30 cases Pelletier's sulphate in 1-oz. vials offered without reserve all sold at 1s. 5d. per oz. 1 case containing 1,000 oz. in 100-oz. tins Taillandiers was taken out at 1s. 6d. per oz.

RHATANIA ROOT.—50 bales taken out at 4d. per lb.

RHUBARB.—24 cases offered, per one catalogue, met absolutely no demand, and were all bought in. Other 58 chests were also practically all bought in, at 5d. to 6d. per lb. for very common rough very wormy high dried; 11d. for better ditto; 11d. to 1s. for round Canton; 1s. to 1s. 4d. for flat ditto; and 1s. 2d. per lb. for common round Shensi. Another lot of 72 cases, part sold, without reserve, at 9 $\frac{1}{2}$ d. to 11d. for common flat Shensi, 7 $\frac{1}{2}$ d. to 9 $\frac{1}{2}$ d. for round ditto; and at 1s. per lb. for trimming root; fair to good round Shensi part sold at 2s., part held for 2s. to 2s. 6d.; flat ditto, at from 1s. 2d. to 2s. per lb.

SARSAPARILLA.—6 serons fair Honduras were taken out at 1s. 7d. per lb. Fair Jamaica was held for 1s. 9d. to 1s. 10d. per lb. 5 bales Lima sold at 1s. 1d., and 4 bales Guayaquil at same figure.

SENNA.—Of 526 bales Alexandria a considerable portion sold at low prices, from 2 $\frac{1}{2}$ d. per lb. downwards, quality being very inferior. Other 81 bales ditto practically all sold at 3 $\frac{1}{2}$ d. down to 1 $\frac{1}{2}$ d. per lb. 55 packages Alexandria chiefly bought in at 9d. per lb. for good down to 4d. per lb., pods being taken out at 7d. per lb.

SQUILLS.—35 bags part sold at 1 $\frac{1}{2}$ d. per lb.; balance bought in at 3d.

TAMARINDS.—10 barrels Antigua bought in at 10s. per cwt. 3 barrels East Indian were withdrawn at same price, only 7s. 6d. per cwt. being bid.

TONQUIN BEANS.—5 hhds. fair Angostura were taken out at 3s. per lb.; another lot of four cases, inferior Paras, at 1s. 3d. per lb.

TURMERIC.—311 bags Bombay split bulbs were taken out at 12s. to 12s. 6d. per cwt.

WAX.—12 cases bleached Calcutta were taken out at £7 to £7 15s. per cwt.; 29 cases Yellow East Indian at £6 10s. Fair Jamaica realised £7 to £7 7s. 6d. 13 bags fair Italian were bought in at £6 10s.; fair Madagascar at £7 10s. 12 bags good Mozambique realised the relatively high price of £7 7s. 6d. Fair Bombay sold at £5 15s.; good Australian at £7 5s. per cwt. 50 cases yellowish Japan bought in at 35s. per cwt.

Calendar for the Week.

Sunday, March 18. Third Sunday in Lent. Sun rises 6.9; sets 6.7.
Monday, March 19. Sun rises 6.7; sets 6.9.
Tuesday, March 20. Sun rises 6.5; set 6.11.
 ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—A demonstration of "The Heliogravure Process," by Ignatz Herbst.
Wednesday, March 21. Sun rises 6.2; sets 6.12.
 PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 36, York Place, Edinburgh, at 8.30 p.m.—Evening Meeting. Papers on "The Volumetric Determination of Red Lead" by James Tocher; (a) "The Ash Percentage of Commercial Cochineal;" (b) "A Simple Method for Valuation of Cochineal and Carmine," by George F. Merson.
Thursday, March 22. Sun rises 6.0; sets 6.14.
 CHEMISTS' ASSISTANTS' ASSOCIATION, Portman Rooms, Baker Street, London, W., at 7.30 p.m.—Third of the Fifth Series of Cinderella Dances.
 WESTERN CHEMISTS' ASSOCIATION (OF LONDON), Westbourne Restaurant, 1, Craven Road, W., at 9 p.m.—Discussion on Subjects of Interest to Members of the Association.
 LEICESTER CHEMISTS' SOCIAL UNION, Victoria Coffee House, at 8.30 p.m.—Meeting of the trade to consider the clauses in the Companies Bill as affecting the interests of chemists.
 LIVERPOOL CHEMISTS' ASSOCIATION, Exchange Station Hotel, at 7.15 p.m.—Annual Dinner.
Friday, March 23. Sun rises 5.58; sets 6.16.
 GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS' AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15.—Dr. Coull's lecture on "Stereo-Chemistry," postponed from March 2.
 ROYAL INSTITUTION, Albemarle Street, Piccadilly, London, W., at 9 p.m.—Sir Andrew Noble on "Some Modern Explosives."
Saturday, March 24. ☾ 5.36 M. Sun rises 5.56; sets 6.17.
 ROYAL INSTITUTION, Albemarle Street, Piccadilly, London, W., at 3 p.m.—Lord Rayleigh on "Polarised Light."

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

1oz. Morph. Hydroch. 5/-, 4oz. 19/-; 1 lb. Iodoform Xtal. 12/-.—Eastman, Stratford.

Young German Canaries in full song. 7/6 each.—Bennett, Chemist, Widnes, Lancashire.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Bargain.—A Magnificent Binocular Field Glass, silver plated, eight powerful achromatic lenses, superb definition, leather case. Accept 9/9.—Squire, Corfe Villa, Stanley Rd., Woodford, Essex.

Good Painted Lantern Slides (second-hand), including Religious, Temperance Effects, Mottoes, Comic, 4½d. each; Boer War, 6d. each. Lists free.—T. Wing, Photographer, Chatteris.

Pharmaceutical Journal, 1869 to 1870, 1872 to 1876, 1880 to 1885, January to June, 1886; 1889, 1892, July to Dec., 1879; 1884, 1888, 1891. Chemist & Druggist, 1859 to 1860 (1st vol.), 1863, 1866, 1867; 1873 to 1876, 1880, 1882 to 1895, 1897 and 1898, in yearly bundles. What offers, all or part?—Hocken, 31, Oldhall Street, Liverpool.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Bottles, Drawers, Show-Cases, etc., for new branch, immediately.—Wood, Chemist, Stonehouse, Plymouth.

Notices to Correspondents.

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

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Advertisements

Received too late for Classification.

LONDON, N.W.—Wanted, an ASSISTANT (unqualified) or Junior, indoors; two afternoons, one evening off per week.—Apply personally, or with photo, to BELL & Co., 2, Malvern Road, West Kilburn.

SECOND COUNTERMAN wanted, must be qualified, of good address and used to good-class business. London experience not essential, but preferred.—State full particulars and enclose photo to CINCHONA, 5, Serle St., W.C.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Barrie, Bartlett, Cocks, Cruickshank, Gair, Gammie, Garnett, Harrap, Hill, Hodder, Jackson, Jones, Knight, Lloyd, Marchant, Metcalfe, Morrison, Norris, Paynter, Potts, Robins, Street, Turner, Umncy, Wallis.

NEWS IN BRIEF.

B.P. STANDARDISATIONS are to be considered by the members of the C.A.A. on Thursday, March 29, when Mr. J. A. Dewhurst will communicate some notes on the subject.

THE LONGSTAFF MEDAL will be presented to Professor W. H. Perkin, Jun., F.R.S., on Thursday next, at the Annual General Meeting of the Chemical Society, at 3 p.m.

THE BUNSEN MEMORIAL LECTURE will be delivered in the rooms of the Chemical Society, Burlington House, Piccadilly, W., by Sir Henry E. Roscoe, F.R.S., on Thursday, March 29, at 8.30 p.m.

PHARMACY AND MEDICINE will be the subject of an address delivered by Dr. Alfred H. Carter to the members of the Midland Pharmaceutical Association on Thursday evening next, March 29, at Mason University College, Birmingham, at 8.30.

THE FORFARSHIRE AND DISTRICT CHEMISTS' ASSOCIATION will hold a meeting in Mathers' Hotel, Whitehall Street, Dundee, on Wednesday, March 28, at 4.30 p.m., to discuss the subjects suggested by the Federation circular, the approaching election of Council, and any questions of local interest. Tea may be had at 4 o'clock.

MR. R. A. ROBINSON, L.C.C., M.P.S., delivered an address on Wednesday, March 21, under the auspices of the Kensington Ratepayers' Association, on "The London Government Act, 1899, and the Duties of Mayor, Aldermen, and Councillors of the New Boroughs." The chair was taken by General Lord Chelmsford, G.C.B.

MR. EDWARD B. KENDALL, pharmaceutical chemist, York, has upon the door-post of his shop a red cross on a white disc, as a sign or trade mark. Recently a Colonel Saunders, R.A.M.C., has been greatly troubled by the appearance of the red cross on the shop, and he has written to Mr. Kendall telling him that the Geneva Red Cross should be "held sacred" and not "prostituted for trade purposes," and that its use puts him "on a level with the most ignorant class of Boers." No notice was taken of the Colonel's impertinent letter, so he wrote again, this time upon War Office paper, stating that as no notice had been taken of his previous communication he was writing to the Pharmaceutical Society and the Red Cross Society, bringing to their notice Mr. Kendall's "flagrant conduct in using the international Geneva Red Cross for trade purposes," and expressing his determination not to let the matter drop until the sign is removed. In view of the Colonel's declaration not to let the matter drop, *Truth* this week remarks: "It might be well if some one in authority were to tell him to mind his own business, for presumably he has official business of some kind at York which requires his attention, and at present he seems to be rather wasting his time, as well as the Government stationery."

Marriage.

CHALMERS—DRYSDALE.—On March 14, at Morton Place, E. Aberdour, Fife, by the Rev. W. H. Gray, B.D., Andrew Chalmers, M.P.S., Newcastle-on-Tyne, to Mary Jane, daughter of Thomas Drysdale, Aberdour, Fife.

TRADE NOTES.

MESSRS. HORNER AND SONS, Mitre Works, Cordova Road, Bow, E., inform us that the otto of orris described by Mr. J. C. Stead at the last evening meeting of the Pharmaceutical Society in London is now a commercial article, and can be supplied by them.

SPIRIT DUTY.—Messrs. Evans, Sons and Co., Liverpool, have issued a supplement to their price list giving the new prices to the articles affected by the increased duty on spirits.

"PRACTICAL POINTS CONCERNING TABLOID PHOTOGRAPHIC CHEMICALS" is the title of a pamphlet issued by Messrs. Burroughs Wellcome and Co., Snow Hill Buildings, London, E.C. Supplies

of the new edition, just published, which contains numerous useful hints, will be sent, on application, to any chemist or photographic dealer who desires to have them.

MESSRS. PERKEN, SON, AND CO., manufacturing opticians, 99, Hatton Garden, London, E.C., intimate that the firm has been registered as a limited liability company under the title of "Perken, Son, and Co., Ltd." As this course has been taken for purely family reasons no shares have been, or will be, offered to the public.

REYNOLDS' MARCH PRICE LIST.—Messrs. Reynolds and Branson, Ltd., 13, Briggate, Leeds, in their March wholesale prices current, announce the extension of their premises, providing large new showrooms for their complete and classified stock of surgical instruments and appliances. Published with the list are two excellent full-page interior photographs of the new rooms, showing the fitting-rooms adjoining.

"PEPULE" DIGESTIVE PRODUCTS.—Messrs. Fairchild Brothers and Foster (New York) announce that the "Fairchild" Digestive Products which Messrs. Burroughs Wellcome and Co. have put up and issued under their registered trade mark brand "Tabloid" will in future be put up by themselves under their registered trade mark brand "Pepule," and will be supplied to the trade by Messrs. Burroughs Wellcome and Co. as agents.

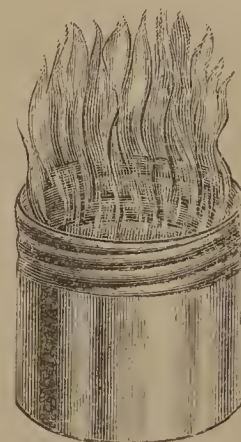
SHAVING SOAPS.—Every one who shaves can appreciate the luxury of a soap yielding a rich, creamy lather which does not evaporate immediately after it has been applied to the face. Till quite recently we were under the impression that English soap specialists had not given the attention it deserved to this department; in fact, we were unacquainted with home products equal to those of foreign, and especially American, manufacture. Judging from samples handed us by Messrs. D. and W. Gibbs, of the City Soap Works, it is, however, evident they have recently devoted a great deal of attention to the subject, and with very satisfactory results. Their Cold Cream Shaving Soap and Floral Cameo Shaving Soap are all that can be desired by the most exacting, and there is no longer any necessity either to use or to recommend imported shaving soaps.

SPIRITINE.—Messrs. Barclay and Sons, Limited, 95, Farringdon Street, London, E.C., send particulars of a new article, which is



likely to have a large sale. The danger and inconvenience attending the use of spirit in liquid form has long been experienced; but those difficulties now appear to have been overcome by "Spiritine," otherwise solidified spirit, which, it is claimed, may be used with safety

for many of the domestic and other purposes to which liquid spirit has previously been put. The illustrations show how "Spiritine" is packed for sale and in use. Messrs. Barclay are the wholesale agents, and they will be pleased to forward prices and particulars upon application.



VALTINE MEDICATED GLOBULES.—The Valentine Extract Company, Limited, 33, Tooley Street, London, S.E., is making a specialty of medicated globules, containing meat and malt; meat and quinine; meat and pepsin; meat, malt and pepsin. The globules are packed in tins of one size, suitable for the pocket, each containing twenty globules. They are made from "Valtine" Extract of Meat, and represent "the full concentrated strength" of the meat, with the addition of quinine, malt extract, and pepsin, in quantities of one grain, six grains, and two grains respectively. The meat, malt, and pepsin globules each contain six grains of malt extract, and two grains of pepsin, the remainder being "Valtine" Extract of Meat. The globules can be taken whole or dissolved in a little hot water. The prices of the new medicated globules range from 2s. to 2s. 6d. per tin.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, MARCH 21, 1900.

Business generally has been somewhat quiet during the week, both as regards drugs and chemicals. The amount of honey sold has been again worthy of remark, full prices being realised. A fair amount of Cochin ginger has been sold at a good rate, and some 65 bags of good Sierra Leone chillies found purchasers on private terms. Oils generally are in much the same position as last week, with minor alterations in cottonseed oil and spirits of turpentine.

AMMONIA SALTS.—Sal ammoniac is firm at 38s. and 40s. per cwt. Sulphate is quiet at £12 5s. per ton.

BEEWAX.—5 cases of Peruvian went for £7 5s. per cwt.

BLEACHING POWDER.—Continues very firm at £7 10s. per ton.

CANARYSEED.—There is more inquiry. 500 bags Turkish sold at 33s. to 33s. 6d. per 464 lbs., and later 300 bags (also Turkish) went for 33s.

CHILLIES.—65 bags Sierra Leone sold on private terms.

COPPER SULPHATE.—Steady at £25 15s. to £26 per ton.

GINGER.—About 100 bags of Cochin found buyers at 30s. per cwt.

HONEY.—125 barrels of Chilean Pile 1, made 25s. 6d. per cwt.

LINSEED.—Is firm. River Plate is worth 43s. on the spot or to arrive. As for Calcutta, there is none offering. 50 tons of River Plate sold ex-quay at 43s. per 416 lbs.

OILS (FIXED) AND SPIRITS.—Castor Oils are moderately in demand, with prices almost identical with last week. French 1st pressure being a little lower—i.e., 3 $\frac{3}{8}$ d. to 3 $\frac{1}{4}$ d. per lb.; Calcutta, 3 $\frac{1}{2}$ d. to 3 $\frac{5}{8}$ d.; and French or Belgian, 2nd pressure, 3 $\frac{1}{8}$ d. per lb. Olive are quiet, with small business passing in Spanish at £36 to £36 10s. per tun. Linseed Oil of Liverpool pressure is a little cheaper—viz., 24s. 9d. to 25s. per cwt. in export packages. Cotton seed of Liverpool refining is steady at 23s. 3d. to 24s. per cwt. Spirits of turpentine are in fair demand at the improved rate of 41s. 6d. per cwt.

POTASH SALTS.—Bichromate is firm at 4d. to 4 $\frac{1}{2}$ d. per lb. Cream of Tartar, 74s. to 80s. per cwt. Chlorate, 4 $\frac{1}{2}$ d. to 4 $\frac{3}{4}$ d. per lb. Pearlash is quiet at 33s. 6d. to 35s. per cwt. Potashes are steady in tone, with fair inquiry at 27s. 3d. to 27s. 6d. per cwt. Prussiate, 8d. per lb.; Saltpetre, £21 5s. per ton.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is firmer, 16s. to 17s. per cwt. Caustic, 76 to 77 per cent., £11 per ton; 70 per cent., £10 5s.; 60 per cent., £9 5s. Crystals, £3 5s. to £3 7s. 6d. per ton. Nitrate is not quite so active, but price continues 8s. 9d. to 9s. per cwt.

LONDON, THURSDAY, MARCH 22, 1900.

Business in Drugs and Chemicals has been quiet and disappointing during the past week, while although there have been no very serious declines in value, prices for several articles are decidedly less firm, not to say lower. Glycerin is rather dearer, as also is Cod Liver Oil. Quinine has had a decided set-back, and the price in the speculative market is about 2d. per oz. lower. Makers' price in America has been reduced, but it is understood that makers are awaiting the results of to-day's Bark Sales in Amsterdam (which were not known up to the time of going to press) before deciding as to what their price here shall be. Other articles of interest remain quiet but fairly steady, the following being some of the prices actually ruling:—

ACETANILIDE.—Is dull and quiet at 9 $\frac{1}{2}$ d. to 11d. per lb., according to make, quantity, and packing.

ACID BORACIC.—Steady at 26s. per cwt. for crystals and 28s. per cwt. for powder.

ACID CARBOLIC.—Refined quiet and rather easier at 10 $\frac{1}{2}$ d. to 11d. per lb. for 35°-36° ice crystal, in 2 $\frac{1}{2}$ cwt. drums and over-casks; 11 $\frac{1}{4}$ d. to 11 $\frac{3}{4}$ d. for the 39°-40° ice crystals; and 1s. 0 $\frac{1}{4}$ d. to 1s. 1d. per lb. for the 39°-40° detached crystals, which is now the quality prescribed by the B.P.; crude, 60° F., 2s. 9d. per gallon; 75° F., 3s. 3d. per gallon; liquid, 95 to 98 per cent. of pale straw colour, 1s. 7d. to 1s. 9d. per gallon; ditto, 25 to 30 per cent. of dark colour, 10d. to 1s. per gallon, packed in 40 gallon casks.

ACID CITRIC.—Is, if anything, a shade easier, quotations remaining, however, nominally unchanged at 1s. 4d. to 1s. 5d. per lb., according to make and quantity for crystals in 5 cwt. casks.

ACID OXALIC.—Is still quoted 3d. to 3 $\frac{1}{2}$ d. per lb. nett, free delivered London.

ACID TARTARIC.—English spot, 1s. 0 $\frac{1}{2}$ d. to 1s. 1d. per lb., and foreign, 1s.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3 $\frac{1}{2}$ d. to 4 $\frac{1}{2}$ d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate dull. Gray, 24 per cent., London, prompt, £12 2s. 6d. Hull, prompt, £12 to £12 1s. 3d. Leith, prompt, £12 2s. 6d. Beckton, March-April, £12. May-June, £12. Beckton, terms prompt, £11 17s. 6d. to £11 18s. 9d.

ANTIMONY.—Regulus is quiet at £38 10s. to £39 10s. per ton. Crude Japan (Black Sulphide), 22s. to 22s. 6d. per cwt.

ASHES.—Pots, 28s. 6d.; Pearls, 34s.

ATROPINE.—Makers are very firm at 15s. 6d. per oz. for the Sulphate B.P., and 17s. 10d. per oz. for the pure Alkaloid.

BISMUTH.—There is no change to report either in the metal or in the salts, the commercial quality of the metal being still quoted 5s. per lb., the subcarbonate 5s. 8d. per lb., and the subnitrate 5s. 1d. per lb.

BLEACHING POWDERS (CHLORIDE OF LIME).—English is still quoted £7 per ton.

BORAX.—Quiet but firm at 17s. per cwt. for crystals and 18s. per cwt. for powder.

BROMIDES.—Are firm at unchanged prices, and Potassii Bromid. remains very scarce for prompt delivery.

CAMPHOR.—The crude article remains firm, with buyers of China near and March-April steamer at 169s. c. f. and i., but no business is reported. Japan: There are second-hand sellers at 177s. 6d. c. f. and i. Importers quote 180s. and 185s. c. f. and i. respectively. Refined is unchanged at 2s. 2d. per lb. for English Bells and Flowers. German refiners have raised their prices $\frac{3}{4}$ d. per lb. to 2s. 0 $\frac{3}{4}$ d. per lb. for Bells and Flowers in ton lots for prompt delivery, and 1d. per lb. more for forward.

CASTOR OIL.—Quiet; Belgian, first pressing, spot, £31; April-June, £30, f.o.b. Antwerp; second pressing, spot, £28 10s. per ton, ex-wharf. Hull manufactured, guaranteed cold-drawn pure Pharmaceutical, £33 10s. per ton in barrels, 4d. per lb. in cases. Pure firsts, £31; seconds, £29 10s. per ton, in barrels; firsts, 3 $\frac{5}{8}$ d. per lb. in cases; seconds, 3 $\frac{1}{2}$ d., ex-wharf, London.

CLOVES.—At auction, no Zanzibar were offered; 32 bags Ceylon bought in, fair bright picked at 6 $\frac{1}{2}$ d. Privately, no business in Zanzibar, but quotations are not altered.

COAL TAR DISTILLATION PRODUCTS.—Toluol. commercial, 1s. 2d. per gallon, pure 2s. to 2s. 6d. Benzol, 50 per cent., 9d.; 90 per cent., 8d. per gallon. Creosote, 3d. to 6d. per gallon, according to quantity, etc. Crude Naptha, 30 per cent., at 120° C., 4 $\frac{1}{2}$ d. to 5d. per gallon. Solvent Naptha, 95 per cent. at 160° C., 1s. 6d.; 90 per cent. at 160° C., 1s. 1d. per gallon; 90 per cent. at 190° C., 1s. 2d. Anthracene, A, 3 $\frac{3}{4}$ d.; B, 2 $\frac{3}{4}$ d. Tar, refined, 14s. 6d. per barrel, 3d. per gallon. Crude, 12s. 6d. per barrel, 2 $\frac{1}{4}$ d. per gallon.

COCAINE.—Makers are firm at 16s. 3d. per oz. for the Hydrochlorate in 25 oz. tins for 200 oz. lots.

COD LIVER OIL.—Is nominally again firmer, and it is reported that business has been done in the best brands of new non-congealing Norwegian oil at 80s. per barrel, f.o.b. Quotations appear to vary from 70s. to 82s. 6d. per barrel, of 25 gallons, according to brand.

CREAM OF TARTAR.—Steady at 73s. per cwt. for first white crystals, 75s. for powder, and 76s. per cwt. for ditto 95 per cent.

GALLS.—Business continues on a small scale in all kinds, but prices are unaltered. China: Nothing to be done on the spot; near at hand the last price paid was 65s. c. f. and i. Japan to arrive sellers at 61s. c. f. and i. Persian Blues have been dealt in to a small extent at 95s., and Greens at 85s.

GINGER.—At auction 530 bags and 20 cases offered of Cochin, but went off slowly: 64 bags sold without reserve, washed rough, slightly wormy, dark common, at 27s., rough brown medium and small bright bought in at 30s. to 32s. Jamaica: 184 barrels offered and bought in, meeting little demand, but since about 100 barrels have changed hands at steady rates. St. Lucia: 23 bags offered, but bought in, fair bright medium at 52s.

GLYCERIN.—Crude has further advanced, and is quoted £32 to £40 per ton, while Refined is also rather dearer at 58s. 6d. to 60s.

per cwt. for English and 58s. to 70s. per cwt., according to brand, for German, for the best white double distilled chemically pure, 1,260 quality in tins and cases (2 or 4 x 56 lb. tins in a case).

ISINGLASS.—These periodical auctions were held to-day, with the moderate supply of 919 packages of all descriptions, as against 841 packages at the previous sale. A dull tone prevailed throughout, and holders being generally firm, only a very small part sold. Brazil brought about steady rates, except for Para Lump, which was 1d. lower. West Indian steady. Maracaibo again bought in. Bombay, in large supply, represented more than half of the offerings, but the high limits effectively checked sales, and only a few packages sold at about previous rates. Penang unchanged, and only a small part sold. Saigon firmly held, and all bought in. China about steady. Japan bought in. Russian quiet and unaltered. Para: 44 packages offered (10,947 lb.) and about 40 packages sold; lump, pile 1, good yellow at 3s. 4d. to 3s. 5d., fair ditto at 3s. 3d., fair reddish at 2s. 10d. to 2s. 11d., dark ditto and fatty at 2s. 8d.; tongue, fair stout open palish at 3s., small thin at 1s. 8d.; honeycomb, fair stout 2s. 2d., thin at 1s. 2d. Maranhão: 13 packages offered (1,765 lb.) and sold; lump, fair yellow and reddish at 2s. 11d., dark reddish and fatty at 2s. 7d. to 2s. 8d.; tongue, good open pale at 3s. 5d. to 3s. 7d., fair ditto at 3s. 3d. to 3s. 4d., fair reddish at 2s. 5d. to 2s. 6d., small thin at 1s. 7d. to 1s. 9d. West Indian: 7 packages offered (732 lb.) and sold; lump, fair reddish at 3s., dark red mixed fatty at 2s. 7d. to 2s. 8d.; tongue, fair reddish, part open at 2s. 9d.; purse good small yellow at 1s. 9d. Bombay: 576 packages offered (115,517 lb.) and about 75 sold; Kurrachee leaf, good stout pale at 3s. 7d., good reddish mixed yellow at 3s. to 3s. 2d., fair reddish rather mixed fatty at 2s. 6d. to 2s. 9d., thin reddish and dark at 2s. 3d. to 2s. 10d., small fair yellowish at 1s. 9d. to 1s. 10d., common dark at 1s. 6d.; tongue, fair stout dark at 2s. 3d.; purse, good heavy yellow at 2s. 6d., fair stout yellow at 1s. 11d., bold to medium yellow at 1s. 6d. to 1s. 8d., medium and bold dark little fatty at 1s. 4d. to 1s. 5d., common rough dark at 1s.; bladderpipe, fair stout reddish mixed darkish at 2s. 6d. to 2s. 10d., mixed common and thin dark at 1s. 1d. to 1s. 9d. Penang: 103 packages offered (35,345 lb.) and 25 sold, long leaf, fair yellow at 4s. 5d.; leaf, good bright pale at 4s. 4d. to 4s. 6d., good reddish at 3s. 8d. to 3s. 10d., fair ditto at 3s. 2d., thin red at 2s. 4d.; tongue, fair reddish mixed dark at 2s. 3d. to 2s. 6d., dark mixed at 2s. 1d.; purse, good yellow at 1s. 7d., fair ditto mixed thin at 1s. 3d. to 1s. 4d., common dark 1s. Saigon: 38 packages offered (2,543 lb.) and all bought in. Senegal; 5 packages offered (354 lb.) and withdrawn. Maracaibo: 12 bales offered (2,319 lb.) and bought in at 2s. China: 62 packages offered (13,302 lb.) and 12 bales sold, without reserve, at 1s. 11d. Japan: 4 bales offered (784 lb.) and bought in. Rangoon: 4 cases offered (966 lb.) and withdrawn. Russian: 64 packages offered (4,676 lb.) and sold at 1s. to 1s. 2d. The next auction will be held on April 24.

JAPAN WAX.—Continues firm. On the spot sales of good squares have been made at 34s. 6d.; for arrival March-April steamer 32s. c. f. and i. is quoted.

LYCOPodium.—Continues very scarce and dear at 2s. 4d. to 2s. 6d. per lb. for good sifted.

MENTHOL.—Is quiet at 9s. to 9s. 3d. per lb. for best brands of good dry white crystals in 5 lb. tins (12 tins in a case).

OILS (FIXED) AND SPIRITS.—Linseed very firm at fully 2s. 6d. advance. On the spot, pipes London ordinary, £25; barrels, £25 2s. 6d. Hull spot naked, £22 17s. 6d.; April, £22 12s. 6d. Rape market strong, and holders are asking about 10s. to 20s. advance. Ordinary brown, on the spot, nominally, £27; refined spot, £20 5s. to £28 10s. Ravison naked spot, £24 to £24 5s. Cotton easier. London crude spot, £20 12s. 6d.; refined spot, £22 10s. to £23, according to make; Hull 5s. easier; naked refined spot, £20 10s.; crude spot, £18 17s. 6d. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Cocoonut quiet: Ceylon on the spot, £25 10s. to £25 15s.; near, £24 7s. 6d. c.i.f. Cochin spot, £28 10s., March-May, £25 10s. c.i.f. Palm: Lagos on spot quoted £29. Petroleum dull: Russian spot quoted 7d. to 7½d.; American spot, 7½d. to 7¾d.; Water White, 8¾d. to 9d. Petroleum Spirit: American, 9¾d.; deodorised, 10d. to 10½d. Turpentine: business has been passing at lower prices; American spot, 40s.; April, 40s.; May, 39s. 6d.; June, 36s. 6d.

OPIUM.—Is firm at dearer prices, say at 4d. to 6d. per lb. advance on prices ruling last week. There, however, has not been very much doing in the various kinds. People, who should be best able to judge, appear to think that there is more than a possibility of the article going still dearer. Quotations are:

manufacturing and druggists' kinds, 9s. to 10s. 6d. per lb.; soft shipping, 9s. 6d. to 11s. 6d.; and Persian, 12s. 9d. to 13s. 3d. per lb.

POTASH COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate spot, London crystals, 4½d. net; powder, 4½d. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate: yellow English makes, 8d.; Beckton, 7¾d.; red, 1s. 2d. to 1s. 3d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton, ex-ship.

QUININE.—A drop in the American price to-day has had an adverse effect on this market, and prices have been most erratic, but more steadiness prevails at the close, values leaving off rather below the best of the day. A fair business has been done, about 75,000oz., comprising B & S and/or Brunswick, on the spot ranging from 1s. 4d. to 1s. 4½d., May delivery at 1s. 4¾d. to 1s. 4¾d., and June from 1s. 4½d. to 1s. 5½d., closing at 1s. 4½d., 1s. 4¾d., and 1s. 4¾d., respectively. So far makers made no change in their prices, apparently waiting first to hear the results of to-day's bark sales in Amsterdam, at which bark containing about 26 tons of Sulphate of Quinine comes under the hammer.

SHELLAC.—The market is lifeless, and privately no sales on the spot of importance have occurred. Futures are steady, but quiet; 100 cases TN Orange near at hand have been sold at 59s. c. f. and i., and 100 cases August delivery at 63s. At auction to-day the moderate supplies of Second Orange met a slow demand, and about one-third sold. Steady prices were paid at the opening, but at the close a decline of about 1s. was established, fair TN being now 60s. Garnet: Only a few cases offered. Button partly sold, without reserve, at lower prices. A total of 556 cases offered, and 187 cases sold. Second Orange: of 371 cases 120 sold, fair bright flat TN at 60s. to s., broken flat req at 58s. to 59s. Garnet: 12 cases good flat Rangoon offered and bought in at 62s. Button: of 173 cases 67 sold, chiefly without reserve, middling firsts, fair condition, at 66s., but mostly more or less blocky; firsts at 60s. to 62s.; circle 2's at 56s.; and thirds at 55s.

SODA COMPOUNDS.—Crystals: Barrels quoted 60s.; bags, 57s. 6d. Acetate, £14 per ton, ex-ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, £7 5s. per ton. Bichromate, 3¼d. Bromide, 2s. 2½d. per lb. Caustic, 76 per cent., £11; 74 per cent., £10 12s. 6d.; 70 per cent., white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4½d. per lb. Hyposulphite (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9; ordinary, £8 15s. Nitrate, 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. per ton. Sulphate (salt cake), £1 7s. 6d. per ton. Glauber Salts, £1 10s. per ton. Sulphide Crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: 153 bags Singapore offered and bought in, fair at 6½d.; 11 bags Ceylon sold, good at 6d. to 6¼d. White Pepper: Only 16 bags Singapore offered and bought in, good at 10d.; 40 bags fair brown limes Penang at 8½d. Chillies quiet. 18 packages Japan bought in, including fair bright country damaged, selected, at 45s. Capsicums, in fair supply, met a slow demand; 345 packages Bombay offered and 60 bales sold privately, fair bright, long on stalk, at secret prices; remainder bought in at 28s. to 32s. 6d.; also fair red cherry pods off stalk at 40s. Pimento dull of sale, and 308 bags in auction bought in at 3¾d. to 3¾d. Broken Cassia: 140 bales offered and bought in at 35s. Cinnamon: 9 bales Ceylon offered and 5 bales sold at 6d. to 8d. Of 198 bales Wild 47 sold at ¾d. to 2½d. Cinnamon Chips and Bark dull: Of 514 bags offered chiefly Wild 140 bags sold, coarse bark at 1½d. to 1¾d.; fair chips bought in at 4d. Nutmegs quiet, and 28 cases Penang bought in, 80's to 81's at 1s. 8d.; 91's to 92's at 1s. 5d.; and 206's shrivelled at 6d. 3 cases Ceylon sold, 90's at 1s. 5d. 5 cases Bombay sold, wormy and defective at 3¼d. to 3½d. West Indian: 20 cases and 29 barrels sold, 67's at 1s. 8d. Mace slow of sale: Of 12 cases Penang only 1 case sold, fair palish, rather wormy, at 1s. 7d. 1 case Ceylon sold, fair pale, at 1s. 5d. West Indian: 6 packages sold at 1s. 5d. to 1s. 6d.

STICKLAC.—Slow of sale, and 60 cases Siam in auction were all bought in, fair sifted at 45s., unsifted, rather woodv. at 38s.

SULPHATE OF COPPER.—Is quoted £24 5s. to £26 per ton on the spot.

Calendar for the Week.

Sunday, March 25.	Fourth Sunday in Lent.	Sun rises 5.54; sets 6.18.
Monday, March 26.		Sun rises 5.52; sets 6.20.
Tuesday, March 27.		Sun rises 5.49; sets 6.22.
BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION, County Restaurant, at 9 p.m.—“Glimpses of Lake Country. Life and Scenery, with Lantern Illustrations,” by P. Lund.		
Wednesday, March 28.		Sun rises 5.47; sets 6.24.
FORFARSHIRE AND DISTRICT CHEMISTS' ASSOCIATION, Mather's Hotel, Whitehall Street, Dundee, at 4.30 p.m.—Meeting to discuss the Federation Circular, the approaching Election of Council, and Questions of Local Interest.		
PUBLIC AND POOR LAW DISPENSERS' ASSOCIATION, St. Bride's Institute, Ludgate Circus, London, E.C., at 8 p.m.—S. B. Donnan, on “Proteids in Urine.”		
Thursday, March 29.		Sun rises 5.45; sets 6.25.
CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 3 p.m.—Annual General Meeting for the election of officers and other business.		
CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newnan Street, London, E.C., at 9 p.m.—“Notes on B.P. Standardisations,” by J. A. Dewhurst.		
MIDLAND PHARMACEUTICAL ASSOCIATION, Mason University College, Birmingham, at 8.30 p.m.—“Pharmacy and Medicine,” by Dr. Alfred H. Carter.		
Friday, March 30.	● 8.30 A.	Sun rises 5.43; sets 6.27.
GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Communication by J. Thomson.		
Saturday, March 31.		Sun rises 5.40; sets 6.29.
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Lord Rayleigh on “Polarised Light.”		

EXCHANGE COLUMN.

OFFERED.

“**Chemist and Druggist**,” 1898, 1899.—Small offer to J. T. Cross, Wingate, R.S.O.

Moulds.—Suppository, Pessary, Bougie, Capsule; as Maw's.—Warnes, 333, Gray's Inn Rd., W.C.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Clinicals, one dozen each, 30 seconds, 21/-; ordinary, 16/-; each engraved “English make,” plated cases; any post free.—Warnes, 333, Gray's Inn Road, W.C.

Good Painted Lantern Slides (second-hand), including Religious, Temperance Effects, Mottoes, Comic, 4½d. each; Boer War, 6d. each. Lists free.—T. Wing, Photographer, Chatteris.

What offers?—Scott's Botany, Part I. Darwin's Practical Plant Physiology (Bower). Whiteley's Chemical Calculations. Stewart's Heat and Light Problems.—Burrell, 16, Regent Parade, Harrogate.

A profitable line for the coming season.—Formula for lemonade powder, from which considerably over 2,000 packets made from same were sold by one establishment last year; 1s. 1d., post free.—H. L. Mackenzie, 36, Goldhawk Rd., London, W.

Enemas, bought before advance, offer one dozen, highly enamelled, black, green, red, each stamped “guaranteed English make,” complete—pipes, shields, cedar boxes. 24s., carriage paid. Sample posted.—Warnes, 333, Gray's Inn Rd., W.C. Saleable patents wanted.

For Sale.—One nearly new Copper Vacuum Pan, 5 ft. diameter, fitted with Stirring Gear, Condenser and all fittings. One Mild Steel Steam Jacketed Still, 4 ft. diameter, fitted inside with Copper Steam Coils, Stirrer and Pulleys, Galvanised Iron Still Head.—Apply to W. J. Fraser & Co., Engineers, 98, Commercial Road East, London, E.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Upright Counter Case or Dispensing Screen, about 5 feet by 2½ feet.—Particulars to Edwards, Chemist, Holme-upon-Spalding Moor, York.

* “SANITAS” *

EMBROCATION

8d., 1/-, and 2/6 Bottles.

“SANITAS”

AND OTHER

DISINFECTANTS

SULPHUR FUMIGATING CANDLES (Kingzett's Patents), 6d., 9d., and 1s. each.

“FORMIC-SULPHUGATORS” 1/- and 1/6 each.

PRESERVED PEROXIDE OF HYDROGEN (Kingzett's Patent).

MOTH PAPER, BLOCKS AND CRYSTALS. WEED DESTROYER, &c., &c.

THE “SANITAS” CO., Limited, BETHNAL GREEN, LONDON,

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(GRANULATED).

Contains all the active principles of the Kola Nut. Caffeine, Theobromine Kola Red and Tannin in a soluble, agreeable, and portable form. Recommended as a powerful stimulant of the physical and mental forces.

Retail 3/6 per bottle; Wholesale 34/- per dozen.

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83, Mortimer St., Gt. Portland St., W.,

Wholesale Importers and Exporters of all

FRENCH AND GERMAN

Specialities and

PROPRIETARY MEDICINES.

Goods not in Stock procured to order.

Advertisements

Received too late for Classification.

EAST LONDON HOSPITAL FOR CHILDREN AND DISPENSARY FOR WOMEN, GLAMIS ROAD, SHADWELL, E.

THE Board of Management invites applications for the post of ASSISTANT DISPENSER. Candidates must have had experience in a Hospital or other Institution. Hours from 9 a.m. to 5.30 p.m., normally. Salary £100 per annum. Dinner is provided in the Hospital.

Applications, in writing, accompanied by recent testimonials, should be sent in on or before Saturday, the 31st inst., and addressed to the undersigned,

21st March, 1900.

THOMAS HAYES, Secretary.

Notices to Correspondents.

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Barrie, Bartlett, Bird, Brunt, Chalmers, Cheetham, Cowdery, Cummings, Daniel, Dawbarn, Dawson, Dell, Forster, Green, Highfield, Hill, Hunt, Jamieson, Lloyd, Lothian, Melbourn, Reynolds, Routley, Sage, Sargeant, Ward, Wilkison, Young.

NEWS IN BRIEF.

MR. T. H. DOUGHTY, M.P.S., of Catford, has purchased the business at 120, High Street, Wandsworth, lately carried on by Mr. W. J. Morgan.

MR. WILLIAM WARREN, M.C.P.S., is to take the chair at the C.A.A. "musical and social" to be held in the Association's rooms at 73, Newman Street, London, W., on Thursday, April 5.

EDINBURGH DISTRICT CHEMISTS' GOLF CLUB.—At the meeting reported last week (see *ante*, p. 326), the Club unanimously resolved to present one guinea to the Benevolent Fund of the Pharmaceutical Society.

DR. WHITE, Medical Hall, 21, Broad Street, Waterford, has recently had his shop enlarged and otherwise altered, and a complete set of new fittings put in by Messrs. Ayrton and Saunders, of Liverpool.

THE NATIONAL PHOTOGRAPHIC RECORD ASSOCIATION'S EXHIBITION, now being held in the rooms of the Royal Photographic Society, 66, Russell Square, London, W.C., may be viewed on presentation of visiting card.

"FEROCAL" is the registered word which has been chosen by Messrs. Squire and Sons, 413, Oxford Street, London, to distinguish more readily their chemical food from all other brands of chemical food, and it will in future be added to the label.

THE NORTH STAFFORDSHIRE CHEMISTS' ASSOCIATION will hold its annual meeting, followed by the annual dinner, on Thursday next, April 5, at the Grand Hotel, Hanley, at 4 p.m. Mr. W. G. Cross, Mr. R. Lord Gifford, and several prominent pharmacists are expected to be present. Applications for tickets for the dinner (5s. each) should be addressed to the Hon. Secretary, Mr. Edmund Jones, chemist, Miles Bank, Hanley, not later than Monday, April 2.

THE EDINBURGH DISTRICT CHEMISTS' TRADE ASSOCIATION, at a meeting held on March 28 (see page 354), decided not to hold a dinner this year on account of the recent death of the treasurer and the lateness of the season. With regard to the annual excursion, it was suggested that Aberfoyle should be visited this year, but the matter was remitted to the Committee to make further inquiry on the subject. Mr. C. F. Henry was appointed interim treasurer, and Messrs. Boa and Dewar auditors of the accounts.

CINDERELLA DANCE.—The last of the fifth series of Cinderellas held in connection with the Chemists' Assistants' Association took place on Thursday, March 22, at the Portman Rooms, Baker Street, W., and was a great success, about one hundred and twenty persons being present. In fact, any shortcomings in the attendance, etc., at former dances during the session was virtually made up for on this occasion. We are requested to state that a lady lost a brown (natural colour) feather fan on this occasion, and that if the finder will communicate with the Hon. Secretary, Mr. H. H. Robins, 113, Ridley Road, Forest Gate, E., he will return it to the owner.

FOOTBALL.—The annual match between the present and past members of the School of Pharmacy football team was played on Saturday, March 24, at Shepherd's Bush. The past team was under the able captaincy of Mr. Surfleet, and during the first half of the game held their ground well, the result at half-time being two goals to one in favour of the present team. On changing sides three more goals were added, and at the blow of the whistle the junior members were left victorious by five goals to one—a good finish to a successful season. Mr. T. Tickle acted as referee. The teams were as follows:—Square: Goal, Metcalf; backs, Owen (capt.), Garsed; half-backs, Gray, Spurge, Hellyer; forwards, Addison, Reavley, Jones, Buckingham, Warren.—Square Past: Goal, S. A. Sturton; backs, J. Fothergill, W. Hobbs; half-backs, W. B. Nelson, B. Webster, J. Evans; forwards, C. Morley, A. F. Surfleet, C. Happold, W. de F. Collinette, M. Lloyd.

AFTER THE MATCH players and friends adjourned to the Bush Hotel, where a capital spread was prepared, and to which all did ample justice. At the head of the table was placed the trophy which the present team have won—viz., the handsome cup presented by Mr. W. Watson Will.

At the conclusion of the repast a smoking concert was provided. The captain of the Square team, Mr. W. Owen, in the chair, made a few remarks concerning the doings of the present team and the winning of the cup, which, at the instigation of the Old Boys, was filled and passed round. A varied programme of music and songs was provided, the piano being in the able hands of Mr. Newton; songs were given by Messrs. Baker, Tipler, Owen, Jones, Sturton, Morley, Spurge, Metcalf, Happold, etc., finishing up a most enjoyable evening by singing the usual "Auld Lang Syne," after which the company separated.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, MARCH 28, 1900.

Towards the close of the week business has taken a better turn, transactions have been more numerous, and prices generally have gone up. Miscellaneous sales have been noticeable both for prices obtained and variety of articles handled. Good sales of Spices have taken place at full rates, whilst Honey, Beeswax, and Canaryseed have engaged the attention of dealers and buyers, some large parcels having changed hands. In Oils prices have risen as regards Castor, Linseed, and Cottonseed, with good business in Calcutta Castor. The chemical trade has been quiet, but prices have not been lowered.

AMMONIA SALTS.—Carbonate, 3 $\frac{3}{4}$ d. per lb. Sal ammoniac, 38s. to 40s. per cwt. Sulphate is quiet at £12 5s. per ton.

BEESWAX.—3 bags and 8 barrels of American made £7 5s. per cwt.

BLEACHING POWDER.—Is very firm at £7 to £7 10s. per ton.

CANARYSEED.—3,000 bags of Turkish having been bought at 32s. 6d. to 33s., prices have risen to 34s. and 34s. 6d. per 464 lbs. Sales of Barbary seed have been made privately, figure not stated.

CARNAUBA WAX.—Is very firm, and 16 bags of yellow brought full prices.

CHILLIES.—65 bags of Sierra Leone fruit, ex quay, found buyers at 30s. to 45s. per cwt., and 27 bags of fair quality were sold privately.

COPPER SULPHATE.—Is very dull at £25 10s. to £26 per ton.

COPPERAS.—Is firm at 37s. to 39s. per ton.

GINGER.—45 bags of Cochin sold, ex store, at 30s. per cwt.; 30 bags of Sierra Leone, ex quay, made 27s. 6d. per cwt.; and 30 tons, to arrive, were bought in transit at 28s. per cwt.

HONEY.—25 barrels of Chilean Pile 1 found ready buyers at 25s. per cwt., and 16 casks of Peruvian at 34s. 6d. per cwt.

LINSEED.—There is little or nothing offering spot or forward, and the market therefore is idle, but prices are a turn higher. 100 bags of Turkish sold at 50s. per 416 lbs., and 200 bags of River Plate, "feeding quality," at 46s., both on the spot; to arrive, Calcutta has advanced at least 2s. per 416 lbs.

OILS (FIXED) AND SPIRITS.—Castor Oils have been neglected with the exception of Calcutta, of which good sales are reported, resulting in an advance of 3 $\frac{3}{4}$ d. per lb. for spot lots; 200 cases on the spot sold for 3 $\frac{3}{4}$ d. per lb. early in the week, and subsequently 200, to arrive, April-June shipment, made 3 $\frac{5}{16}$ d. per lb.; 1st French is quoted at 3 $\frac{1}{4}$ d. per lb.; and 2nd pressure, Belgian or French, at 3 $\frac{1}{16}$ d. per lb. Olive Oils are in limited demand, Spanish being quoted at £35 10s. to £36 10s. per tun. Linseed Oil is firm at an advance, 25s. 3d. to 26s. per cwt. being now wanted. Cottonseed oil is being held here for 23s. 6d. to 24s. per cwt., a slight advance. Spirits of turpentine are steady and quiet at the easier price of 41s. per cwt.

POTASH SALTS.—Bichromate, 4d. to 4 $\frac{1}{2}$ d. per lb. Chlorate, 4 $\frac{1}{2}$ d. to 4 $\frac{3}{4}$ d. per lb. Cream of Tartar, brown Patras, has sold in small amount at 60s. per cwt. Pearlashes are quiet at 33s. 6d. to 35s. per cwt. Potashes continue steady at 27s. 3d. to 27s. 6d. per cwt. Prussiate firm, 8d. per lb. Saltpetre, £21 5s. per ton.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is firmer, 17s. to 18s. per cwt. Crystals, £3 5s. to £3 7s. 6d. per ton. Caustic, 76 to 77 per cent., £11 per ton; 70 per cent., £10 5s. per ton. Nitrate is easier by 1 $\frac{1}{2}$ per cent., and offers at 8s. 7 $\frac{1}{2}$ d. to 8s. 10 $\frac{1}{2}$ d. per cwt.

TURMERIC.—141 bags Bombay bulb sold since auction at 10s. 6d. per cwt., ex quay. 151 bags of Cochin split bulb at 10s., ex store.

LONDON, THURSDAY, MARCH 29, 1900.

Business in Drugs and Chemicals has been quiet during the past week. Quinine continues in the dumps, as far as the speculative market is concerned. Opium is firm, as also are Morphine and Codeine. Glycerin firm and advancing. Cod Liver Oil much dearer. Refiners refused to sell Camphor. The Japanese Government having now secured the monopoly of the crude article, it is anticipated that an important advance in price will probably be the result. Acid Carbohc is quiet and steady. Bromides, Mercurials, and Quicksilver very firm. Iodides somewhat weak, the possibility of a reduction in price on part of the combined makers being freely discussed. The following are particulars of prices ruling for some articles of principal interest:—

ACID, BORACIC AND BORAX.—There is no change to report.

ACID CARBOLIC.—The market is quiet both for refined and for crude at nominally unchanged prices.

ACID, CITRIC AND TARTARIC.—Are quiet at unchanged prices.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries 2s. per cwt. more. Iodides, 13s. 10d. per lb. Sulphate, flat, grey, 24 per cent., London, prompt, £12. Hull, prompt, £11 17s. Leith, prompt, £12. Beckton, March-April, £11 16s. 3d. to £11 17s. 6d.; May-June, £11 16s. 3d. to £11 17s. 6d.; Beckton, terms prompt, £11 15s. to £11 16s. 3d. Sulphocyanide, 1s. to 1s. 1d. per lb.

ASAFETIDA.—Good quality is very scarce, the stock, which is large, consisting of very common. Sales have been made this week of good medium up to 65s. per cwt.

CAMPHOR.—There would appear to be something up in this article. Hamburg refiners quote 2s. 0½d. for prompt, and 2s. 0¾d. per lb. for forward delivery for Bells and Flowers, in ton lots, while English refiners are firm at 2s. 1d., neither being, however, sellers at the moment. It looks, therefore, very much as if an advance in price was imminent, the primary cause being the monopoly in the crude on the part of the Japanese Government, which has now become an accomplished fact.

CANNABIS INDICUS (GUAZA).—Sales have been made this week of good green on stalk, to arrive at 5d., c.i.f., the bulk of the London stock being held above this price.

CASTOR OIL.—Quiet. Belgian first pressing spot, £31; April-June, £30, f.o.b. Antwerp; second pressing spot, £28 10s. per ton, ex wharf; Hull manufactured, guaranteed cold drawn pure pharmaceutical, £33 10s. per ton in barrels; 4d. per lb. in cases; pure firsts, £31; seconds, £29 10s. per ton in barrels; firsts, 3¾d. per lb. in cases; second, 3½d., ex wharf London.

CINCHONA BARK.—These periodical Dutch auctions, the third of the series, were held in Amsterdam on the 22nd. The increased supply of 7,365 packages Java was offered, which went off better than anticipated, the average unit obtained being 10.05 cents., against 10.65 cents. last sale, or a decline of 5 per cent., being equivalent to about 1¾d. London parity. The Quinine contents of the sale were 26,400 kilos, of which about 3,700 kilos were bought in.

CLOVES.—No Zanzibar were offered in auction. Penang steady. 9 cases offered and 6 sold, fair rather dark picked at 6½d. Privately, Zanzibar strong, near positions are fully 1/8d. better, forward also advancing. A fair business has been done, comprising spot 4¾d., and buyers March-May delivery at 4¾d. to 4 7/16d., and buyers June-August at 4 7/16d. to 4 15/32d.

COAL TAR DISTILLATION PRODUCTS.—Are quiet and practically without change in value.

CODEINE.—Very firm at 13s. 1d. to 13s. 6d. per oz., according to quantity, for the pure, and 1s. per oz. less for the Salts.

COD LIVER OIL.—Is very firm and much dearer, the agents for some of the brands most in favour now asking as much as 120s. per barrel of 25 gallons for best new non-congealing Norwegian oil.

CREAM OF TARTAR.—Is quiet and unchanged.

DRAGONS BLOOD.—Fine brilliant lump, of which there is only a case or two in stock, is held for £20 a cwt. Sales have been made this week of good lump, £10, and the stock of this quality seems now to be exhausted. Reeds are dearer at £10 10s. to £11.

GINGER.—At auction Cochin in fair supply met a slow demand, and of 704 bags and 188 cases offered only 139 bags sold, rough washed medium and small plumpish rather mouldy without reserve at 29s. to 29s. 6d., dark small, some medium, part shrivelled at 25s. 6d., and fair cuttings at 26s.; cut kinds all bought in. Jamaica: The moderate supply met a fair demand at irregular and slightly easier rates, good hard bold at 69s. to 70s., fair to good bright at 61s. to 65s., middling to good middling at 54s. 6d. to 59s., common to good common 48s. 6d. to 54s. Rhaton, ordinary to fair, at 45s. to 47s. 6d. St. Lucia: 9 bags sold at 44s. 6d.

GLYCERIN.—Is very firm both for crude and refined, prices, although so far unchanged, having a further upward tendency.

IODIDES.—There is a rumour that a reduction may shortly be made in prices fixed by the combined makers. Meanwhile, prices remain steady and unchanged.

MERCURIALS.—Are firm at unchanged prices.

MORPHINE.—Firm at 5s. per oz. for the Hydrochlorate Powder.

OILS (FIXED) AND SPIRITS.—Linseed: Forward positions have declined about 10s., whilst spot value is unchanged. On the spot, pipes, London, ordinary, £25 10s. (E.T. 10s. premium); barrels, £25 10s. Hull, weaker; spot, naked, £23. Rape, quiet; ordinary brown, on spot, £27 5s. to £27 10s.; refined, spot, £28 10s. Ravi-son naked, spot, £24 10s. Cotton quiet. London crude, spot, £21; refined spot, £23 to £23 15s., according to make. Hull: Lower. Naked, refined, spot, £21; crude, spot, £19 10s. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35; Coconut, quiet; Ceylon, on the spot, £25 10s.; Cochin, spot, £28 10s. Palm: Lagos, on spot, quoted £29. Petroleum (oil) firm. Russian, spot, quoted 7d. to 7½d. American, spot, 7 1/8d. to 7 3/8d.; Water White, 8 7/8d. to 9d. Petroleum (spirit): American, 9 3/8d.; deodorised, 10d. to 10½d. Turpentine strong and advancing. American, spot, 40s. 3d.; April, 40s. 3d.

OPIUM.—Very firm, and the shade harder in price, without, however, very much business having taken place during the week.

PHENACETIN.—Is firm and unchanged.

POTASH COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. Bromide, 1s. 11½d. per lb. Chlorate, spot, London, crystals, 4 8/16d. net; powder, 4 5/16d. Carbonate, 90 per cent., £19 10s. per ton, ex ship. Cyanide, 93 per cent., 1s. per lb. Hydrate (caustic potash), 90 per cent., £25 15s. per ton; ditto, 75 to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make. Large crystals, 5s. per cwt. more. Prussiate, yellow, English makes, 8d.; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton, ex ship.

QUICKSILVER.—Is still quoted £9 12s. 6d. per bottle by the importer.

QUININE.—The market opened steadily, but has since become dull and easier. Business has continued restricted, about 25,000 ozs. B&S and/or Brunswick having changed hands, May delivery at 1s. 3¾d. and June at 1s. 4¼d., and since at 1s. 4d. and value. Makers of the favourite B&S brand maintain their price at 1s. 6d. per oz. for the Sulphate for 1,000-oz. lots in 100-oz. tins.

SODA COMPOUNDS.—Crystals: Barrels quoted 60s., bags 57s. 6d. Acetate, £14 per ton, ex ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, £7 5s. per ton. Bichromate, 3½d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent. white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4 5/16d. per lb. Hyposulphite (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot refined, £9; ordinary, £8 15s. Nitrate, 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. per ton. Sulphate (Salt Cake), £1 7s. 6d. per ton. Glauber Salts, £1 10s. per ton. Sulphide Crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: at auction no Singapore offered; 200 bags Penang bought in, weight 4lb., dust 2.58 per cent. at 5 7/8d.; Ceylon: 6 bags sold, fine heavy at 6½d. to 6¼d. White Pepper in little demand: of 100 bags Singapore offered, 20 bags sold, good at 9 7/8d.; 67 bags fair brown lined Penang bought in at 8 5/8d.; Ceylon: 5 bags offered and sold, fine at 10½d.; fair to good at 8¾d. to 9¼d. Chillies quiet: 38 bags Japan bought in, fine bright at 55s.; 5 bales Zanzibar sold, fair stalky at 43s. 6d.

Capsicums easier: 34 bags Bombay sold, good pale cherry pods at 35s. ; fair red long stalky at 29s. ; 1 bale fine bright Natal bought in at 105s. Pimento, in small supply, met a slow demand at steady rates: 126 bags offered and 48 bags sold, fair at 3½d. Cassia Vera: 94 bags at auction bought in, coarse Padang quills at 26s. Cassia Lignea dull: 50 boxes fine old bought in at 52s. Cinnamon: 141 bales Wild bought in, rather coarse quill at 1½d. to 2d. Cinnamon Chips and Bark: 150 bags Ceylon Chips sold without reserve at easier rates, fair at 3½d. ; of 90 bags Bark, 20 bags sold at 1½d. Nutmegs neglected: of 52 packages Penang, only 2 packages sold, 105's, dark and wormy, 1s. ; West Indian: 12 cases and 2 barrels offered and 10 cases sold, 114's at 11½d. Mace dull. 8 cases Penang bought in, fair pale at 1s. 8d. ; broken red at 1s. 5d. ; 1 case Ceylon sold, fair palish at 1s. 6d.

SULPHONAL.—Makers are firm at 20s. 6d. per lb. for both crystals and powder.

THURSDAY'S DRUG SALES.

To-day's Drug auctions consisted of a comparatively small number of catalogues, comprising only a limited number of lots, which, on the whole, sold fairly well, there being, however, no changes in value of any special importance to record. Guaza realised higher prices, while Cardamoms also sold fairly well. The following are the particulars:—

ALOES.—57 cases Cape part sold at 30s. per cwt. for good hard bright down to 28s. 6d. for less desirable quality. 2 cases East India in monkey skins were sold at 62s. 6d. per cwt., subject to holders' approval. 100 boxes Curaçao sold readily at 24s. 6d. to 25s. per cwt. for good livery down to 17s. for capey.

AMBERGRIS.—1 package containing only about 6¼oz. of good quality sold at 112s. 6d. per oz.

ANNATTO SEED.—2 barrels bought in at 2d. per lb., only 1½d. per lb. being bid. Other 4 bags sold at 1¾d. per lb.

ARGOL.—26 bags pale Cape were taken out at 55s. per cwt. ; another lot of 2 bags fair Cape sold at 45s. per cwt.

BALSAM COPAIBAE.—10 cases of fair quality part sold at 1s. 7d. per lb., balance being bought in at 1s. 9d.

BALSAM PERU.—2 cases fair quality were taken out at 7s. per lb.

BUCHU LEAVES.—23 bales were bought in at 1s. to 1s. 1d. per lb. for fair green rounds, and at 8d. to 10d. for medium rather stalky ditto. Another lot of 33 bales were all taken out at 1s. per lb. for good green rounds, and at 9d. to 10d. for stalky yellow to fairly green quality.

CARDAMOMS.—84 cases only medium Ceylon Mysore part sold at 1s. 3d. to 1s. 9d. per lb., balance being taken out at 1s. 7d. to 3s. per lb., and good seed at 2s. 4d. per lb. Another lot of 82 cases Ceylon part sold at 1s. 3d. up to 3s. 11d. per lb., according to quality and size. 18 cases Mangalore realised 3s. 7d. for good bold and only 2s. 2d. for the smaller sizes, which did not appear to be fully ripe. Other 17 cases Mysore sold subject to owner's approval at 1s. 4d. to 2s. 8d. per lb., 1 bag seed fetching 2s. 1d. per lb. Other 58 cases Ceylon sold well at 1s. 3d. up to 3s. 4d. per lb. and at 2s. to 2s. 2d. per lb. for seeds. 7 cases really good bold seeds part sold at 2s. 4d. per lb., balance being taken out at this figure.

CINCHONA BARK.—16 bales flat Calisaya all sold at 10d. per lb. for the sound, and at 9d. per lb. for 1 CCD.

CIVET.—10 horns of very common, inferior quality, failed to find a buyer, and were bought in at nominally 7s. 9d. per oz.

COCA LEAVES.—1 case Ceylon failed to find a buyer.

COLUMBA ROOT.—7 bags brown sorts realised 25s. per cwt.

CROTON SEED.—12 bags were all bought in at 45s. per cwt. for fair bright, and 37s. 6d. for dull.

EGG ALBUMEN.—3 cases China were taken out at 1s. 7d. per lb. for good pale and 1s. 6d. for dark. 2 casks Yolks failed to find a buyer.

ERGOT OF RYE.—5 bags fair sound Russian, but not very bold, were bought in at 2s. 4d. per lb.

ESSENTIAL OILS.—1 case West Indian Bay Oil sold at 6s. 4d. per lb., 5 cases West Indian Distilled Oil of Limes at 3s. per lb.

QUAZA (HERBA CANNABIS INDICA).—58 robbins sold well at full prices up to 8¾d. per lb. for good green tops, green siftings being held for 6d.

GUM ARABIC.—50 bags Turkey sorts were all bought in. 10 cases Kurrachee gum were also bought in, 32s. per cwt. being price mentioned. 6 cases Aden gum bought in at 45s. per cwt. for fair, dark blocky selling at 10s. per cwt. Other four cases Aden gum were taken out at 52s. 6d. per cwt.

GUM BENZOIN.—Fine seconds Sumatra sold at £9 per cwt., fair to good ditto being bought in at £8 10s. to £8 15s., medium to fair at £7. Low thirds sold at £5 per cwt. 50 cases very rough woody Palembang were taken out at 25s. per cwt.

GUM KINO.—4 tins fair Cochin failed to find a buyer.

HONEY.—30 cases pale brown Californian failed to find a buyer, 45s. per cwt. being price required. Other 45 cases of very fine quality were taken out at 47s. per cwt. Good Jamaica fetched 28s. ; dark ditto 23s. ; white ditto being taken out at 32s. per cwt.

IPECACUANHA.—6 bags only fair Carthagena, part mouldy, sold at 6s. 11d. to 7s. 2d. per lb., 1 bale 3 CCD selling at 6s. 3d. 15 bales fair sold readily at 10s. 2d. to 10s. 9d. per lb.

LIME JUICE.—1 hogshead West Indian was taken out at 1s. 10d. per gallon.

MUSK.—1 caddy Tonquin, medium to bold, thin skin, blue, fairly dry, failed to find a buyer. 2 bottles grain musk were bought in at 35s. per oz.

NUX VOMICA.—108 bags only medium Madras sold at 7s. 6d. per cwt. 368 pockets fair Calcutta taken out at 10s. per cwt.

OLIVE OIL.—2 pipes Italian were bought in at 5s. 6d. per gallon of 9lbs.

ORANGE PEEL.—9 cases good thin cut were taken out at 1s. per lb.

ORRIS ROOT.—5 bags fair East Indian were taken out at 25s. per cwt. 15 bags Italian of bad colour were bought in at 32s. 6d. per cwt.

PISTACHIO NUTS.—4 bags were bought in at 1s. 9d. per lb.

RHUBARB.—33 cases Canton offered without reserve, all sold at comparatively cheap rates—viz., 9d. to 10d. per lb. for good bold rounds, 7¾d. to 8d. for fair medium ditto, and 7d. for rough small to part bold and pickings, 1 case rough pickings selling at 6d., while flat realised 9½d. per lb. for small to part bold, 9d. for pale coated small trimming root, 7½d. to 8¼d. for medium, 6½d. for good pickings, and 6¾d. for ditto round and flat mixed.

SARSAPARILLA.—8 bales pale red native Jamaica sold at 1s. 1d. to 1s. 2d. per lb. for the sound, and 9d. to 9½d. for the damaged. 6 bales Lima realised 9¾d. to 10¼d. per lb.

SENNA.—12 boxes medium to fair Alexandria were taken out at 8d. per lb. 37 bales low Tinnivelly sold at 1¼d. to 2d. per lb. Another lot of 224 bales Tinnivelly all sold up to 2½d. per lb., quality in this case also leaving much to be desired.

SOY.—20 casks Chinese sold at 1s. 2½d. per gallon.

TONQUIN BEANS.—10 cases fair frosted Paras were taken out at 1s. 10d. per lb.

WAX.—5 packages fair Jamaica sold at £7 5s. per cwt., subject to owner's approval. 13 cases bleached East Indian were taken out at £7 12s. 6d. per cwt. 25 bags fair Zanzibar sold at £7 per cwt. 92 cases ditto part sold at £7 2s. 6d. ; balance at £7. 1 case dark at £6 10s. 17 packages Bombay part sold at £6 5s., balance being bought in at £6 to £6 5s. 10 bags English were taken out at £3 5s., only £7 15s. per cwt. being bid. 20 cases bleached Calcutta were taken out at £7 7s. 6d. to £7 15s. 9 cases Italian at £7 per cwt.

The next Drug Sale will take place this day month.

TRADE NOTE.

SANITARY BANDELETS.—Mr. Louis Nelicker, 29, Bedford Road, Rockferry, is offering sanitary towels for ladies' use, which are claimed to be four times more absorbent than similar articles made of wadding or wood-wool; it is also stated by the manufacturer that they do not become hard or dry in use, and, consequently, they cause no irritation. The Sanitary Bandelts are said to be rendered antiseptic without the aid of poisonous materials.

Calendar for the Week.

- Sunday, April 1.** Fifth Sunday in Lent. Sun rises 5.37; sets 6.31.
Monday, April 2. Sun rises 5.35; sets 6.32.
 DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION, Church House, Church Street, at 8.30 p.m.—R. Lord Gifford on his pharmaceutical policy in connection with his candidature for the Council.
 SOCIETY OF CHEMICAL INDUSTRY, Burlington House, Piccadilly, W., at 8 p.m.—“The Manufacture of Caramel,” by A. Gordon Salomon and E. N. Goldie.
Tuesday, April 3. Sun rises 5.33; sets 6.33.
 ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—“Slides, Old and New,” by F. P. Cembrano.
Wednesday, April 4. Sun rises 5.31; sets 6.35.
 PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 11 a.m.—Meeting of the Council.
 BRITISH PHARMACEUTICAL CONFERENCE, 16, Bloomsbury Square, London, W.C., at 4.30 p.m.—Meeting of the Executive Committee.
Thursday, April 5. Sun rises 5.29; sets 6.37.
 CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—Papers by G. S. Newth, W. H. Sodeau, A. W. Crossley, and J. T. Hewitt and W. G. Aston.
 CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 8.30 p.m.—Musical and Social Evening, Wm. Warren in the chair.
 NORTH STAFFORDSHIRE CHEMISTS' ASSOCIATION, Grand Hotel, Hanley, at 4 p.m.—Annual Meeting and Dinner.
Friday, April 6. 8.55 A. Sun rises 5.27; sets 6.39.
 GLASGOW CHEMISTS' AND DRUGGISTS' ASSISTANTS', AND APPRENTICES' ASSOCIATION, Masonic Chambers, 100, West Regent Street, at 9.15 p.m.—Business Meeting.
 ROYAL INSTITUTION, Albemarle Street, London, W., at 9 p.m.—Professor Dewar on “Solid Hydrogen.”
Saturday, April 7. Sun rises 5.24; sets 6.40.
 ROYAL INSTITUTION, Albemarle Street, London, W., at 3 p.m.—Lord Rayleigh on “Polarised Light.”

EXCHANGE COLUMN.

OFFERED.

- Quinine**, Howard's 100 ozs., 1/6 ounce; posted, 1/8.—Warnes, 333, Gray's Inn Road, W.C.
Dental Chair, good condition. Half Skeleton, good condition.—C. W., Bank Buildings, Ventnor.
Half-cwt. tin Californian Honey, guaranteed finest quality; 30s., carriage paid.—Hill, Chemist, West Hartlepool.
20-cell Battery, by Stöhrer, cost £8, 30/-; 2 sledge coils, 10/-, 12/6, or exchange jewellery, or offers.—Creedon, 15, Gt. Marylebone Street, W.
Clinicals, one dozen as Maw's, 30 seconds, 24/-; ordinary, 16/-; engraved “English make,” plated cases; any post free.—Warnes, 333, Gray's Inn Road, W.C.
Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.
A profitable line for the coming season.—Formula for lemonade powder, from which considerably over 2,000 packets made from same were sold by one establishment last year; 1s. 1d., post free.—H. L. Mackenzie, 36, Goldhawk Rd., London, W.
For Sale.—One nearly new Copper Vacuum Pan, 5 ft. diameter, fitted with Stirring Gear, Condenser and all fittings. One Mild Steel Steam Jacketed Still, 4 ft. diameter, fitted inside with Copper Steam Coils, Stirrer and Pulleys, Galvanised Iron Still Head.—Apply to W. J. Fraser & Co., Engineers, 98, Commercial Road East, London, E.
“Chemist and Druggist Diary,” 1894. Not used. British Pharmacopœia, 1885. Key to Organic Materia Medica, by Dr. J. Muter. Manual of Pharmaceutical Testing, by S. Proctor, 1890, new. Art of Dispensing, new. Selecta à Præscriptis, by Dr. J. Pereira. The Optician's Handbook, new. What offers?—Mrs. Mason, 113, Stirling St., Grimsby.
Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

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J. J. G., Folkestone:—“I have tried your Carmine, and made some Liquid Cochineal according to your formula, which turned out an excellent preparation.”

D. R., Swansea:—“I made some Liq. Cocci some time since from your Carmine according to formula enclosed. It was a capital production.”

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LONDON GAZETTE NOTICES.

RECEIVING ORDERS IN BANKRUPTCY.

Fred Wainwright Anderson, Veterinary Surgeon, 19, West Parade, Halifax.

William Fairburn, Mineral Water Manufacturer, Springfield, Essex.

PARTNERSHIPS DISSOLVED.

Alexander William Woodman Dowding and Frederick Arthur Martin Flegg, Physicians, Surgeons, and Apothecaries, Wanstead, and George Lane, Woodford, Essex.

James Smith Whitaker and Leonard Youatt, Physicians and Surgeons, 20, Regent Road, and 43, Market Place, Great Yarmouth.

John White Hopkins and Thomas Ernest Earl Roddis, Physicians and Surgeons, Snettisham, Norfolk.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Alcock, Barrie, Bartlett, Bates, Burgin, Campkin, Carter, Crook, Dudderidge, Goodness, Grimble, Hill, Jamesou, Jones, Kent, Pellow, Riug, Roberts, Robins, Roebuck, Ross, Sharpley, Tilley, Vince, Walton, Ward.



TO THE
PHARMACEUTICAL JOURNAL.

LONDON, SATURDAY, APRIL 7, 1900.

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IT MAY SEEM somewhat unnecessary to try to teach those chemists who have already gone in for the photographic business, but there are many little points which seem, somehow or other, to slip notice, or of which the chemist may actually be ignorant; and even with the danger of being accused of attempting to teach those who are older in photographic experience, a few matters may be referred to with advantage.

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OF ALL PEOPLE the amateur photographer is the most omnivorous reader. Frequently a new chemical or a new process is suggested in one of the weekly photographic journals, and the first thing he must do is to try it, of course. A visit to his local dealer frequently leads to disappointment, for the dealer is too often utterly ignorant of the process or the new chemical, and stares in utter amazement, or otherwise betrays his ignorance. To expect a chemist to be thoroughly *au courant* with every new fad is probably to expect too much; but still, if an assistant is kept, whose principal duty is to look after the photographic department, he should most decidedly be allowed and expected to make himself master of the leading journals. If there is no assistant it is not much of a task, and generally a new thing is at once noticed by the photographic journals and pointed out as new.

IF THE CHEMIST OR ASSISTANT is himself a photographer so much the better; there is then a better chance of success in this particular direction. There is hardly anything that is such a relief from the ordinary cares and worries of pharmacy as to turn to for a few moments and experiment with some new formula or some new salt, and frequently chemists have thus discovered some little tip which has enabled them to put up a special preparation which sells well. In addition, if—at least, it has been found to be so—the dealer is himself an amateur, his advice carries much greater weight with his customers.

TALKING OF ADVICE, there is, however, one form which is extremely objectionable except under rare conditions, and as an example one experience may be given which happened last summer during a holiday, in a certain town which shall be nameless. The writer had run out of plates, and went to the local dealer and asked for some of Brown's plates, whole-plate size. "Oh!" says Mr. Pharmacist, "I never keep those. I find that Robinson's plates are so much better and faster—in fact, none of my customers will use anything else, and I never do!" This might or might not have been true, but as Brown's plates had been used for over ten years, and one knew exactly what they would and would not do, one hardly felt inclined to sport Robinson's, although knowing that they had a good reputation.

Trade Catalogues.—All the firms whose goods are referred to in this Photographic Supplement will be pleased to send copies of their priced catalogues post free on application by anyone mentioning the *Pharmaceutical Journal*.

AMATEURS, if they do any serious work at all, are somewhat conservative as regards particular makes of plates and papers; they are chary of changing, for the simple reason that they know exactly what they can and cannot do with a particular make. On the other hand, the beginner in photography is like a butterfly, constantly flitting hither and thither, and to one thing constant never, with the result that it is a long time before he can turn out a decent negative or print, from a technical point of view, at any rate. Now, there is a chance for the practical dealer here. Show such a man a good negative or a good print made on a particular brand that is kept in stock, and, if possible, with a developer of your own make. Get him to try them, and induce him to bring his results for you to see, and administer a little judicious advice, and, if necessary, show him how you work.

IF A NEW PRINTING PAPER comes out it is just as well, if really new, to obtain specimens from the wholesale house, or make some yourself, and show them in the window, which, if properly set out, particularly with a lot of local views, etc., should be a source of a fairly constant crowd, both of amateurs and others. This is a cheap form of advertising, which, from personal experience, we can recommend, and it generally leads to business.

AS AN INSTANCE of window advertising, it may be mentioned that last winter the whole of one shop window was lighted inside by acetylene, and this attracted so much attention that the following week the whole of the shop was lit by it. The actual cost of this was about £7 10s. for the week, generator and carbide, etc., included, and the result has been that no less than five complete installations were sold, at a total return of £73 11s. Then again, one should always be up-to-date as regards pictures. By keeping, during the last few months, a big stock of South African lantern slides, and many of those of the leading men there engaged, the result was that the slide trade in the shop referred to has been a considerable item, with an initial outlay of 30s.

PRINTING AND ENLARGING from amateurs' negatives and developing the same is a fairly lucrative side adjunct to the business, but one has to be fairly well up in photography to be able to undertake this class of work. There are many trade firms who undertake such work, and the only disadvantage is that they are not all prompt, with the result that you probably lose a customer. Retouching is not a job that pays unless the business is of such a size as to warrant the employment of a hand who can do this in the odd moments, and turn his hand to general work in the business, or in the developing, printing, and enlarging room.

CHEMISTS, AS A RULE, are far better educated than the average tradesman; and why more chemists, particularly in the country, do not turn their attention to lecturing and lantern entertainments before schools and private parties we never could understand. It is extremely easy to hire a set of slides on almost every conceivable subject, from the most abstruse science to the silliest nursery rhyme or maudlin song, and nearly always with a reading, and for small parties it is by no means difficult to manipulate the lantern and lecture at the same time. The writer has been fortunate enough to

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obtain a very large connection for lantern shows, and has trained the porter to assist at the lantern, so that now all goes merry as a marriage bell.

RADIOGRAPHIC WORK is fast drifting out of the hands of the photographic dealer and chemist into those of the trained specialist or a local doctor, though why this should be it is at first sight not quite so easy to say. A fee of two guineas can be got for a simple radiogram of the hand or foot, an operation that takes, all told, less than half an hour; whilst for more difficult work the fee increases in proportion, and experience proves that this pays better than selling proprietary medicines, or even than dispensing.

OF COURSE, EVERY PHOTOGRAPHIC DEALER should have a list of his own. It may be a modest one at first, but it can be increased later; and, above all things, have plenty of other people's lists; they are wonderfully useful for reference. Much information may be gained from the weekly journals, but the "Photographic Dealer," a monthly trade paper, is wonderfully useful, as is also that ponderous annual, the "British Journal Photographic Almanac," which consists of about 500 pp. of what is called literary matter and 1,000 pp. of advertisements.

BOOKS FORM ANOTHER SOURCE of trade, and a small stock of these may well be kept exposed for sale. All the journals and photographic books may be obtained in small quantities from Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C., who also send out a monthly letter telling one what is new.

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Special R.R. Lens, Iris, Focussing Tube
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PHOTOGRAPHIC CHEMICALS FOR SALE.

Whilst many of the chemicals here enumerated will be found amongst the ordinary stock of the pharmacist, the prices given will be found to differ slightly from the usual retail prices, and there are some others included which are not usual:—

	Per Oz.		Per Lb.	
	s.	d.	s.	d.
Acetone	—	—	—	—
Acid acetic glacial	0 2	..	0 11	
Acid citric	0 2	..	1 8	
Acid formic	0 2	..	1 4	
Acid hydrochlor. pur.	0 1	..	0 4	
Acid nitric pur.	0 1	..	0 4	
Acid pyrogallic	1 0	..	9 9	
Acid sulphuric	0 1	..	0 6	
Alcohol (0.795)	0 5	..	4 0	
Alcohol Meth. (64 o.p.)	—	..	0 6	
Alum	—	..	0 2	
Alum chrome	0 1	..	0 6	
Amidol	2 0	..	—	
Ammonia 0.880	0 1	..	0 6	
Ammonia bromide	0 3	..	2 6	
Ammonia sulphocyanide	0 4	..	2 6	
Anthion (ammonium persulphate)	—	..	—	
Benzole (No. 1)	—	..	1 6	
Borax	0 1	..	0 6	
Calcium carbide (tins free)	—	..	0 10	
Calcium chloride, exsic.	0 1	..	0 8	
Copper sulphate, recryst.	—	..	1 3	
Dextrine	0 1	..	0 6	
Diogen (bottles free)	1 6	..	—	
Diphenal (bottles free)	—	..	—	
Eikonogen (bottles free)	1 2	..	12 0	
Ether meth. (0.720)	0 2	..	1 6	
Formalin (bottles free)	—	..	3 0	
Glycerin, 1.260	0 2	..	1 0	
Glycin (bottles free)	2 0	..	—	
Gold chloride	—	..	—	
Hydroquinone (bottles free)	0 10	..	9 6	
Iron ammonio, citrate	0 3	..	2 0	
Iron perchloride (dry)	0 2	..	1 0	
Iron sulphate, pure	—	..	0 2	
Lead nitrate or acetate	0 1	..	0 7	
Magnesium powder (bottles free)	1 6	..	20 0	
Magnesium ribbon	1 8	..	24 0	
Mercury bichloride	0 4	..	3 0	
Metol	2 6	..	—	
Ortol	2 6	..	—	
Platinum bichloride, 15 gr. tube, 1s. 6d.; 15s. per doz.	—	..	—	
Potassium bichromate	—	..	0 8	
Potassium bromide	0 2	..	2 0	
Potassium carbonate (pure)	—	..	1 6	
Potassium caustic (sticks)	0 3	..	1 3	
Potassium chloroplatinite, 15 grs. tube, 1s. 3d., per doz. 14s.	—	..	—	
Potassium ferricyanide	0 3	..	2 6	
Potassium ferrocyanide	0 2	..	1 6	
Potassium metabisulphite	0 3	..	2 7	
Potassium oxalate (neutral)	0 1	..	0 2	
Potassium sulphocyanide	0 3	..	3 0	
Rodinal (bottles free), 3 oz. 1s. 6d.	—	..	5 0	
Silver nitrate, 10oz. at 1s. 11d.	2 0	..	—	
Sodium acetate	0 1	..	0 6	
Sodium carbonate (cryst.)	—	..	0 4	
Sodium caustic (sticks)	0 2	..	1 6	
Sodium hyposulphite, 7lb 1s., 28lb 3s. 6d.	—	..	0 2	
Sodium hyposulphite, Gran. in boxes free	—	..	0 4	
Sodium phosphate	C 1	..	1 0	
Sodium sulphite	—	..	0 6	
Thiocarbamide (bottles free)	1 6	..	—	
Uranium nitrate	1 0	..	—	

Pyro should always be obtained in 1-oz. bottles. Asphaltum is preferably kept in powder; not in great demand. Caramel: Liq. sacch. ust. is an extremely unsatisfactory form. The best is the dry powder, "crystal caramel," to be obtained from Lichtenstein and Co., Silvertown Chemical Works, London, E. Dextrine: White dextrine should always be supplied. Pyroxyline: Hopkins and Williams' high temperature, or else Schering's celloidin, is the best. Sodium hyposulphite: The small white recrystallised hypo. should always be supplied. It keeps better, is much cleaner, and gives greater satisfaction, and will always fetch a higher price. Frequently it happens that some out of the way thing, such as an aniline dye, is wanted, and whilst these may sometimes be obtained from the wholesale house, they sometimes may not, and it is necessary to wait while it is obtained for you. As a rule, however, there is not much difficulty beyond a little delay, for the average amateur wants few; it is only the expert faddist who wants out of the way dyes.

PACKED PHOTOGRAPHIC CHEMICALS.

Chemists who are considering the desirability of commencing a photographic trade are often in doubt regarding the selection of

stock. They do not know what chemicals to purchase, or in what quantities they should procure them, and they frequently run the risk of buying too largely of substances liable to deteriorate. Messrs. Harrington Bros., London, have therefore performed a useful service in offering photographic chemicals bottled in convenient quantities for sale to photographers. They supply goods according to the following list at a net cost of £5 10s., packages free:—

1 doz.	4 oz. Acid acetic glacial	Stoppered bottles.
1 doz.	2 oz. Acid citric	Plain bottles.
1 doz.	4 oz. Acid hydrochloric pure 1.16	Stoppered bottles.
1 doz.	2 oz. Acid nitric pure 1.420	" "
1 doz.	1 oz. Acid pyrogallic HBL	" "
1 doz.	4 oz. Alum Chrome comml	Plain bottles.
1 doz.	4 oz. Ammonia Sol. 0.880	Stoppered bottles.
1 doz.	1 oz. Ammonia bromide	Plain bottles.
1 doz.	2 oz. Ammonia bromide	" "
1 doz.	1 oz. Ammonia sulphocyanide	" "
1 doz.	2 oz. Ammonia sulphocyanide	" "
1 doz.	1 oz. Calcium chloride with asbestos ..	" "
1 doz.	1/2 lb. Paper canisters developing salt for platinotypes.	" "
1 doz.	1 oz. Eikonogen	Plain bottles.
1 doz.	15 gr. tubes Gold chloride	" "
1 doz.	1 oz. Hydrokinone	" "
1 doz.	2 oz. Iron perchloride	" "
1 doz.	4 oz. Iron sulphate pure cryst.	" "
1 doz.	8 oz. Iron sulphate pure cryst.	" "
1 doz.	1 oz. Lead nitrate puriss	" "
1 doz.	1/2 oz. Magnesium powder	" "
3 ozs.	Magnesium ribbon in 1 oz., 1/2 oz., or 1/4 oz. coils.	" "
1 doz.	1 oz. Potassium bromide	Plain bottles.
1 doz.	2 oz. Potassium bromide	" "
1 doz.	4 oz. Potassium carb. pure dry	" "
1 doz.	15 gr. tubes Potassium chloroplatinite.	" "
1 doz.	1 oz. Potassium ferricyanide	Plain bottles.
1 doz.	1 oz. Potassium hydrate (caustic or oxide)	" "
1 doz.	2 oz. Potassium hydrate (caustic or oxide)	" "
1 doz.	2 oz. Potassium metabisulphite	" "
1 doz.	4 oz. Potassium metabisulphite	" "
1 doz.	4 oz. Potassium oxalate	" "
1 doz.	1 oz. Schlippe's salt	" "
1 doz.	2 oz. Sodium acetate	" "
1 doz.	4 oz. Sodium carb. small crystals	" "
1 doz.	8 oz. Sodium carb. small crystals	" "
1 doz.	4 oz. Sodium carb. dry	" "
1 doz.	1 oz. Sodium formate	" "
gross	1 lb. paper boxes Sodium hyposulphite gran. small.	" "
1 doz.	1 oz. Sodium hydrate white sticks	Plain bottles.
1 doz.	2 oz. Sodium hydrate white sticks	" "
1 doz.	4 oz. Sodium sulphite	" "
1 doz.	8 oz. Sodium sulphite	" "
1 doz.	16 oz. Sodium sulphite	" "
1 doz.	1/2 oz. Uranium nitrate	Stoppered bottles.
1 doz.	6d. size Varnish negative	Plain bottles.
1 doz.	6d. size Varnish matt.	" "
1 doz.	6d. size Varnish. retouching	" "
1 doz.	1 oz. Amidol	" "
1 doz.	1 oz. Metol	" "
1 doz.	4 oz. Rhodinol	" "

The bottles are stoppered where necessary, and can be supplied either with plain labels or with the chemist's own labels. A similar but more limited stock of chemicals can be supplied at three guineas net. In case the chemist should prefer to purchase the chemicals in bulk—as he is certain to do if his photographic trade develops—he will still find the foregoing list a useful guide, both as to the articles he should stock, and the relative quantities in which he is likely to require them.

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A NEW Mountant

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Strongly Recommended for its

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Packed in Boxes of 1 Doz. & 3 Doz.

A Large Bottle Retail at 6d.

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38, SHOE LANE, LONDON.



Quarter actual size.

READY-MADE PHOTOGRAPHIC SOLUTIONS.

There are many amateurs who do not care to make their own solutions, and will frequently bring their own formulæ to be made up, preferring to pay a little extra for the trouble they are saved. But there is a much larger class still who will buy ready-made solutions, particularly if the strength of the principal ingredient be stated on the bottle.

Pyrogallol.

A 10 per cent. solution of this will, as a rule, sell well, and the average price may be considered to be 2s. for the half-pint bottle. A good formulæ is—

Pyrogallol	1 oz. or 100 Gm.
Potassium Metabisulphite	$\frac{1}{2}$ oz. or 50 Gm.
Distilled Water	9 ozs. 55 M. or 1000 C.c.

Label.

Ten per Cent. Pyro Solution.

Every 10 minims are equal to 1 grain of dry pyro.

Ten per cent. solutions of potassium bromide, sodium carbonate, and liq. ammoniæ fort. 0.880 may also be made up.

Hydroquinone.

This cannot be made up in aqueous 10 per cent. solution, but the following will not only keep well but sell well.

Hydroquinone	1 oz. or 100 Gm.
Glycerin	1 oz. ,, 100 C.c.
Methylated Alcohol	to 9 ozs. 55 M. or 1000 C.c.

A typical hydroquinone developer is the following:—

No. 1. Hydroquinone	154 Grs. or 10 Gm.
Sodium Sulphite	308 Grs. ,, 20 Gm.
Sulphurous Acid	60 M. ,, 4 C.c.
Distilled Water	to 10 ozs. ,, 250 C.c.
No. 2. Sodium Carbonate Pur.	3 ozs. ,, 84 Gm.
Potassium Hydrate	154 Grs. ,, 10 Gm.
Distilled Water (to make)	10 ozs. ,, 250 C.c.

Label: For use, mix in equal parts, and add 3 times the quantity of water.

One-Solution Hydroquinone.

Hydroquinone	90 Grs. or 6 Gm.
Sodium Sulphite	2 ozs. ,, 60 Gm.
Sodium Carbonate	2 ozs. ,, 60 Gm.
Eosine	1 Gr. ,, 0.06 Gm.
Distilled Water (to make)	10 ozs. ,, 250 C.c.

When required for use dilute with 4 parts of water.

For a dry powder developer—

No. 1. Hydroquinone	90 Grs. or 6 Gm.
Sodium Sulphite (anhydrous)	45 Grs. ,, 3 Gm.

Mix well.

No. 2. Sodium Carbonate (exsic.)	1 oz. ,, 28 Gm.
--	-----------------

Directions: Dissolve the above in 40 ozs. of water. The powders should be wrapped in waxed paper and tinfoil, and may even be divided up into small powders for lesser quantities of water, or if mixed together they may be put up in screw-capped bottles, the cap being used as a measure.

Eikonogen.

This is but little used now, but it forms a good one-solution developer.

Distilled Water	to 1000 C.c.
Sodium Sulphite (anhydrous)	150 Gm.
Potassium Carbonate	30 Gm.
Eikonogen	20 Gm.

For use mix with three parts of water.

Metol.

One of the newer developers which is not often used alone, but generally in conjunction with pyro or hydroquinone.

(Single Solution.)

Metol	20 Gm.
Sodium Sulphite (anhydrous)	90 Gm.
Potassium Carbonate	80 Gm.
Distilled Water	to 1000 C.c.

For use dilute with three parts of water.

(Separate Solutions.)

No. 1. Water	1000 C.c.
Metol	15 Gm.
Sodium Sulphite	150 Gm.
No. 2. Potassium bromide	2 Gm.
" carbonate	100 Gm.
Distilled water	to 1000 C.c.

For use mix 2 parts of No. 1, 1 part of No. 2, and 3 parts of water.

Metol and Hydroquinone.

(One Solution.)

Metol	12.5 Gm.
Sodium Sulphite (anhydrous)	25 Gm.
Potassium Carbonate	60 Gm.
Hydroquinone	12.5 Gm.
Distilled Water	to 1000 C.c.

For use dilute with 3 parts of water.

(Two Solution.)

No. 2. Metol	20 Gm.
Hydroquinone	24 Gm.
Sodium Sulphite	60 Gm.
Potassium Bromide	8 Gm.
Distilled Water	to 1000 C.c.

No. 2. Potassium Hydrate	84 Gm.
Distilled Water	to 1000 C.c.

For use, mix in equal parts, and add three times the quantity of water.

Metol-Pyro.

No. 1. Pyrogallol	24 Gm.
Metol	20 Gm.
Potassium Metabisulphite	60 Gm.
Potassium Bromide	8 Gm.
Distilled Water	to 1000 C.c.

No. 2. Sodium Carbonate	200 Gm.
Distilled Water	to 1000 C.c.

For use mix 1 part of No. 1 with 4 parts of No. 2.

Glycin.

(One Solution.)

Sodium Sulphite (anhydrous)	80 Gm.
Distilled Water	100 C.c.

Dissolve by the aid of heat, and add

Glycin	35 Gm.
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Heat to the boiling point and add gradually

Potassium Carbonate	150 Gm.
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This forms a thin paste, which should be diluted with 12 parts of water for use.

(Two Solution.)

No. 1. Glycin	40 Gm.
Potassium Carbonate	10 Gm.
Sodium Sulphite	120 Gm.
Distilled Water	to 1000 C.c.

No. 2. Potassium Carbonate	100 Gm.
Distilled Water	to 1000 C.c.

For use mix 1 part of No. 1 with two parts of No. 2.

Pyrocatechine.

This has long been known as a developer, and has lately been introduced on the market under the name of "Kachin."

(Single Solution.)

Sodium Sulphite	125 Gm.
Sodium Carbonate	250 Gm.
Pyrocatechine	50 Gm.
Distilled Water	to 1000 C.c.

For use, mix 1 part with 5 parts of water.

(Two Solution.)

No. 1. Pyrocatechine	20 Gm.
Sodium Sulphite	100 Gm.
Distilled Water	to 1000 C.c.
No. 2. Sodium Phosphate	188 Gm.
Sodium Hydrate	20 Gm.
Distilled Water	to 1000 C.c.

For use, mix 1 part of No. 1, 1 part of No. 2, and 2 parts of water.

Ortol.

No. 1. Ortol	15 Gm.
Potassium Metabisulphite	7.5 Gm.
Distilled Water	1000 C.c.
No. 2. Sodium Carbonate	120 Gm.
or Potassium Carbonate	60 Gm.
Sodium Sulphite	180 Gm.
Potassium Bromide	2 Gm.
Distilled Water	to 1000 C.c.

For use, mix in equal parts for rapid work, or for normal use add an equal quantity of water.

Adurol.

For one solution developers this is about the most satisfactory on the market. It is either a monochloro or monobromo derivative of hydroquinone, and keeps for a long time colourless in stock solution, and gives very good soft negatives, and is applicable both to bromide papers and lantern slides.

Adurol	75 Gm.
Sodium Sulphite	375 Gm.
Potassium Carbonate	750 Gm.
Distilled Water	1000 C.c.

Heat the full quantity of water, add the sulphite, then the potash, and finally the adurol.

For use, dilute the above with from 10 to 15 parts of water.

(Two Solution.)

No. 1. Sodium Sulphite	100 Gm.
Adurol	20 Gm.
Distilled Water to	1000 C.c.
No. 2. Potassium Carbonate	120 Gm.
Distilled Water to	1000 C.c.

For use mix in equal parts.

Acid Fixing Bath.

Sodium Hyposulphite	1000 Gm.
Dissolve in	
Water	2000 C.c.
Dissolve also	
Sodium Sulph	100 Gm.
In Water	375 C.c.

And add

Sulphuric Acid	6.5 C.c.
Water	125 C.c.

It is sometimes convenient to be able to send out an acid hypo. in dry powder, and then the following may be used:—

Sodium Sulphite	125 Gm.
Citric Acid	30 Gm.

Mix well, and add to

Sodium Hyposulphite	1000 Gm.
--------------------------------	----------

It should be pointed out that these acid baths should only be used for negatives and bromide papers, and not for silver or printing out papers.

One Solution Reducer (Belitzki's).

Potassium Ferric Oxalate	50 Gm.
Sodium Sulphite	50 Gm.
Water	1000 Gm.

Dissolve and add

Oxalic Acid in Crystals	15 Gm.
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Shake till the blood-red solution turns green, decant from any undissolved acid, and add

Sodium Hyposulphite	250 Gm.
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The negative does not require freeing from hypo before this is applied. The reducer keeps well in the dark, does not stain, and may be used over and over again till quite yellow.

Ceric Sulphate (Lumiere).

(One Solution.)

Ceric Sulphate	100 Gm.
Sulphuric Acid	4 C.c.
Distilled Water to	1000 C.c.

This may be diluted with from 3 to 6 parts of water, according to the rapidity of reduction desired. The solution keeps well and may be repeatedly used.

Copper Corrector.

Under this and fancy names a solution of cupric bromide has been introduced, and it can be used either as a reducer or as an intensifier.

Cupric Sulphate	250 Gm.
Potassium Bromide	120 Gm.
Distilled Water to	1000 C.c.

Immerse the well washed negative in this till bleached, and then rinse and apply an old developer in order to obtain intensification. For reducing, immerse till bleached more or less, then rinse and refix. The amount of reduction depends on the amount of bleaching.

Lumiere's Iodide Intensifier.

(One Solution.)

Mercuric Iodide	20 Gm.
Sodium Sulphite (anhydrous)	200 Gm.
Distilled Water to	1000 C.c.

This can be applied immediately after the negative has been fixed and rinsed. It is advisable to treat the intensified image with an old developer, in order to obtain perfectly permanent negatives.

Copper Intensifier.

(One Solution.)

Potassium Citrate	100 Gm.
Cupric Sulphate	13 Gm.
Potassium Ferricyanide	11.5 Gm.
Distilled Water	1000 C.c.

This may be used for toning bromide papers and lantern slides, and gives warm brown to reddish tones.

Potassio Cyanide of Silver.

(Monckhoven's.)

A very old and favourite intensifier.

No. 1. Mercuric Chloride	20 Gm.
Potassium Bromide	20 Gm.
Distilled Water	1000 C.c.

In this immerse the negative till bleached, wash well, and immerse till blackened, in the following:—

Silver Nitrate	20 Gm.
Distilled Water	500 C.c.

Dissolve and add slowly, shaking after each addition till the white precipitate first formed is nearly dissolved, but not quite.

Potassium Cyanide	40 Gm.
Distilled Water	500 C.c.

Mercuric Sulphocyanide.

Mercuric Chloride	200 Gm.
Distilled Water (hot)	50 C.c.

and add

Ammonium Sulphocyanide (sat. sol.)

till the whole of the sublimate has dissolved. In this the negative is intensified, and it is preferable to rinse and treat with a developer.

Negative Varnish.

Orange Shellac	150 Gm.
Sandarac	150 Gm.
Canada Balsam	10 Gm.
Oil of Spike Lavender	60 C.c.
Methylated Alcohol	1000 C.c.

The negative must be warmed before and after the application of this.

Cold Varnishes.

These are the favourites of amateurs, as they can all be applied with a brush.

Best Japanners' Gold Size	100 C.c.
Benzole	200 C.c.

or

Pyroxylin	30 Gm.
Amyl Acetate	1000 C.c.

Matt Varnish.

Sandarac	60 Gm.
Dammar	60 Gm.
Ether	1000 C.c.
Benzole	350 C.c.

or,

Sandarac	100 Gm.
Ether	1000 C.c.
Toluol	350 C.c.

Platinum Toning Bath for P.O.P.

Potassium Chloroplatinite	6 Gm.
Phosphoric Acid (sp. gr. 1.120)	100 C.c.
Distilled Water to	1000 C.c.

To be diluted with 3 parts of water before use.

Concentrated Sulphocyanide Toning Bath

(Buhler's).

Chloride of gold	5 Gm.
Distilled water	280 C.c.

Heat to 50° C. and add

Strontium Chloride	50 Gm.
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and heat to 98° C.

In another vessel heat to 98° C.

Potassium Sulphocyanide	15 Gm.
Distilled Water	250 C.c.

and add the gold solution to it gradually, stirring well between each addition; then filter, and wash the filter with 100 C.c. distilled water. The solution should be kept in the dark and diluted with 20 times its volume of water before use.

Combined Toning and Fixing Bath.

Hyposulphite of Soda	200 Gm.
Distilled Water	900 C.c.

Dissolve and add

Lead Nitrate	10 Gm.
Distilled Water	100 C.c.

Heat for ten minutes to boiling point, then allow to cool and filter and add

Chloride of Gold	0.5 Gm.
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The prints must be well washed before immersion in this.

THE "HOLBORN GUINEA" 1900 HAND CAMERA



Takes 12 Quarter-Plates.

Two View-finders.

Rotating Stops.

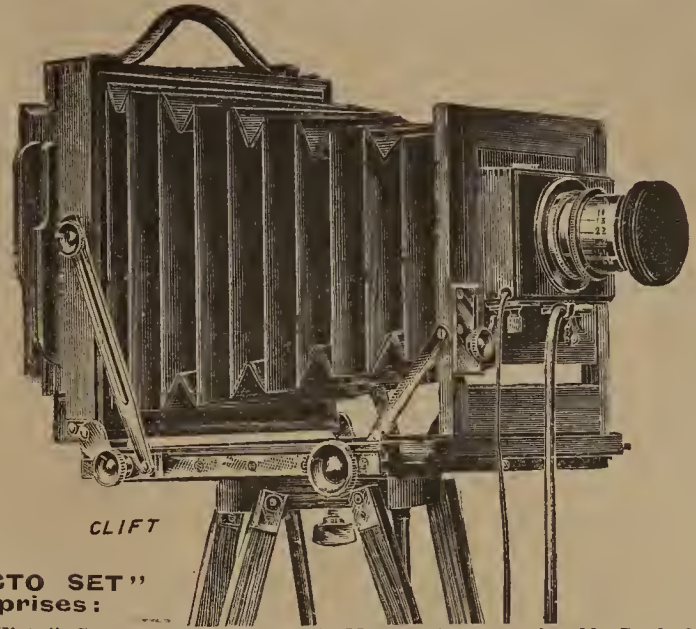
Time and Inst. Shutter.

Automatic Indicator.

Improved Covering (superior to Leather).

21/-

The "VICTO" Camera Set



The "VICTO SET" comprises:

- "Victo" Camera with Wide-Angle Movement, &c. Double Dark Slide.
- Rapid Rectilinear Achromatic Lens with Iris Diaphragm.
- Thornton-Pickard Shutter. Three-fold Tripod Stand.

PRICES, with or without Turntable:

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THE PROGRESS OF PHOTOGRAPHY.

Although photography as a science and an art is of necessity of somewhat slow progression, the story of its developments during the twelve months of any recent year would require a goodly-sized volume. When it comes to the enumeration of the various inventions and improvements made in apparatus and materials to enable the photographer to perform his work or to make his path easier, the list for a year, with even the shortest explanatory notes, would require a bulky folio. It is evident, therefore, that in the space at present at our disposal we can but barely touch the fringe of the subject. We have endeavoured, however, within the compass of a brief review, to mention as many as possible of the articles that have been brought to our notice recently.

MODERN LENSES.

In lenses there have been recently no epoch-marking developments. The advantages of lenses free from astigmatism are becoming more fully recognised, and of these there is already ample choice. The quick acting varieties are beginning to supersede portrait lenses in well-appointed studios, the increased flatness of field, and, owing to the better corrections, the apparently greater depth of focus, allowing larger apertures to be used. Messrs. Ross and Co., of 111, New Bond Street, W., have produced a new series of "universal" lenses working at $F/5.6$ of foci varying from 5 in. to 24 in., which give uniformly sharp definitions at a medium angle, and which are anastigmatic. The circle of illumination includes an angle of over 70° , so that by stopping down they become available for most classes of work, in addition to portraiture.

Ross and Co. have also introduced a new series of symmetrical anastigmats as an improvement upon their well-known series of rapid symmetricals. Like the latter, the full working aperture is $F/8$, but the flatness of field and freedom from astigmatism of the new lenses render them far superior for general outdoor work or for copying. With reasonably small stops they cover a wide angle of view and make admirable lenses for architecture, etc.

Messrs. Dallmeyer, Limited, of 25, Newman Street, W., have now completed their Series III. stigmatic lenses. These may be compared to Rapid Rectilinear as regards the class of work for which they are suitable, and are produced at approximately the same prices. The increased flatness of field and freedom from astigmatism will, however, give them a decided advantage over the best lenses of the Rapid Rectilinear type. The "Cooke" lens (Taylor, Taylor, and Hobson, Leicester) has in Series II. been adapted for ordinary work in the studio. The full aperture of the lenses of the new series is $F/4.5$, and they are able to combine the advantages of the "anastigmat"—freedom from astigmatism at the full aperture and flatness of field—with that of allowing the photographer to introduce at will spherical aberration over the whole plate. The adjustment for the latter is made by unscrewing the back lens. The lenses at present issued are 8 and 13 in. focus. The "Simon" anastigmatic lens is a new candidate for approval. The agent is T. T. Hora, 346, York Road, Wandsworth, W. The working aperture is $F/7.2$. The combinations are symmetrical. The angle included is 90° , and it is stated the lenses are made of Jena baryta glass. The specimens of work we have seen speak favourably for the lens. The Rathenower Optische Industrie, (agent, H. F. Purser, 33, Hatton Garden, E.C.) have brought out a series of "casket" lenses, the moderate price and satisfactory performance of which will make them useful to the amateur and professional alike. The No. 1 set consists of four lenses, giving fourteen combinations—five wide angle and five ordinary angle rectilinears, and four landscape lenses. The No. 2 set contains seven lenses, giving in all twenty-nine combinations, of focal lengths from 4 to 30 inches. The lenses are uncorrected, but the difficulties in focussing due to want of achromatism are overcome in a practical and ingenious manner by the use of correcting lenses. Three optically-worked colour screens for use with orthochromatic plates are included in each set.

NEWER DEVELOPING AGENTS.

Of the newer developing agents, ortol appears to have made the most rapid strides into popular favour, and many experienced photographers, whose attachment to pyro it seemed impossible to shake, have now abandoned their old love. The negatives obtained have very much the qualities of those developed with pyro, and while it is possible to obtain a warmish colour of deposit, there is little or no tendency to stain. The original cost of the developing solution is, of course, greater, but as the same solution can be used for

several plates in succession without any appreciable deterioration in the results, it is probably a cheaper developer in the long run. Adurol, a combination of hydroquinone and bromine in the case of Adurol-Schering, and we believe a combination of chlorine and hydroquinone in the case of Adurol-Hauff, has obtained some adherents. As a developer it is certainly an improvement on hydroquinone. It does not require caustic alkali, but with the carbonates it gives softer results and better graduation than hydroquinone. It is much more soluble. The mixed solution keeps almost indefinitely, and does not stain. Its developing action is quicker, and not so sensitive to changes of temperature, and it is not liable to act in the selective way that hydroquinone frequently does. These qualities should commend it in the place of hydroquinone to those who make a specialty of ready-mixed developers. Its sole disadvantage in this connection is its price. Kachin, which we understand to be pyrocatechin, prepared by a new and cheaper method, though, of course, a totally different substance, appears to have very similar good qualities. In our hands it has given negatives full of vigour, and, at the same time, delicate and full of detail in the shadows. It certainly keeps well; a solution in which several plates had been developed gave equally good results after keeping for about two months, though the time of development was longer. A peculiarity we noticed with kachin-developed negatives was that they appeared to lose less in the fixing than we usually find to be the case. This feature should make it valuable to the beginner. It is also claimed for this developer that, by the addition of a certain proportion of hypo, development and fixation can be conducted at the same time. Still more recently introduced developing agents are Diamidophenol, which, like amidol, does not require caustic alkali or alkaline carbonate to form a developer, but acts when dissolved in a solution of sodium sulphite; Diamidoresorcine, which has similar characteristics, and Hydramine, which appears to have remarkable properties. Its energy is such that only a minute quantity is required to make a concentrated developer, which will work until the liquid is entirely exhausted. The accelerator employed is caustic lithia, but only a very small quantity of this is required. How these new agents act when put to the test of everyday work we have not yet heard.

REDUCERS AND INTENSIFIERS.

The persulphate of ammonia reducer has received many testimonials of its value. The claim made for it of reducing the denser portion of the deposit in preference to the half tones has been sustained. Messrs. Lumiere have now introduced in cerium sulphate a reducer which acts in the opposite way. It attacks the lighter deposit first. In many cases this will make the reducer an extremely valuable one. Messrs. Lumiere have also produced a new intensifier. As packed for sale it consists of a pink powder, easily soluble in water, and is a mixture of mercuric iodide and anhydrous sodium sulphite. It is a one-solution intensifier, and its action is similar to that of the "Edwards" intensifier, which is a solution of mercuric iodide in hypo. The latter was extensively used in the early days of gelatin plates, but it was soon found that the results were not permanent. It is not claimed for the Lumiere intensifier that the results will be absolutely permanent, but it is claimed that they will be more permanent than with the other, and that by treating the plate after intensification with any ordinary developing solution, the degree of intensification will not be appreciably altered, and the result will be practically permanent. As a reliable intensifier, the action of which can be watched, is a very great desideratum now, we welcome this attempt to solve the difficulty. In our hands the intensifier has acted perfectly.

GELATIN PLATES AND FILMS.

The manufacture of gelatin plates has reached the point beyond which but little improvement is possible until a new line is struck. Nearly every photographer has his own fancy as to the best plate in the market, but, after all, the best plate is only a matter of fancy. Probably absolutely equal results could be obtained with every make of plate when used upon ordinary subjects, the skill of the photographer being equal in each case. The use of "colour-sensitive" plates is becoming more general, as the special precautions necessary in their employment are better understood. Some of the more advanced in scientific knowledge are using plates such as the Ilford Chromatic and those of a similar kind for their every-day work, a light filter being used when the circumstances of the case demand and admit of it. The special colour-sensitive plates of Lumiere and the Cadett Spectrum plate are finding numerous applications where the critical distinction of colour is imperative, and in this connection may be mentioned the method of producing photographs in natural colours of Sanger Shepherd. The lantern slides we have seen projected on the screen made by this method we can hardly

imagine it is possible to surpass. The Ives' "Kromskop," and its baby relation the "Kromaz," brought out by Watson and Sons, of 313, High Holborn, W.C., also are dependent upon the system of obtaining three identical negatives of a subject as regards point of view and scale, but individually representing a separate colour sensation. Colour-sensitive plates, of course, are necessary to make such a thing possible.

Many attempts have been made to supersede celluloid as a base for sensitive films. In the Secco film the sensitive gelatin emulsion is coated upon a prepared paper support, and after exposure the film is developed as a piece of bromide paper, which it closely resembles, might be. After development, fixing, and washing, another piece of prepared paper, which carries a strengthening film of insoluble gelatin, is squeezed on to the face of the negative, and the whole is allowed to dry. When dry the papers are stripped from the front and the back. A film of somewhat similar character is produced by Wellington and Ward, of Elstree. In this case the film, equally like bromide paper in appearance, is developed, fixed, washed, and dried. When dry the paper backing is stripped off. There is, therefore, one operation less. The Sandell Plates and Films Co., Limited, of Norwood Junction, S.E., have not employed any support in their new Cristoid film. It consists simply of two films of emulsion of differing sensitiveness. It might be described as the sensitive film stripped from a multiple coated plate, and all the virtues of the multiple coated plate are claimed for it, plus the advantage that it forms in itself, both a slow and a rapid film, according to the side which is presented to the rays of the lens in the camera.

PRINTS AND PLATES.

Developed prints are coming increasingly into use. Both amateurs and professionals are recognising the convenience of a system of making prints which is independent of daylight, especially such daylight as the clerk of the weather has treated us to during the past winter. Papers of a low degree of sensitiveness, of which "Velox" was perhaps the first to lead the way, which may be manipulated by ordinary artificial light without resorting to dark room illumination, have become very popular, and several of the photographic paper makers have taken up their manufacture, the Kodak Co., Marion and Co., and the Paget Co. among others. The last-named company

are showing that on their particular product, at least, the ordinary black tone is not the only tone to be obtained, but by variations of exposure and development the tint may be varied from black to sepia, warm brown, and even red. Messrs. Griffin and Sons have introduced a new grade of "Velox," which ought to prove very useful, as it will give soft and delicate prints from negatives possessing the most excessive contrasts, and which it would be impossible to print satisfactorily in P. O. P. or ordinary printing papers.

Plates for lantern slides and transparencies of low sensitiveness, to manipulate in ordinary artificial light, are also becoming well known in the market. Those of B. J. Edwards and Co., entitled the "Kristal," and the Paget Co.'s "Gravura," we have tried with satisfaction, but it should not be forgotten that Marion and Co. have had the same thing on sale for years. Many years ago the Britannia Works Co., of Ilford, brought out under the title of "Alpha" paper and lantern slide plates having the general characteristic of those we have been referring to. It is a curious thing about photography that what one generation of photographers sees no advantage in the next generation takes up with enthusiasm.

CAMERAS, SHUTTERS, ETC.

The camera and apparatus makers have not allowed things to rest. Though the use of the hand camera shows no waning, there is certainly a greater demand among amateurs for stand cameras. They are beginning to find out that for home work the hand camera is not the most convenient instrument, and besides, there is a natural desire to use larger plates than $\frac{1}{4}$ or 5×4 . Several firms are now turning out admirably designed and really well-finished cameras at prices which would have only purchased rubbish half a dozen years ago. A popular line is a set which includes half-plate camera, fitted with turntable, and having reversing and swing back, double baseboard extension and adjustment for the use of wide-angle lenses, a threefold tripod, rapid rectilinear lens with iris diaphragm, and roller blind instantaneous shutter. The whole including one double back, to sell at £3 10s. Camera sets such as that described are to be had from several houses. We have seen those of Perken, Son, and Co., of 99, Hatton Garden, W.C.; Evans, Son, and Co., of 56, Hanover Street, Liverpool; J. Woolley, Sons, and Co., Limited, of Victoria Bridge, Manchester; Barclay and Sons, of 95, Farringdon Street, E.C.; Jonathan Fallowfield, of Charing Cross Road, W.C.;



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24 Glass Plates or 72 Cut Films.

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G. Houghton and Sons, of 89, High Holborn; and, although they may differ in details, we can safely say that in each case the set is uncommonly good value for the money, and that it would be an unusually keen critic of cabinet and brasswork who could reasonably find fault.

The roller blind form of instantaneous shutter seems to be almost exclusively bought now when a shutter is required which can be easily attached to, and removed from, the lens. The Thornton-Pickard Co. have made several improvements in the details of their shutters, and have introduced a novel feature in a "time-exposure" valve, which is fitted to the ball of the pneumatic release. The arrangement, which is very simple, permits the photographer to give exposures of longer duration than the slowest marked on the "instantaneous" index, including the larger fractions of one second and up to three seconds. Wallis Bros., of Wellington Street, Kettering, have a new series of shutters, made on the roller blind principle, adapted for various requirements. Their "compound" shutter is adjustable for time or any exposure up to $1/300$ of a second. The feature of the Foreground shutter is that it gives more exposure to the foreground than to the sky, and any variety is especially designed for economising space, so that it is adaptable to the narrow limits of a hand camera. The 'Fairfield' shutter of T. T. Hora, of 346, York Road, Wandsworth, S.W., is an excellent one, and it is also made in stereoscopic form, to fit either before or behind the lenses.

There are at least two good forms of camera stand which, while retaining the rigidity of the studio stand, are reasonable portable. The "Massey" field and studio stand of Marion and Co., and the "Alfred Ellis" stand, of Watson and Sons, though differing in design and construction, have many features in common that render them extremely useful for indoor work away from home. Those who have experienced the many disadvantages attached to the use of an ordinary tripod stand under such circumstances will appreciate either of these stands.

HAND CAMERAS.

In hand cameras new patterns and improvements upon old ones succeed one another in a bewildering procession, and one can hardly imagine a single feature that it is possible to embody in a hand camera which is not provided in one or other of the instruments now upon the market. But while the specialist is catered for the desires of those with more modest requirements and shallower pocket have not been neglected. There are very many cameras now in the market at prices within the reach of most, which are really serviceable instruments. Of the more expensive instruments designed for special as well as for general work we may mention those of J. H. Dallmeyer, Limited, which are made with sufficient extension of body to enable the single component of a stigmatic or Satz lens to be used, and this without any apparent sacrifice of lightness or portability. The well-known cameras of Newman and Guardia, of 90 and 92, Shaftesbury Avenue, are maintaining their reputation, and improvements in details are continually being added. The 'Tella,' that marvel of mechanical ingenuity, manufactured by the Tella Camera Co., of 110, Shaftesbury Avenue, has been found still capable of improvement, and is now made smaller and more compact without sacrificing its reliability—a new size to take 5×4 films has been issued. R. and J. Beck, Limited, of 98, Cornhill, E.C., have kept their series of Frena cameras well up to date. Two useful accessories have been introduced by them. The Frena pneumatic flap shutter, which has been made to fit on to the front of the camera, so as not to interfere with the magnifiers. It consists of a simple flap shutter of the usual kind, but opened and closed by pressure and release of pressure on a ball connected by an india-rubber tube to the mechanism of the shutter. The new pneumatic release can be attached and detached with ease to the release of any of the Frena cameras, it overcomes the risk of shaking the camera in the act of setting off the shutter, and enables exposures to be made even in the most inconvenient positions without such risk. The Gambier Bolton Camera, of Watson and Sons, was constructed in the first place for animal photography, but it has features which will commend it to many for work of other kinds. Its characteristic is that the plate is always ready for exposure. By a mirror arrangement the image of full size is projected on to the finder situated at the top of the camera so that the focus may be adjusted until the moment of exposure. A simple movement dislodges the mirror from the axis of the lens, releases the shutter, and the exposure is made. The Kodak Co. have not been idle. Improved patterns have from time to time been brought out, and in most cases arrangements have been made that those who prefer plates to films can use them. A popular series of hand cameras

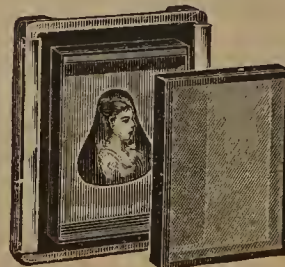
is that sold under the title of the 'Victoria' cameras by J. Woolley, Sons, and Co., of Manchester. The No. 1 will do all that most people are likely to require from a hand camera. It has automatic changing arrangement for 12 plates or 24 films, and most of the adjustments that are found in cameras of far beyond its price, 35s. The No. 2, at 22s. 6d., is naturally not so complete, but it will do very good work, and has a good appearance. The 'Cyko' cameras of John J. Griffin and Sons are equally reliable and saleable articles. They are made for $2\frac{1}{2} \times 3\frac{1}{4}$, $3\frac{1}{4} \times 4\frac{1}{2}$, and 5×4 plates. The plate changing arrangement is automatic, the adjustments and accessories are all that are needful for good work, and the prices compare favourably with any in the market of a similar class. The prices range from 16s. to 45s., according to size and finish. A camera that will appeal to those who wish for one instrument to do the work of both a hand and stand camera is the 'Hanover,' of Evans, Sons, and Co., 56, Hanover Street, Liverpool. Though necessarily somewhat more complicated than the self-contained box forms of hand cameras, in actual practice it is simple enough, and there is nothing about its manipulation that should create any difficulty. The R.R. lens and roller blind shutter supplied with it are both good of their kind, and the price is quite a moderate one. The Optimus 'Ubique' camera appears in an improved form. It is now made to take a roll holder for flexible films if required, and can be fitted with an extending baseboard for the use of long focus lenses or for copying. This camera, like the last-mentioned, is equally available as a hand or stand camera, and with the extending base board is a serviceable instrument for every kind of work an amateur is called upon to do.

MISCELLANEOUS.

The prevalence of the practice of making small negatives and enlarging from them has stimulated ingenuity in the construction of apparatus for the purpose in the most simple manner. The 'Photographic Enlarger' of J. E. Lockyer, 87, Evelyn Street, Deptford, seems quite a *multum in parvo* as regards its capabilities. It will with equal facility make enlargements from small negatives, make lantern slides by reduction from large negatives, and can be used as a copying camera to make negatives either larger or smaller than the original print. With this apparatus the trouble and uncertainty of focussing is done away with in a very simple manner. The 'Optimus' enlarging lanterns have kept quite up to date, and are made of several patterns to suit various pockets and requirements. Ross and Co., Limited, have also a skilfully-designed series of lanterns, which can be adopted for any illuminant.

In connection with the enlarging or the optical lantern for projection a very practical form of acetylene generator is manufactured by the Abingdon Acetylene Illuminating Company, 97, Great Hampton Street, Birmingham; also an improved and very serviceable form of two-jet burner, which gives independent control of each burner, and has every adjustment for both lights and reflector. In the four-burner form each burner is controlled by a separate tap, and it is arranged that any one or more of the lights can be used and all manipulations can be made from the back of the lantern.

A very useful adjunct of the dark room is the 'Markus' bottle of F. H. Taylor and Co., 1, Errol Street, Whitecross Street, E.C. The feature is that the bottle has upon it a tablet of white enamel with a mat surface which can be written upon in pencil to form a very distinct and legible label. The writing is practically unattackable by any chemical, and when the bottle is required for another purpose the writing may be removed with a damp cloth. These bottles may be had of various capacities. The same firm have introduced a series of glass graduates, which are particularly suitable for use in the dark room; the scales, which on the usual measures are engraved, and not very easy to distinguish in a dim light, are in white enamel, and are thus easily seen, and the figures appear as transparent upon a white ground.



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A Perfect Device for All Contact Printing.

$\frac{1}{4}$ -plate, 2/-; 5×4 , 2/3; $\frac{1}{2}$ -plate, 2/6; Whole-plate, 3/6. Including 12 Vignetting Cards.

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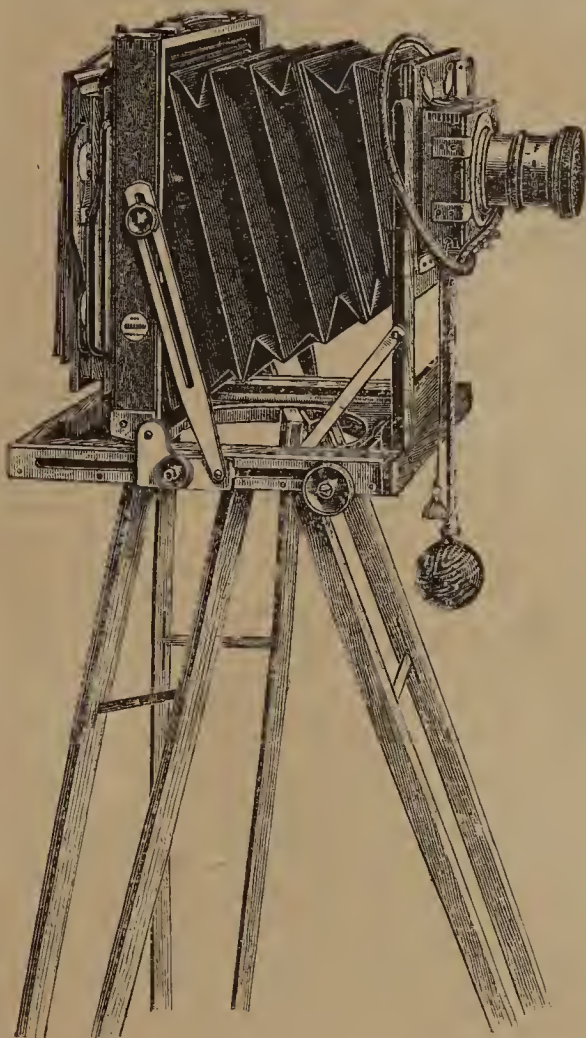
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In the Press, and will be shortly issued, a New Edition of our Prices Current of Photographic Apparatus and Materials. To those not on our list early application is requested.

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CAMERAS.

The "Pembroke" $\frac{1}{2}$ -Plate Outfit



Mahogany Camera of sound construction (our own manufacture) with good leather bellows, reversing and swing back, double extension, back slides to the front for wide angle lenses. The rising front is of unusual range, as illustrated. The base board is cut out, fitted with a turntable, making a most compact Camera. With one double dark slide, "Hanover" time and instantaneous shutter with speed indicator, R.R. lens, Iris diaphragms, and a three-fold tripod.

Price £3 : 10 : 0 complete.

Less usual discount.

➔ The Camera of the Season

MOROCCO LEATHER COVERED

"HANOVER" MAGAZINE CAMERA

We can now supply above Camera covered in real Morocco Leather. This, together with its well known high quality, makes it the best value ever offered.

Price £1 : 5 : 0 each, less usual discount.

EVANS, SONS & CO., Liverpool.

NOTES ON NOVELTIES.

BARCLAY'S HAND CAMERAS.

Barclay and Sons, Limited, 95, Farringdon Street, London, E.C.

The list of hand cameras in the market is great; Messrs. Barclay and Sons' catalogue alone contains illustrations of some twenty odd varieties. Their specialties include



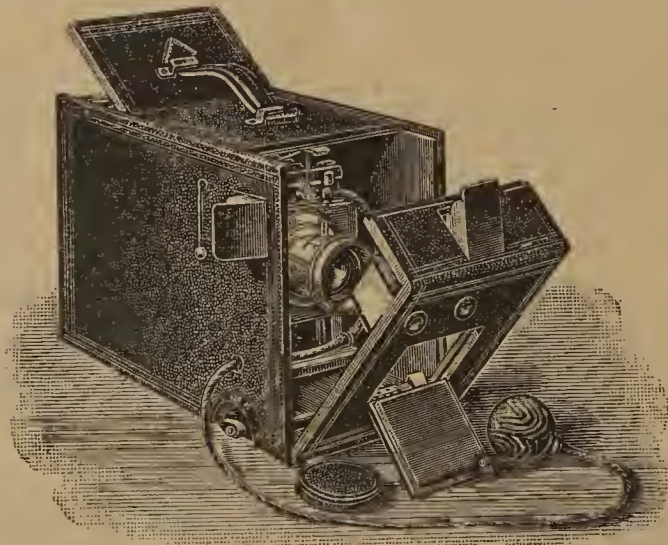
a GUINEA HAND CAMERA ($8\frac{1}{2} \times 7 \times 4$ in.), which takes twelve $\frac{1}{4}$ -plates, has two brilliant viewfinders, and is fitted with a fixed-focus single lens, revolving diaphragms, time and instantaneous shutter, and is covered with morocco leather; a 45s. article—shown in the illustration—which is exceedingly good value; a FLAT-FILM HAND CAMERA at

52s. 6d., and a New 50s. HAND CAMERA. The latter is fitted with a rapid rectilinear lens, a rack focussing attachment, and a scale of distances. The shutter works at any speed from about $\frac{1}{150}$ th to half-a-second, or for time exposures. Bushes and a T screw for use with a stand are provided, and two brilliant viewfinders.

'HANOVER' QUARTER-PLATE HAND OR STAND CAMERA.

Evans, Sons, and Co., 56, Hanover Street, Liverpool.

This camera bears evidence of much care and attention to detail, hence for all-round work it is as perfect and up-to-date as possible. It is compact, has a mahogany body, covered with morocco leather, and is calculated to stand much harder wear than if made of stained soft wood. For snap-shot photography it has a useful focussing scale marked accurately for each lens supplied. The camera may also be fixed upon a tripod, and the picture composed



on the focussing screen, and for that object it is fitted with a rising front, having a clamp. Three double dark slides of the most reliable form for carrying plates are furnished with the camera; the lens is a best quality Iris rapid rectilinear, working at F/8; the shutter is of the behind lens roller-blind pattern with pneumatic and cord release, and a loose lens panel. Exposures may be made from $\frac{1}{15}$ th to $\frac{1}{10}$ th in. part of a second, or time exposures may be given. The two viewfinders are supplied with hoods to shade the sun's rays and to protect the camera from dust when closed. The price of the camera complete is £4 4s.

THE 'WIZARD' CAMERAS.

Seabrook Bros. and Co., 21, Edmund Place, Aldersgate Street, London, E.C.

The 'Wizard' cameras are made in forty-two styles, and are now being introduced into this country for the first time. The LONG FOCUS WIDE ANGLE

WIZARD (illustrated), is a remarkable line in cameras, complete, for either the amateur or the professional photographer. It combines all the latest movements and adjustments, is substantially built, but is very light and exquisitely finished. It can be used either as a hand camera, or for long focus and wide angle work. The LONG FOCUS CYCLE WIZARD, and CYCLE WIZARD C. are very complete compact forms of cameras, specially made



as light as possible for the use of cyclists and tourists. These cameras appear to have almost every improvement and detail that an amateur could wish for. A cheaper line of cameras is the CYCLE



A and B (illustrated). They are much like the Long Focus Cycle and Cycle C., with one or two of the more advanced improvements omitted; they are, however, exquisitely finished, and suitable for almost any ordinary work. Particulars as to price, etc., of these and other 'Wizard' cameras may be had of Messrs. Seabrook Bros. and Co.

NEW 'TABLOID' BRAND DEVELOPERS.

Burroughs Wellcome and Company, Snow Hill Buildings, London, E.C.

For the coming season Messrs. Burroughs Wellcome and Company have introduced three new developers in tabloid form—ortol, metol-quinol, and glycin. The multiplicity of reducing agents, and the tendency of many amateurs to transfer their allegiance from one to another, is probably no small trouble to the pharmacist with a photographic department. It would be profitless to attempt to stock solutions of reducer and accelerator to provide for every possible demand, and yet to be unable to supply may well create a prejudice. This difficulty is removed by 'Tabloid' Developers, which enable the pharmacist to stock at a small outlay, in a small space, and without risk, a complete range of reducing agents and accelerators to correspond. B., W. and Company's twelve-page booklet, entitled "Practical Points," is full of information concerning the newer photographic chemicals, and contains much which must interest every photographer. One point, typical of the practical nature of the pamphlet, is that under each developer a time for the first appearance of the image with correct exposure is given, and there is also an approximate estimate of the length of time required to complete development. This information will remove one of the chief difficulties experienced by amateurs in deciding how long to develop. The metol-quinol developer supplies a portable developer which is equally serviceable for developing the various 'gaslight' papers now so much in vogue, or for use with ordinary plates, films, bromide papers, or lantern slides. All that is necessary is to vary the quantity of water according to the directions given. It is essentially the developer for the tourist or for those whose limited dark-room accommodation makes the use of one developer for all purposes very desirable. The ortol developer will be appreciated by those who want a negative developer with the quality of pyro without its staining properties. For warm black tones in lantern slides it is as good as anything on the market. The glycin developer serves two distinct and valuable purposes. Using a small quantity of water, it forms a developer for producing negatives of pictures, photographic prints, or black and white drawings. By increasing the quantity of water a 'stand developer' is obtained which produces good negatives almost automatically from plates which have received greatly varying exposures.



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THE immense increase in sales is due to the perfection of coating, high quality of emulsion, and the permanency of the resulting prints. No other paper has produced such a complete revolution in printing methods. Of the seven grades made, special attention is drawn to

Carbon Velox—Having a delicate Matt Surface and suitable for thin Negatives.

Special Portrait Velox—Giving softness and atmospheric quality, for medium Negatives.

Double-Weight Velox—For Pocket-book prints and slip-in Albums. Requires no mounting.



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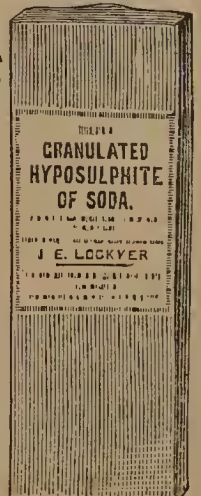
Acetone
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 " Pyrogallic
 Alum
 " Chrome
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 Ammon. Bromide

Ammon. Persulphate
 Sulphocyanide
 Calcium Carbide
 Diogen
 Diphenol
 Eikonogen
 Ferri Perchlor., Solid
 Formaldehyde

Glycin
 Gold Chloride
 Hydroquinone
 Magnesium Powder
 " Ribbon
 Metol
 Ortol

Paramidophenol
 Potass. Chloroplatinite
 " Metabisulphite
 " Sulphide
 Pyrocatechin
 Rodinal
 Silver Nitrate

Soda Formate
 " Metabisulphite
 " Sulphite
 " Tungstate
 Tribasic Phosphate
 Uranium Nitrate
 " Acetate

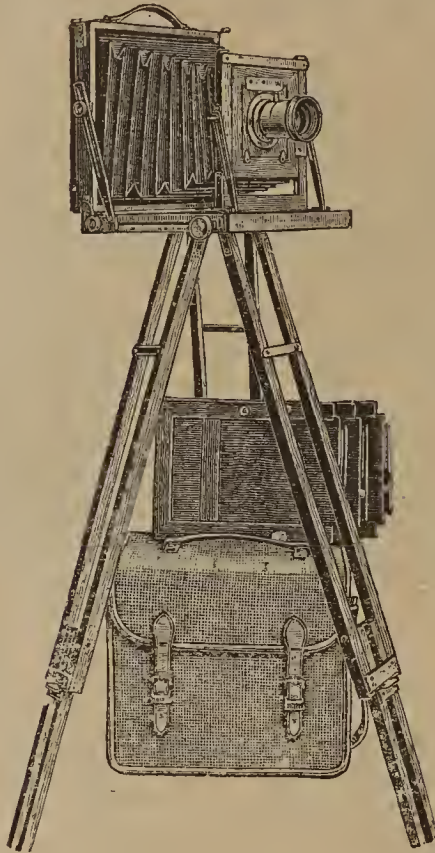


GRANULAR HYPOSULPHITE OF SODA, packed in 1-lb. cartons, lined with parchment paper, 16/- per gross net.

THE 'HANOVER' OUTFIT.

Evans, Sons and Co., 56, Hanover Street, Liverpool.

For good value in high-class cameras the No. 2 'Hanover' Outfit can be strongly recommended. The camera is made of selected well-seasoned mahogany, highly finished in every detail, best lacquered brass-work, varnished maroon leather bellows, long extension, swing back, reversing back, swing front, sewn leather handle for carrying, plumb indicator, and automatic spring to hold dark slide in position. The camera front slides along brass runners, fixing at any part by a simple, effective arrangement of locking the front; the rising front is of unusual range, and has swing motion for high or low objects; the camera back may be moved close up to the front for wide angle lenses, working smoothly and fixing at any part along the base board. Three double light-tight dark slides are provided, and the shutters have automatic catches to prevent them from being opened accidentally. The lens is of the rapid rectilinear, iris diaphragm order working at $F/8$, covering well and giving excellent definition. The tripod is threefold, the top portion locking automatically, and it has sliding legs for the lower. The outfit complete, with stiff waterproof case, bound with leather, and having shoulder-strap and handle on top, is extremely light and portable. The thickness of the camera when closed is less than two inches, being that of the baseboard and focussing screen. The price for the half-plate outfit is £6 15s.; whole-plate, £9 10s.



COOKE LENSES WITH BAUSCH AND LOMB SHUTTERS.

Taylor, Taylor and Hobson, Stoughton Street Works, Leicester.

This combination of lens with iris diaphragm and shutter can be attached to most of the hand-cameras now upon the market, and is supplied at prices ranging—for Series III., $f/6.5$ —from £4 3s. to £8 11s., and—for Series V., $f/8$ —from £4 5s. to £10 5s., subject to a discount of five per cent. for cash with order. Standard flanges, where required for attaching to cameras, are supplied at 2s. each extra. If desired photographers' own Cooke lenses can be re-mounted in combination with this shutter, at 37s., 47s. 6d., and 60s. each, according to the size of the plate. The firm also undertake the re-fitting of cameras (other than Kodaks) with the above combinations of lens and shutter, and without extra charge unless some structural alteration of the camera is necessary. To facilitate very exact adjustment of Cooke lenses in hand-cameras, when desired, a gauge-bar of the exact length required between the sensitive film and the face of the lens flange is furnished, one shilling being charged for the gauge-bar and the instructions which accompany it. Special arrangements have also been made whereby Cooke lenses may be fitted to photographers' own Kodaks. In some cases the existing Kodak shutters are used; but in others, to utilise the full rapidity of the lens, it is necessary to replace the shutter by one of the Bausch and Lomb type.

GUINEA VIVES CAMERA.

Vive Camera Co., 18, Regent House, Regent Street, W.

The Guinea Vives camera is a distinct novelty in that it takes larger pictures than any other camera of the same class. It carries twenty-four glass plates, or seventy-two cut films, which can be carried and exposed without reloading. The Daylight-loading Tourist Vives are said to be the only daylight-loading camera made and sold for glass plates, cut films (heavy), or cartridge roll films.

LOCKYER'S ENLARGER.

J. E. Lockyer, 87, Evelyn Street, Deptford, S.E.

A simple, efficient enlarging apparatus that cannot go wrong is invaluable to both amateur and professional photographers; Lockyer's combined enlarging, reducing, and copying apparatus answers to that description. It is an improved form of the original "Automatic," and is a non-collapsible camera with a series of grooves on either side. The grooves are accurately cut to proper measurements and are numbered, so that when the board on which the lens is mounted and the dark slide are placed in their respective grooves, according to a key supplied with the apparatus, sharply

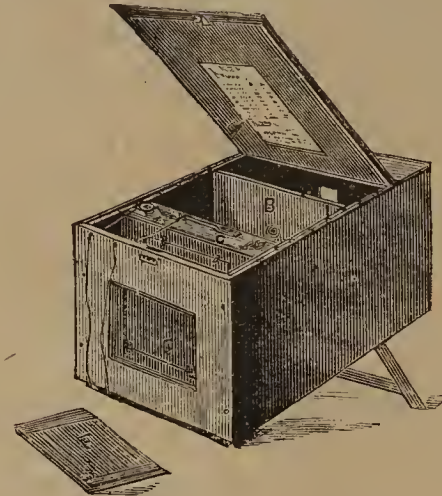


FIG. I.

defined enlargements or reductions to the desired size are obtainable at will, in a fraction of the time usually occupied by a focussing arrangement. Among the improvements introduced are an achromatic wide angle symmetrical lens, a rising and cross front, dark slide with rolling shutter, and a copying attachment. Fig. I. gives a view of the apparatus from the back, with lid raised and door at back open, through which image on screen can be seen if desired; Fig. II. shows the apparatus with copying attachment drawn out, and folding board (G) raised. The additional lens board



FIG. II.

for use when copying is shown at H. Mr. Lockyer claims that his enlarger will, without any focussing, make crisp enlargements, or enlarged negatives, from different sized negatives, to all standard sizes within the capacity of the apparatus; that it will make enlargements from any part of the negative when the whole is not required to be enlarged; that it will make brilliant lantern slides from different sized negatives; that it will do copying, and will enable anyone to dispense with using anything larger than a quarter-plate camera, thereby saving cost on the initial outlay and in subsequent working. The price of this combined apparatus was formerly ten guineas; it has now been reduced to £7 10s.



T. H. POWELL'S Compressed Developers and Toning Baths

(Dating from 1889),

Should be in every Dark Room, and are invaluable for Travellers, being Compact, Soluble and Reliable, and give the finest possible results.

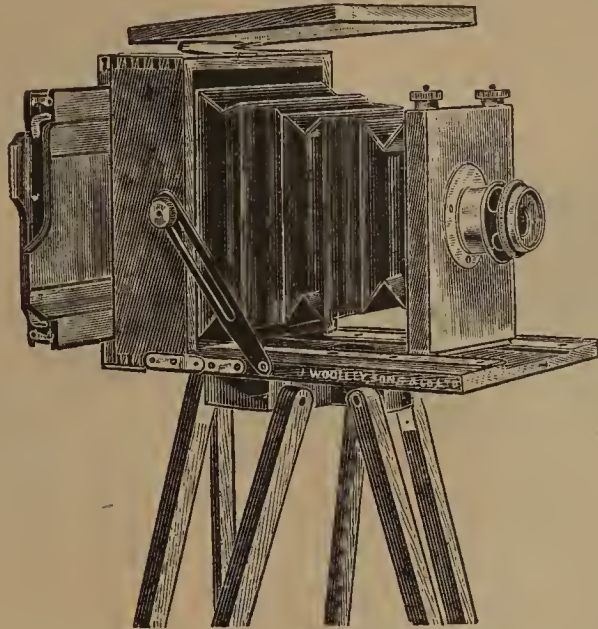
May be obtained through all the usual houses.

**T. H. POWELL, Photographic Chemist,
116, DENMARK HILL, LONDON, S.E.**

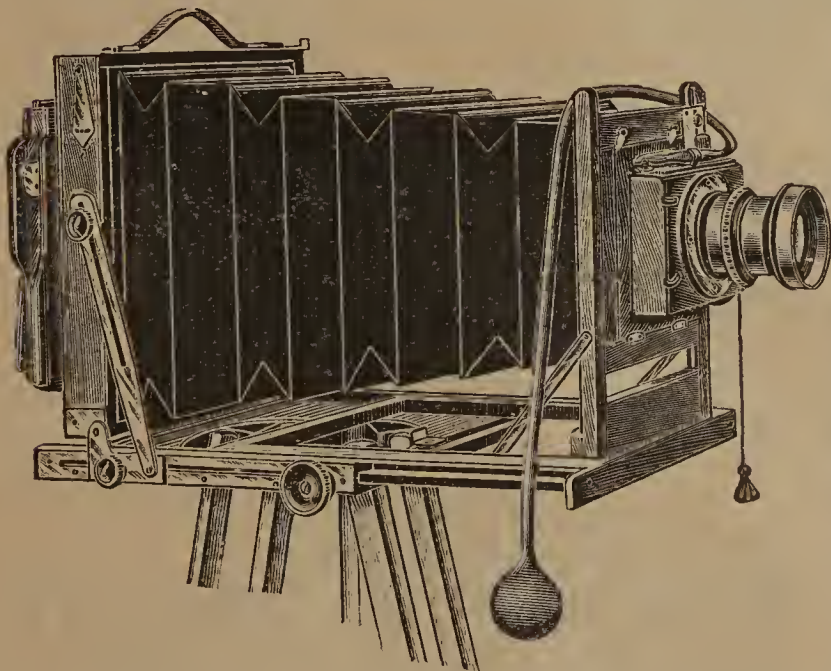
'VICTORIA' PHOTO. OUTFITS.

J. Woolley, Sons, and Co., Limited, Victoria Bridge, Manchester.

Under the name of 'Victoria,' Messrs. Woolley and Sons supply a series of photographic outfits which, for excellency of finish, workmanship, and value, are hard to beat. The No. 1 'Victoria' quarter-plate outfit, price 21s., consists of camera having a mahogany body, single extension, with reversing and swing back; one double book-form dark slide; achromatic lens of superior quality, with revolving stops, or, if desired, an instantaneous



shutter; and a two-fold, well finished, and varnished tripod stand. The No. 1 half-plate outfit is sold at 30s. The No. 3a (quarter-plate) is a very compact, high-class camera of polished mahogany, with leather bellows, reversing and swing back, double extension, back slides to the front for wide-angle lenses, rising front, and handle for carrying. The half-plate and whole-plate outfits of this series are supplied with a turntable fitted in base-board, but it is not furnished with the quarter-plate outfit. It has, however, a

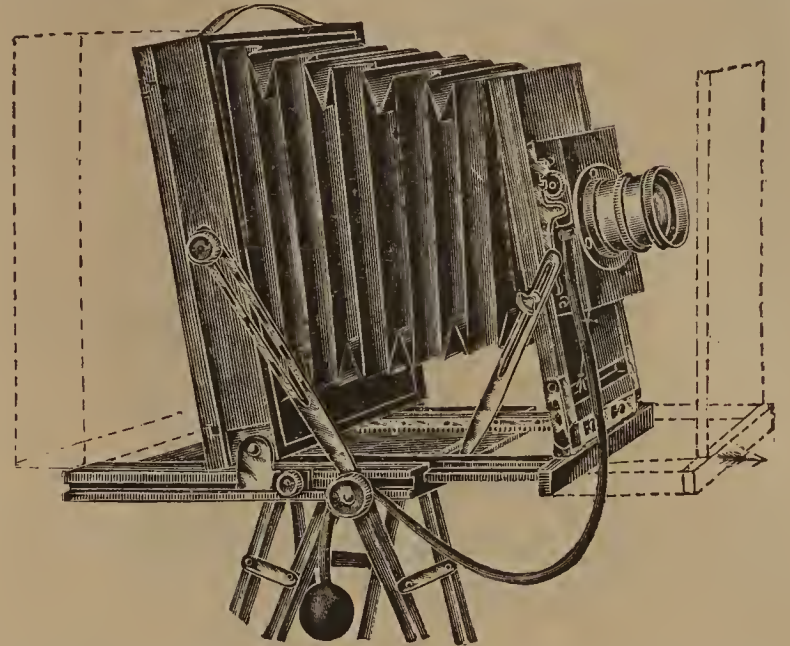


camera level, book-form dark slide of polished mahogany, with spring catches to the shutters; rapid rectilinear, double achromatic lens, with iris diaphragm; a roller-blind instantaneous shutter, fitted behind the lens, with loose lens panel, speed indicator, and pneumatic release. The stand is of the three-fold ash-rule jointed order, fitted to turntable in the base-board. The price for the complete quarter-plate outfit is £3, half-plate £3 10s., whole-plate £5 10s.

'OPTIMUS' UNIVERSAL PHOTO OUTFIT.

Perken, Son, and Co., Limited, 99, Hatton Garden, London, E.C.

The 'Optimus' Universal Photo Outfit (half-plate size, 6½ in. by 4¾ in., with French R.R. lens, Iris diaphragm, £3 10s.) includes superior well-seasoned mahogany camera with leather bellows, rising front, swing arrangement, square reversing frame, rack and

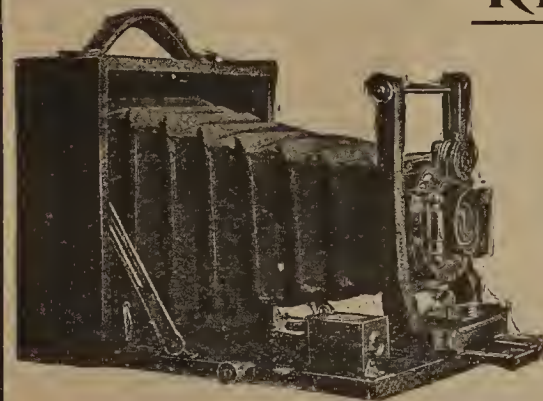


pinion focussing adjustment, double dark slide of book form, achromatic rapid rectilinear lens, fitted with Iris diaphragm, time and instantaneous roller blind shutter, and folding tripod stand. Extra double dark slides are supplied at 10s. each. This outfit is unequalled for quality and workmanship at the price.

THE BEST VALUE IN CAMERAS

—not alone in the general appearance and workmanship, nor merely in the matter of selling price, but particularly

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Cycle Wizard C Jr.

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Size 3 x 6¾ x 6¾,
4 x 5, £5 0 0.

CYCLE WIZARD C.
Size 6¾ x 3 x 6¾,
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Three double slides and strong carrying case included.

WIZARDS

WIZARD
Quarter-plates,

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Wonderfully attractive lines, entirely new, without an equal on the market at the prices.



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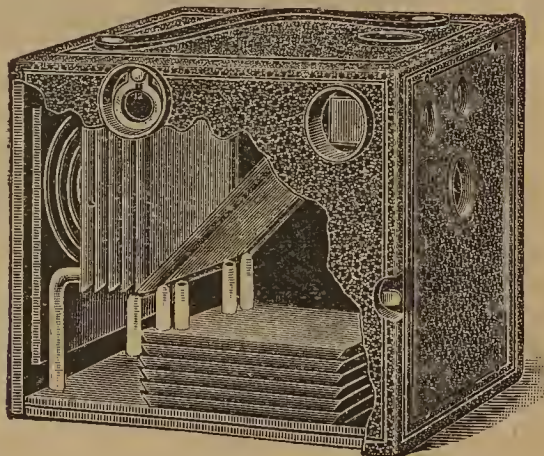
42 STYLES

Don't buy before seeing these new quarter-plates,
SEABROOK BROS. & CO., 21, Edmund Place, LONDON, E.C.

CYKO CAMERAS.

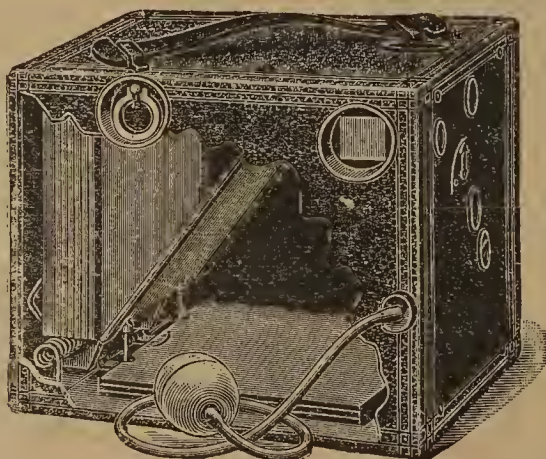
John J. Griffin and Sons, Limited, 20-26,
Sardinia Street, London, W.C.

Cyko photography is said to mean easy photography; certainly Messrs. Griffin and Sons' "cyko" cameras are calculated to enable the youngest amateur in the art of picture-making, to make a perfect picture with the least manipulation. The cameras are light, neatly finished in black leather, and equipped with first-class lenses and shutters. They are simply constructed, there being no complicated movements to be mastered, every piece of mechanism being fixed in its exact position, requiring no adjustment. They are reliable in action, and there is no tendency for any part to break down; the shutter always does its work at the critical moment, and the plates fall in order with precision. The No. 2 Magazine Cyko ($3\frac{1}{4} \times 4\frac{1}{4}$) is constructed to hold twelve plates, thus



enabling the operator to make a series of pictures without opening the camera to change the plates. All that is necessary is to give the nickle ring at the side a full turn and the exposed plate drops, leaving another ready for exposure. The lens is of the universal focus, achromatic, combination meniscus pattern, and is remarkable for its depth and definition. The shutter is of simple construction always set, requiring but a touch to make an exposure, automatically resetting itself without further effort. When twelve exposures have been made, the camera is opened at the back, and the tray carrying the twelve plates withdrawn. The price of this exceedingly practical camera is 26s. No. 1 ($2\frac{1}{2}$ by $3\frac{1}{4}$) and No. 3 (4 by 5) of the same series are sold at 16s. and 35s. respectively.

The No. 4 Improved Magazine Cyko ($3\frac{1}{4}$ by $4\frac{1}{4}$) is perhaps the most complete and reliable magazine camera ever produced at the price (35s.) It possesses a number of new features, the first in importance being a detachable bulb release which is intended to prevent

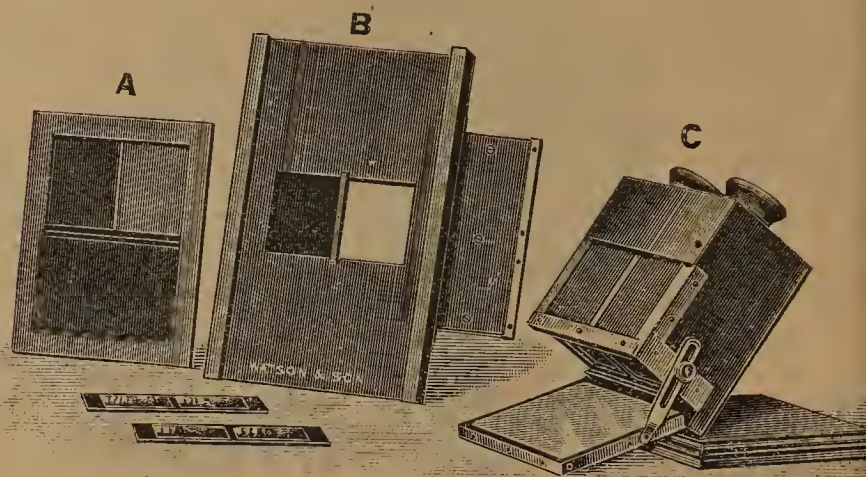


possible jarring of the camera, so often the cause of failure, the shutter resetting automatically by merely pressing the bulb; there is also a finger release which may be used. An automatic register shows the number of exposed plates, while the plate-holders are made of aluminium. It also possesses a set of diaphragms permitting three different openings with a cut-off, which, when set, locks the shutter, and so prevents accidental exposures. An unloading attachment permits any or all of the exposed plates to be removed without disturbing or handling those remaining. The lenses are of the combination achromatic meniscus pattern, consisting of a positive crown glass lens, combined with a negative flint glass lens, corrected for actinic light. The No. 5, Improved Magazine Cyko ($4\frac{1}{4} \times 5$) is sold at 45s.

KROMAZ COLOUR PHOTOGRAPHY.

W. Watson and Sons, 313, High Holborn,
London, W.C.

This is a simplified process by means of which the amateur may obtain perfect colour effects, with reasonable care, at a moderate outlay. The apparatus necessary for this process is shown in the accompanying illustration, and consists of—A, frame containing the set of colour screens through which the exposures are made; B, the repeating holder (or multiple back) which fits into the camera and carries at the back the colour screens and dark slide when making exposures; C, the stereoscope in which pictures are viewed to obtain the colour effects. The process may be worked on either quarter-plate or half-plate cameras. In the smaller size, four exposures must be made; in the larger, only two exposures are



required. These are made either by a pair of lenses or with one lens used in conjunction with the Kromaz mirrors, by means of which two stereoscopic images are obtained. The plate on which the exposures are made being half-plate size, the expense of special dishes, printing frames, and other accessories is consequently avoided. The system is based upon the well-known theory that all colours in nature are equivalent to mixtures of the three primary colours, red, blue-violet, and green, and by the use of the Kromaz apparatus, records of the exact quantity and distribution of each of these colours in any subject can be obtained. These records when combined and reproduced in the stereoscope form a faithful image in colour of the original. The prices at which the necessary apparatus for this process is supplied bring it within the reach of practically all photographers.

'CADETT' ROYAL DRY PLATE.

Cadett and Neall, Ashted, Surrey.

The Royal plate, recently introduced by Messrs. Cadett and Neall is likely to become very popular on account of the convenience of the packing, and the boxes marketed specially for amateurs, who, when on tour, under circumstances of difficulty in developing their plates soon after exposure, can repack them in the same way as sent out, film to film, using indiarubber bands to protect the films from damage, slips, accordingly, not being used.

TO THE ROYAL FAMILY.

TO THE PRINCIPAL COURTS AND GOVERNMENTS,
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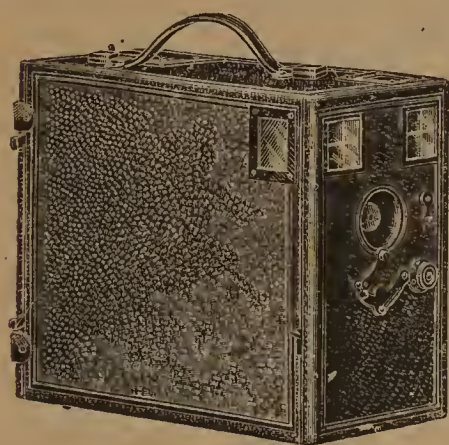
111, New Bond Street, London, W.

Estab. 1830. Works, CLAPHAM COMMON. Lists Free.

THE 'MIDG' HAND CAMERAS.

W. Butcher and Son, Blackheath, London, S.E.

Among the new hand cameras introduced for the coming season the 'Midg' series—Nos. 0, 1, 2, 3, 4—placed on the market by this firm, at 21s., 42s., 50s., 63s., and 84s. respectively, should become popular. The No. 0 camera weighs 2½ lbs., and measures



$8\frac{1}{2} \times 7 \times 4\frac{1}{4}$. It takes twelve $\frac{1}{4}$ -plates in sheaths; is fitted with a large diameter single achromatic view lens of good quality; time and instantaneous shutter, with speed adjustments; horizontal and vertical brilliant view finders. It is worked on the improved infallible changing system, has a recorder for the number of plates exposed. Screws and bushes are supplied with the camera for fixing to tripod.—The No. 2 'Midg' is marvellous value for money. It measures $9\frac{1}{4} \times 7\frac{1}{4} \times 4\frac{1}{4}$, and weighs 3½ lbs. The camera

carries twelve $\frac{1}{4}$ -plates in sheaths, and is fitted with rectilinear lens, with two adjustable diaphragms, focussing by sunk milled heads for all objects within eight feet. The time and instantaneous shutter has adjustable speeds from about one second to 1-90; it is set by turning a milled head, and released by a simple push. The plates are changed by a lever movement, an indicator showing the number of plates exposed. It has two brilliant finders; bushes for fixing to tripod, both horizontal and vertical way.—The novelty about the No. 4 'Midg' is that one movement only is required to expose the plate, change it, and set the next. This is done by pressing the lever shown in the illustration on the right-hand side of the camera. Like the others of the series, it is covered in handsome grained morocco, and takes twelve $\frac{1}{4}$ -plates in sheaths; it is, however, both larger and heavier, measuring $9\frac{1}{2} \times 7\frac{3}{4} \times 4\frac{3}{4}$, and weighing 4 lbs. It has a double achromatic rapid rectilinear lens, iris diaphragm, and focussing jacket to eight feet; two improved brilliant finders, placing the view correct way; and time and instantaneous shutter with adjustable speeds. In other respects it is somewhat similar to the rest of the series, having an indicator and bushes for fixing to tripod. Stiff waterproof cases, either tan or mail cloth, with shoulder strap, are supplied at an extra cost of 5s. 6d. and 7s. 6d. respectively.



and takes twelve $\frac{1}{4}$ -plates in sheaths; it is, however, both larger and heavier, measuring $9\frac{1}{2} \times 7\frac{3}{4} \times 4\frac{3}{4}$, and weighing 4 lbs. It has a double achromatic rapid rectilinear lens, iris diaphragm, and focussing jacket to eight feet; two improved brilliant finders, placing the view correct way; and time and instantaneous shutter with adjustable speeds. In other respects it is somewhat similar to the rest of the series, having an indicator and bushes for fixing to tripod. Stiff waterproof cases, either tan or mail cloth, with shoulder strap, are supplied at an extra cost of 5s. 6d. and 7s. 6d. respectively.

THE 'CADETT' ORTHOCHROMATIC LIGHT FILTERS AND P.O.P. PAPERS.

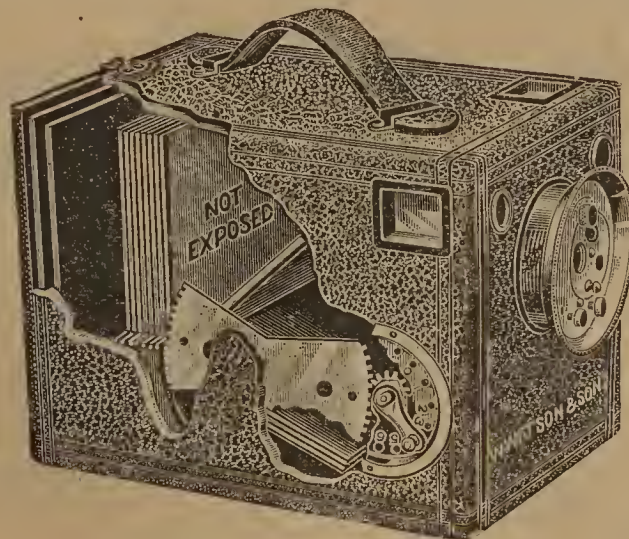
Cadett and Neall, Ashtead, Surrey.

Under the names 'Absolutus' and 'Gilvus,' this firm are issuing two kinds of orthochromatic light filters for use with the 'Cadett' lightning spectrum plates. The 'Absolutus' light filters render all colour luminosities correctly, with a small margin of error. Each filter is carefully tested with the latest form of Captain Abney's colour sensitometer. The best and most easily arranged position for the filter is immediately behind the lens in the camera, care being taken to exclude all reflected light between the filter and the lens; the filter can, however, be placed in any suitable position. When using the 'Absolutus' filter, exposures are increased twenty times under glass or in well-lighted studios, and about forty times out of doors. The 'Gilvus' filters render the violet, blue, and green luminosities correctly, leaving the red luminosities uncorrected. It is a compromise for use where rapid exposures are necessary, and it gives great improvement in landscape and portrait work. The exposure is only increased from four to six times. These filters are of no use for any other orthochromatic plate than the lightning spectrum plates, with which, however, they turn out most excellent work. The 'Cadett' P.O.P. of new tints is now on the market, and has, like the spectrum plates, been practically, by recent improvements, perfected. The bromide paper is certainly one of the best on the market.

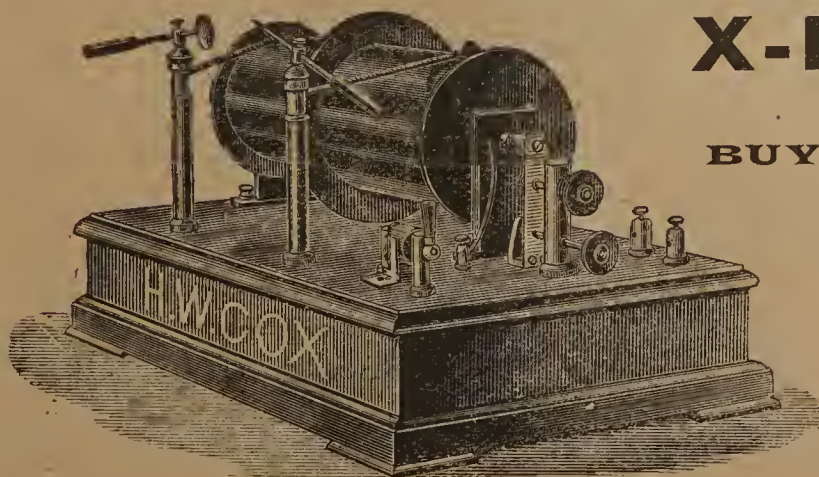
ROCKFORD 'TORNADO' MAGAZINE PLATE CAMERA.

W. Watson and Sons, 313, High Holborn, W.C.

The Rockford 'Tornado' Magazine Plate Camera is a new hand camera (prico, 35s.) which Messrs. Watson and Sons have just put on the market. As the name implies, it is of American origin, and is the latest and one of the best cameras of its type. It is of quarter-plate size, carrying twelve plates, or films, the changing of which is done by a novel and ingenious method, which at the same



time records the number of the exposure. The camera is fitted with a shutter available for either time or instantaneous exposures, and the lens is fitted in sliding tube with adjustment for varying distances.



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Our price list, with simple instructions how to set about work, will be sent post free to readers of the "Pharmaceutical Journal."

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Manufacturing Electricians,

10, 11, & 28, CURSITOR STREET, CHANCERY LANE, W.C.
SPECIAL DARK ROOM FOR DEMONSTRATIONS.

'VICTORIA' HAND CAMERAS.

James Woolley, Sons, and Co., Ltd., Victoria Bridge, Manchester.

For hand or stand exposures at long or short range, groups, portraits, interiors, buildings, etc., the 'Victoria' hand cameras are as good as can be produced at the price. The No. 0 (quarter-plate) camera, sold at 22s. 6d., is made of the best materials



throughout, and carries twelve plates, or twenty-four films. The arrangement for changing the plates being of the simplest and most perfect character. It has an accurate indicator, and is fitted with an achromatic meniscus lens, four varied diaphragms, time and instantaneous shutter, and two excellent view finders. The shutter has varying speeds. The No. 1 'Victoria' hand camera (35s.) is of an im-

proved pattern with focussing arrangement, which, however, is not shown in the illustration. It is covered with the best morocco leather, with good leather handle, has a capacity for twelve plates or films in sheaths, and has a very ingenious automatic changing arrangement by a lever movement, which also registers the exposures. It is specially adapted for instantaneous work and groups, being fitted with a superior achromatic lens with iris diaphragm, time and instantaneous shutter, having a speed regulator, and two brilliant view finders. As



each individual camera is subjected to a minute examination before being sent out, purchasers of 'Victoria' cameras may rely on getting a satisfactory instrument.

VELOX; ACID-HYPO CARTRIDGES, AND MOUNTS FOR VELOX.

Messrs. J. J. Griffin and Sons, Ltd., 20-26, Sardinia Street, London, W.C.

It is not generally known that two grades of Velox are made, each having three surfaces—matt, glossy, and rough. The two grades are put on the market in order to meet the requirements of amateurs who wish to print from negatives of varying densities. Ordinary Velox will give black prints from very thin negatives, whereas special Velox will give soft delicate results from negatives so hard that it would be impossible to print from them satisfactorily on ordinary P.O.P. or bromide paper. The special papers furthermore are about three times as rapid as the ordinary, and in manipulation more latitude is allowed to the operator in dodging or modifying solutions. With most of the Velox class the addition of bromide potassium though brightening the result tends to give greenish blacks. This is also the case with ordinary Velox, but with the special paper the restrainer may be added to a very large extent without affecting the beautiful rich

black of the print. Probably very few amateurs are aware that these two entirely different papers are made, hence it may be worth while for dealers in photographic goods to direct their attention to the fact.—*Acid-Hypo*: Messrs. Griffin and Sons now sell their well-known Acid-Hypo Fixing Cartridges in tins, and the quantity of the powder has been increased from 2 to 3 ounces, without any addition to the price. The fixing mixture, it is claimed, will keep in the tins without caking or liquefying for a very long time. The Acid-Hypo, it may be mentioned, is suitable for both plates and films, and has a hardening as well as a clearing action.—*Mounts for Velox*: The firm have a speciality in mounts manufactured to suit the tint of Velox and similar prints.

ROSS' NEW RAPID SERIES OF SYMMETRIC ANASTIGMATS.

Ross, Ltd., 111, New Bond Street, London, W.

Messrs. Ross, Ltd., have recently introduced a new series of symmetric anastigmats, as an improvement upon the 'Rapid Symmetrical' Series. Like the latter series of lenses, the symmetric anastigmats are corrected for the popular aperture F/8, and in



consequence of their extremely sharp definition and freedom from astigmatism extending equally over the whole surface covered, from margin to centre, they are eminently suitable for outdoor groups, and for the numerous requirements of the landscape photographer. With smaller stops they are excellent as wide-angle lenses for views, architecture, interiors, and copying. The shorter foci are specially adapted for hand cameras, the compact and convenient new form of setting with iris diaphragm being particularly suit-

able for that purpose. They are also very suitable for adaptation to between-lens shutters. The 'Universal' series of symmetric anastigmats, however, are the most generally useful lens for the professional or amateur photographer. They are aplanatic, working with the standard aperture F/5.6, superseding the formerly popular 'Universal Symmetricals' in consequence of their freedom from distortion and better covering properties. These lenses are suitable for all kinds of photography, and when adapted to cameras provided with focal plane or other quick shutters, are invaluable for animal studies, racing pictures, street scenes, and other work requiring very rapid exposures.

THE 'HOLBORN' DISH COVER.

George Houghton and Son, 88 and 89, High Holborn, London, W.C.

The 'Holborn' Dish Cover is very useful for protecting plates from the light during the process of development, fixing, etc. It is



made of xylonite, fits any dish of the same material, and can be slid on or off with the greatest ease. It is always advisable to keep a plate protected during development, even from the ordinary non-actinic light of a dark room. When the plate is under-exposed and requires prolonged development, this is especially the case, and the cover will make a dish sufficiently light-tight to allow even of actinic light being used in the dark-room if necessary. The cost of the dish covers is 5d., 6d., and 9d. each, according to size; complete with xylonite dish, 10d., 1s. 2d., and 1s. 8d. each.

DEALERS' PHOTOGRAPHIC CATALOGUE.

W. Butcher and Son, Blackheath, London, S.E.

Those dealers in photographic goods who desire to issue an illustrated catalogue of photographic materials, cameras, lenses, tripods, chemicals, etc., bearing their own names and addresses, and without indicating the maker of the goods, can have their wants met by Messrs. Butcher and Son, who have just published a new edition of such a catalogue, which they are prepared to supply to chemists at a cost of 25s. for two hundred and fifty copies.

Beginner's Guide to Photography. Revised and Enlarged. **Seventh Edition.** Cloth Covers. **Price 6d.**

ESTD.
1852.

Trade

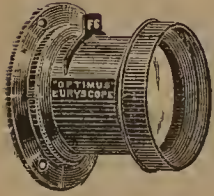
'OPTIMUS'

Mark.

Catalogue
Post Free.

DISCOUNTS TO THE TRADE AND PROFESSION ON APPLICATION.

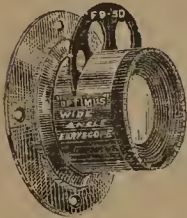
'OPTIMUS' RAPID EURYSCOPE.



The Aperture is F/6. The Lenses are of Special Optical Glass, constructed with the nicest precision of curvatures, so maintaining good marginal definition, coupled with the most extreme rapidity.

5×4	7×5	8×5	9×7	10×8	12×10
63/-	94/6	110/-	126/-	190/-	290/-

'OPTIMUS' WIDE-ANGLE EURYSCOPE.



F/9.50. This Aperture is exceedingly open for wide angle work. The definition, however, is in no way sacrificed, as the curvatures are most perfectly accurate, and the most minute detail in architectural and interior subjects is rendered with the minimum of crispness, and a total absence of distortion.

To cover	5×4	7×5	9×7	10×8	12×10
Price ..	63/-	94/6	126/-	190/-	290/-

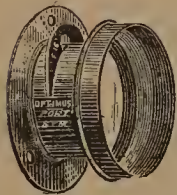
'OPTIMUS' RAPID RECTILINEAR.



Aperture F/8. Second only to the above for rapidity, therefore well suited for instantaneous effects, outdoor groups and views, as well as interiors; copying and enlarging are also within the capabilities of this lens—in fact, its work may be styled UNIVERSAL.

5×4	6×5	7×5	8×5	9×7	10×8	12×10	15×12	18×16
36/-	50/-	56/-	70/-	80/-	105/-	120/-	145/-	185/-

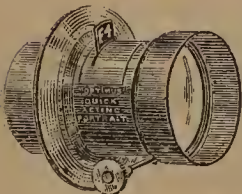
'OPTIMUS' WIDE-ANGLE. SYMMETRICAL.



Aperture F/16. Specially adapted for Architecture. Can be used to advantage when very close to the subject.

5×4	7×5	9×7	10×8	12×10	15×12	18×16
42/-	53/-	80/-	105/-	120/-	145/-	185/-

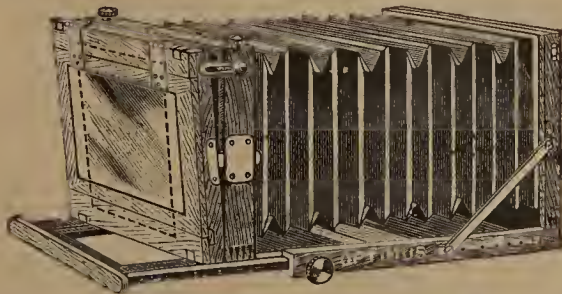
'OPTIMUS' QUICK-ACTING PORTRAIT.



Aperture F/4. Specially constructed for short exposures in Portraiture. They are second to none, definition being maintained by their perfect optical qualities.

Diameter .. inches	2	2 1/4	3 1/2
Price	90/-	120/-	180/-
	1B	2B	3B

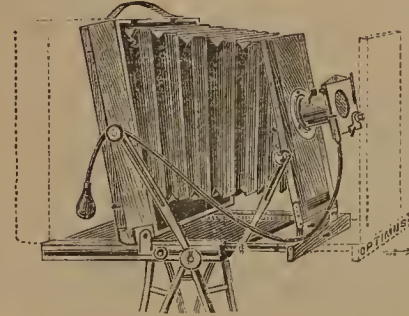
'OPTIMUS' LONG FOCUS CAMERA.



This Instrument can be set up almost instantaneously, has no loose parts, and includes all motions, having hinged focussing screen (adjusted by rack and pinion action) double swing back, cross fronts, reversing back arrangement so that oblong dark slides give either horizontal or vertical pictures without unscrewing the Camera from the tripod.

Price of Camera, including Three Double Dark Slides—

4 1/4 × 3 1/4	5 × 4	6 1/2 × 4 3/4	8 1/2 × 6 1/2	10 × 8	12 × 10	15 × 12
130/-	133/-	137/-	175/-	237/-	290/-	335/-



'OPTIMUS' IMPROVED PATENT WIDE ANGLE CAMERA.

EXTRA LONG FOCUS.

British Journal of Photography says:—

"The present Model Camera is among the VERY LIGHTEST of actually RIGID Cameras offered to the public. . . ."

"The RAPIDITY of OPENING and CLOSING is greatly facilitated by the additional arrangement for throwing the pinion out of gear from the rack.

"There is NO CURTAILMENT OF VIEW when lenses of short focus and wide angular aperture are in use.

"ALL MOVEMENTS NECESSARY to the modern scientific photographer are included in this COMPACT instrument."

Price includes Three Double Dark Slides—

4 1/4 × 3 1/4	5 × 4	6 1/2 × 4 3/4	8 1/2 × 6 1/2	10 × 8	12 × 10	15 × 12
120/-	126/-	145/-	168/-	230/-	278/-	334/-

'OPTIMUS' PHOTOGRAPHIC OUTFIT.

Including 'Optimus' Camera, Three Double Dark Slides, 'Optimus' Rapid Rectilinear Lens, Instantaneous Shutter, Tripod, Waterproof Case, complete—

4 1/4 × 3 1/4	5 × 4	6 1/2 × 4 3/4	8 1/2 × 6 1/2	10 × 8	12 × 10	15 × 12
200/-	220/-	240/-	300/-	400/-	500/-	620/-

This Outfit with Extra Rapid Euryscopic Lens, instead of Rapid Rectilinear, extra—

27/-	27/-	37/-	46/-	78/-	150/-
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'OPTIMUS' IMPROVED UBIQUE CAMERA.



ROLLER
BLIND
SHUTTER.

EXTRACT FROM *The British Journal Photographic Almanack*:—

"Since our last reference to this little instrument, two important improvements have been added to it, viz., an arrangement for swinging the back, in either the horizontal or the vertical positions, and a rising and falling front. This hand camera includes rack and pinion focussing adjustment (actuated from outside) and a ground glass screen, an 'Optimus' rapid lens, roller blind shutter, and three double dark slides. As all are enclosed within the camera, it is self-contained. Two threaded nuts are fitted, which receive screws for attachment to a tripod, allowing either the vertical or horizontal positions. The camera being so small—it may be conveniently held in the hand."

The external dimensions are 4 3/8 × 5 3/8 × 3 3/8 inches, and the black outside leather with which it is covered is really of good quality.

With "OPTIMUS" Rapid View LENS	55/-
" " " Rectilinear	80/-
" " " Euryscope	100/-

The above Camera fitted with RISING FRONT, } 15/- extra.
also with Horizontal and Vertical SWING BACK }

'OPTIMUS' UBIQUE CAMERA.

Perken, Son, and Co., Limited, 99, Hatton Garden,
London, E.C.

The 'Optimus' Ubiique Camera, which has been on the market now for some years, and year by year has been improved, has now been arranged so that the Kodak cartridge roll-holder can be fitted if desired, and a model is made with an extension arrangement, so that copying can be done or long focus lenses used for distant views. The object of the makers of this camera has been to place on the

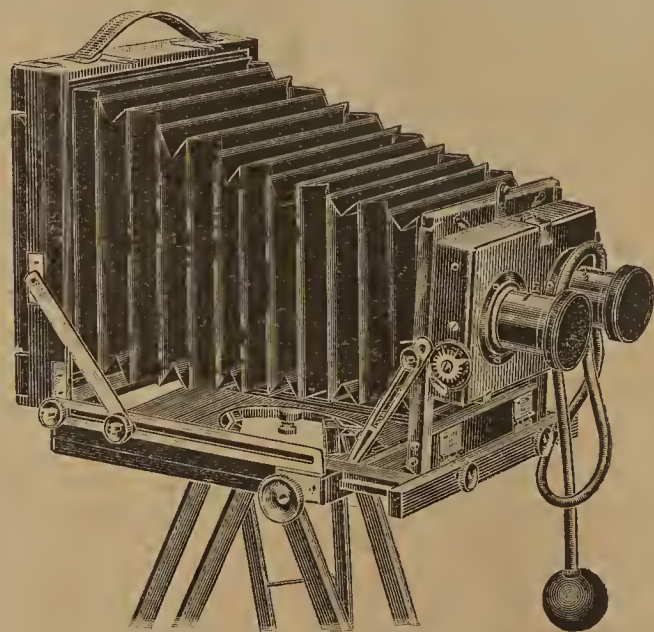


market a hand camera fitted with ordinary dark slides for dry plates, and to arrange an instrument that, while essentially a hand camera, and capable of taking snap-shots at a moment's notice, yet is fitted with all the movements of an ordinary stand camera, and so permitting every kind of photographic work to be done. The prices are low, and the discount a good one.

'PRIMUS' PICTORIAL OUTFIT.

W. Butcher and Son, Blackheath, London, S.E.

A very useful outfit is the No. 6 stereoscopic $\frac{1}{2}$ -plate Pictorial Outfit, supplied by this firm at £6 10s. It consists of a mahogany polished camera, having a reversing and swing back, which moves swing and rising front forward, for use with wide angle lenses, turntable in base, and an extra front and stereoscopic division which is removable; mahogany polished book-form dark slide of best quality; a pair of stereoscopic, double achromatic, rapid

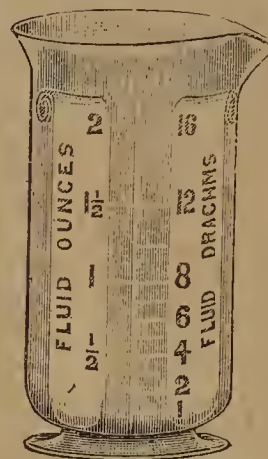


rectilinear lenses, with iris diaphragms or a $\frac{1}{2}$ -plate achromatic casket set for pictorial effects, complete in case, giving fourteen different combinations, including ordinary rectilinear mid-angle and wide-angle, also the single combinations; 'Swift' stereoscopic time and instantaneous roller-blind shutter, with speed indicator—can be used also for single lenses—and loose lens panel; rule joint three-fold ash stand, with bottom leg sliding and fitted to turntable. If both stereoscopic and casket set of lenses are required the price of the complete outfit is eight guineas.

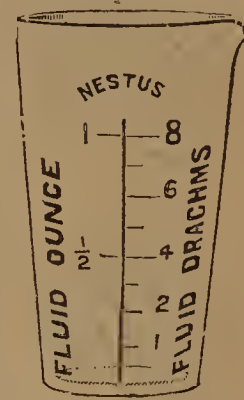
GLASS MEASURES AND BOTTLES FOR PHOTOGRAPHIC CHEMICALS.

F. H. Taylor and Co., 1, Errol Street,
Whitcross Street, London, E.C.

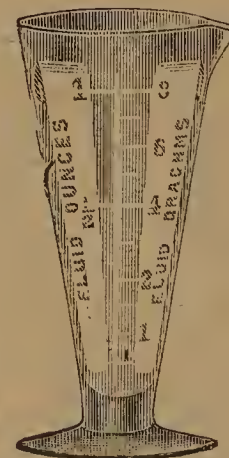
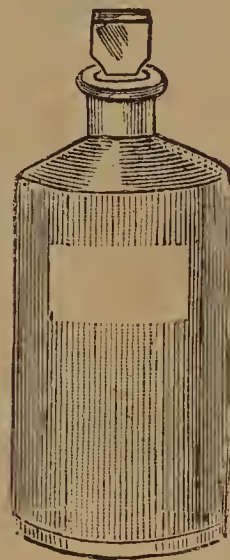
Accuracy and legibility of the scale markings on glass graduates are essential to photographers, hence the "Clear Letter" measures manufactured by Messrs. Taylor and Co. will doubtless be highly



appreciated by both amateurs and professionals. The measures are neat and accurate, and are supplied either stamped or unstamped. They show clear transparent letters and figures on a white ground-work, and are specially adapted for the photographic dark room. "Clear Letter" measures are manufactured in two shapes, conical and cylindrical, covering all sizes from 1 drm. to 40 ozs. The



"Nestus" photo measure supplied by this firm is very easy to clean, has a good sound base, and is the cheapest crystal measure manufactured for photography. The chief feature of the "Markus" bottles is that they have a plain white badge upon which may be written



any label that is required. It can be cleaned with a damp sponge and relabelled when the bottle is used for other chemicals. The white badge is permanent and can be changed as often as desired. We also illustrate engraved measures of which the firm keep a very large stock, in all sizes.

SALMON'S VIGNETTER.

Salmon and Son, 169, Hampstead Road,
London, N.W.

Salmon's Vignetter is a perfect device for all contact printing, the operator being able to place the vignetting cards, by means of metal grooves, at various distances from the negative, and at an angle. Twelve vignetting cards are supplied with the vignetter, the price for the $\frac{1}{4}$ -plate size being 2s.

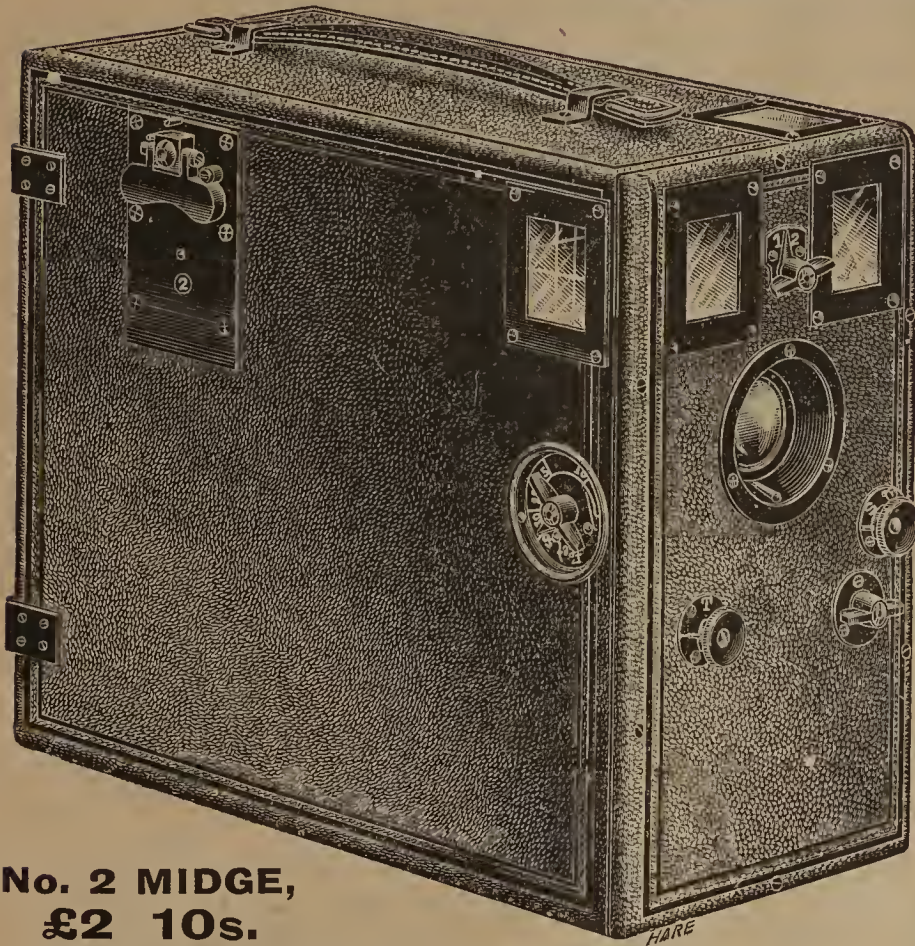
LOCKET EXPOSURE METER.

The "Infallible" Exposure Meter Company,
Wrexham.

Wynne's "Infallible" photographic exposure meter is well known as "an unerring guide to the correct exposure required for every speed of plate on every kind of subject, and under every condition of light." A modified form of that useful apparatus is now made in the shape of a dainty circular locket, 25 Mm. in diameter, and 8 Mm. thick, which is made in sterling silver, and is exceedingly ornamental. The actinometer time is determined by turning the glass face of the locket, and two scales engraved around the periphery are adjusted in a similar manner to those in the ordinary meter made by the same firm.

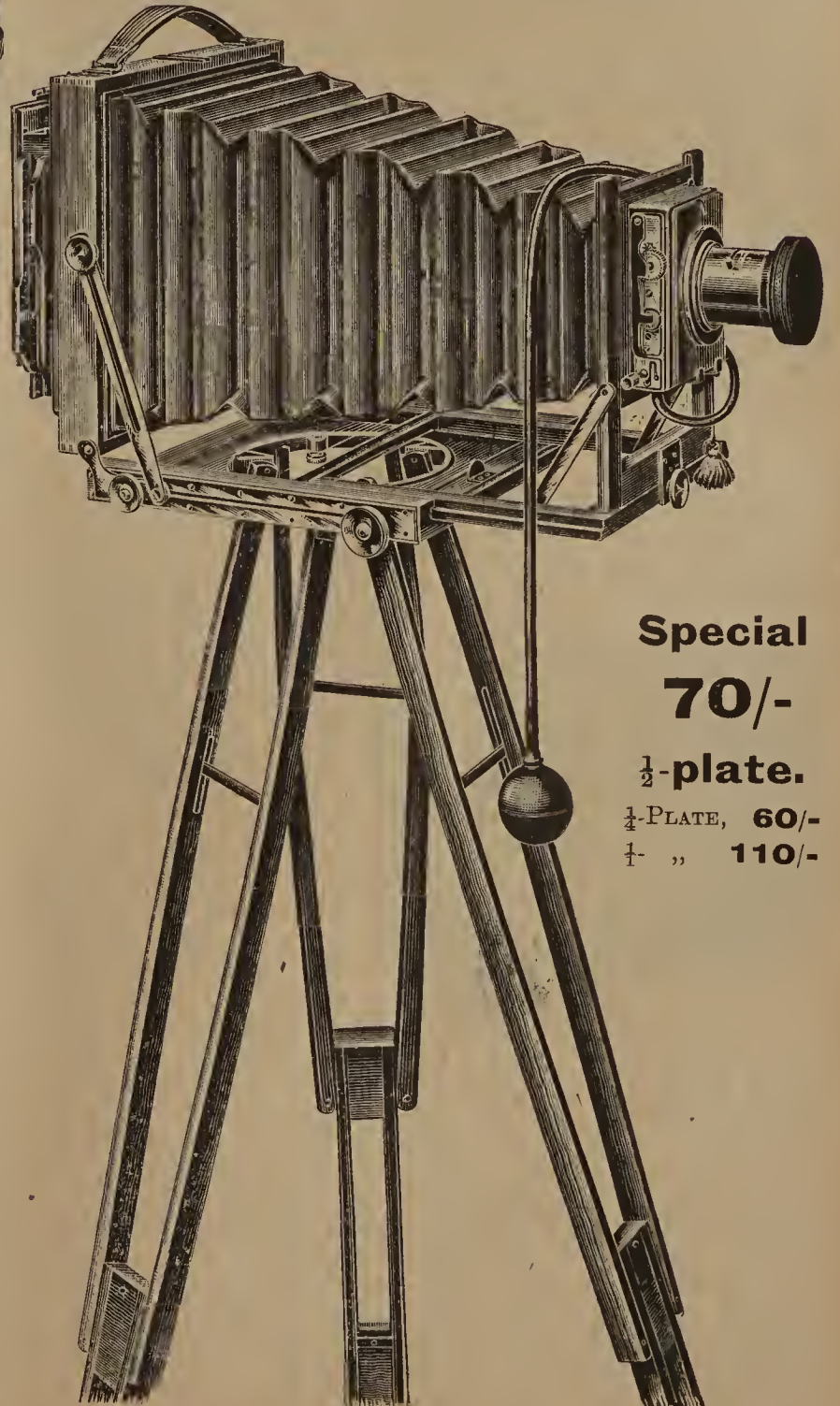
MIDGE HAND CAMERAS

BEST VALUE.



No. 2 MIDGE,
£2 10s.

- | | | | | |
|---------|---|---|----|----|
| No. 0.— | Twelve quarter-plates or eighteen films, single achromatic lens, brilliant finders | £ | s. | d. |
| | | 1 | 1 | 0 |
| No. 1.— | Twelve quarter-plates or eighteen films, rectilinear lens, focussing, brilliant finders | 2 | 2 | 0 |
| No. 2.— | Twelve quarter-plates rectilinear lens, focussing, brilliant finders, leather covered, as illustrated .. | 2 | 10 | 0 |
| No. 3.— | Twelve quarter-plates, R.R. lens, Iris focussing, reversed brilliant finders | 3 | 3 | 0 |
| No. 4.— | Twelve quarter-plates, R.R. lens, Iris, reversed brilliant finders, one movement exposes and changes the plates | 4 | 4 | 0 |



Special
70/-
½-plate.
¼-PLATE, 60/-
1- " 110/-

PHOTOGRAPHIC OUTFITS

- 30/- HALF-PLATE OUTFIT.**—Mahogany polished Camera, combed corners, Reversing and Swing Back, one Slide, Achromatic View Lens and Metal Shutter, two-fold Stand with Straps. **WONDERFUL VALUE.** Quarter-plate Outfit, 21/-.
- 60/- HALF-PLATE OUTFIT.**—Includes polished Mahogany Camera Rack and Pinion Focussing, Reversing Back, &c., one Slide, Achro Rapid Rectilinear, Iris Lens, three-fold Stand, Roller-Blind Shutter Quarter-plate 42/- Whole-plate, 90/-.
- 70/- HALF-PLATE OUTFIT.**—Includes polished Mahogany Camera, with every movement, including for Wide-angle Lenses, one Double Dark Slide, Turntable fitted to Camera, Achromatic R.R. Lens, Roller-blind Time and Instantaneous Shutter with Speed Indicator, three-fold Rule Joint Stand (as illustration). Quarter-plate, no turntable, 60/- Whole-plate, 110/-.
- 84/- HALF-PLATE OUTFIT.**—Includes polished Mahogany Camera, with every required movement, best quality Double Dark Slide, best Leather Bellows, Achromatic R.R. Lens, 'SWIFT' Roller-blind Time and Instantaneous Shutter, three-fold polished Ash Stand. **VERY HANDSOME.** Quarter-plate, 75/- Whole-plate, 140/-.

Every description of Cameras and Apparatus supplied.

FULL PRICE LIST NOW READY. FREE ON APPLICATION.

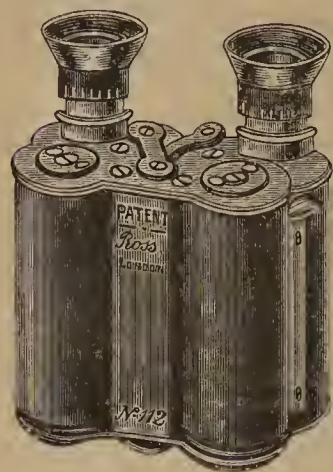
SPECIAL 1900 CIRCULAR of above OUTFITS with fuller Particulars Now Ready a supply of which can be had by any Dealer for giving to their Customers.

W. BUTCHER & SON, BLACKHEATH,
LONDON, S.E.

'ROSS' PRISMATIC BINOCULAR GLASSES.

Ross, Limited, 111, New Bond Street, London, W.

Ross' (Patent) Prismatic Binocular Glasses during the past few months have played no small part in the affairs of the British nation in South Africa, they having been supplied to and used by General Sir Redvers Buller and hundreds of officers of the South African Field Force. Combining extreme portability with high power, perfect mechanical construction and exquisite definition, they possess the power of a telescope in the compass of an opera glass. They are constructed in four sizes, with magnifying powers of 6, 8, 10, and 12 diameters, at prices ranging from £8 to £10, and are mounted in two ways for focussing. In the first way (see illustration) each eyepiece has a spiral motion, and may be focussed separately, so as to allow for differences in refraction of the eyes. Once carefully adjusted the operation need not be repeated, as the spiral-moving eyecups have engraved divisions to permit of registering the most advantageous position. In the



second way the focus is obtained by actuating a milled head, conveniently placed between the eyepieces, while one of the eyepieces has a spiral movement to compensate for any inequality of the eyes. Re-focussing is rarely needed, even when lengthened observations are being made, as, if the binocular is focussed on an object at a range of about 100 yards, more distant objects will be quite distinct; also those nearer, within a reasonable limit. Being of great strength and rigidity of construction the Ross prismatic binoculars will remain in perfect alignment and working order unless submitted to rough or undue usage, the prisms and lenses not requiring to be interfered with. Each binocular is supplied with a best quality leather sling case, which is claimed to be smaller and neater in appearance than those supplied with any other prismatic binoculars of equal power.

THE 'REGNA' HAND CAMERA,

George Houghton and Son, 88 and 89, High Holborn, London, W.C.

The 'Regna' Hand Camera is a useful little instrument and, despite its lowness in price (12s. 6d.), is capable of producing first-rate work. It carries six plates ($4\frac{1}{2} \times 3\frac{1}{2}$) in metal sheaths of special design, which are changed automatically by drawing out the small knob in the top of the camera front, and pressing it home again. Exposed plates can be removed through the back of the camera without interfering with the unexposed ones. It is fitted with a chromatic view lens, time and instantaneous shutter, two view finders, and a reliable changing movement



already referred to. The camera is well finished throughout, covered in waterproof material, and fitted with leather handle for carrying.

PHOTOGRAPHERS' PEERLESS NOTE BOOK.

George Houghton and Son, 88 and 89, High Holborn, London, W.C.

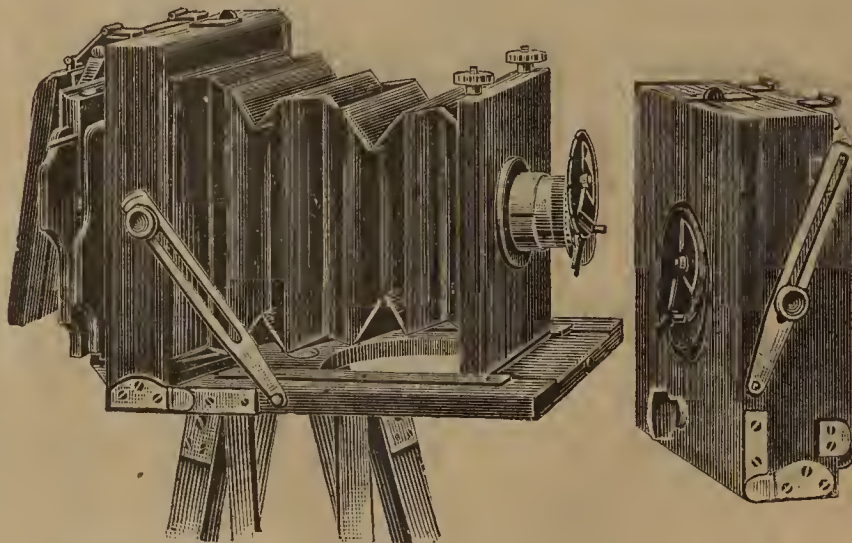
This note book, edited by Mr. Walter D. Welford, and published conjointly by Messrs. Charles Letts and Co. and Messrs. George Houghton and Son, is almost indispensable to amateur photographers. It provides space for the systematic record of upwards of five hundred exposures, and contains tables whereby the correct exposure of all subjects under all con-

ditions may be readily ascertained. Photographic formulæ, weights and measures, etc., are also given in concise form, together with a tourists' directory of photographic dark rooms, dealers, etc.; there is also a self-opening memo. tablet and an insurance ticket for £500. The utmost thought appears to have been given to every detail of its production, and the result is a very thin, compact, thoroughly complete and practical note book, which may be had at a cost of one shilling.

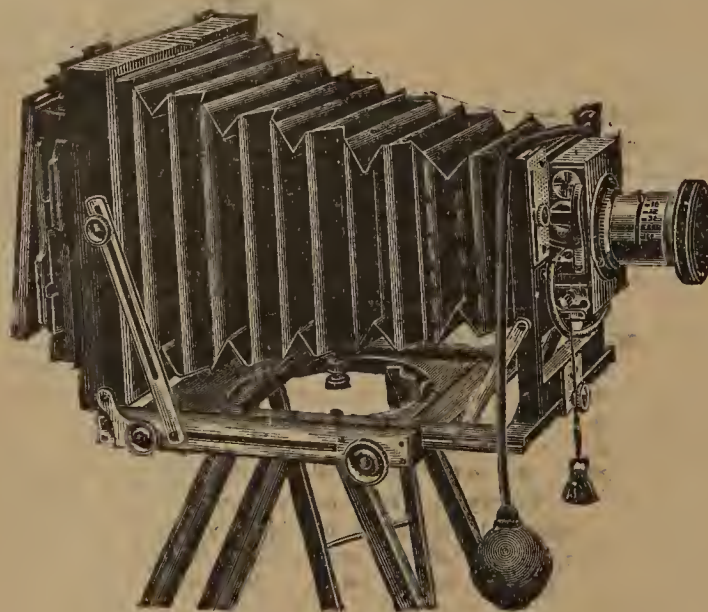
'PRIMUS' PHOTOGRAPHIC' OUTFITS.

W. Butcher and Son, Blackheath, London, S.E.

The 'Primus' outfits comprise camera, dark slide, lens, shutter, and stand; and range, from No. 1 to No. 11, at prices from 15s. upwards. The No. 2 $\frac{1}{2}$ -plate outfit, at a guinea, is an extremely useful instrument for the young amateur. The camera is of polished



mahogany, having combed corner body, good cloth bellows, reversing and swing back. It is fitted with a polished mahogany double book form dark slide, having hinged shutters; good quality, single achromatic slide focussing lens, and three speed revolving spring, time or instantaneous shutter. The stand is of the two-fold pine order, with metal top and two straps. No. 3 is a special $\frac{1}{2}$ -plate outfit, sold at £3, and is very good value. It consists of a mahogany



polished camera, with Russian leather bellows, reversing and swing back, double extension, back slides for wide angle lenses, and rising front; turntable; mahogany polished dark slide of book form pattern, doubled hinged with spring catches; double achromatic rapid rectilinear lens, iris diaphragm; 'Swift' snap-shot roller blind shutter, with speed indicator, loose lens panel and pneumatic release; three-fold ash stand, with patent turn button and straps. For 70s. Messrs. Butcher supply a somewhat similar camera to the No. 3, but of an improved type, and is well worth the extra ten shillings.

VARIOUS PHOTOGRAPHIC NOVELTIES.

George Houghton and Son, 88 and 89, High Holborn, London, W.C.

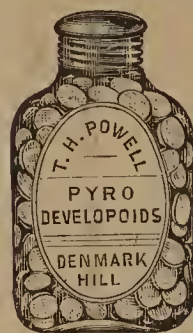
Messrs. Houghton and Son have on view in their fine show-room in High Holborn many novelties in photographic goods, all of which are worthy of attention, but space will only permit of a few being briefly noticed here. The war is at present uppermost in the thoughts of most British people, hence the 'ROYALTY' SERIES OF WAR SLIDES (3s. 6d. each), the first list comprising some forty-four photographs taken since the outbreak of the war by staff officers and others at the front.—The 'WEISS' POCKET FLASHLIGHT APPARATUS (8s.) is constructed to contain every utensil necessary for flashlight photography, including the powder, in a nickel-plated case, similar in size and shape to that of an ordinary cigar case.—The 'PERSPECTOSCOPE' (6s. 6d.) is a simple apparatus for giving stereoscopic effect to single pictures. Scientifically speaking, it is a stereoscope, but it is constructed on quite a different principle, requiring but one picture, whereas the stereoscope requires two pictures.—A new cheap retouching desk, the slope of which can be easily varied, is the 'NO. 5' RETOUCHING DESK (3s. 6d.). It is of novel form, well made in varnished teak, the base and steel frame being detachable, and can be inserted the reverse way of the carriers, thus making the desk suitable for both upright and oblong negatives.—A handsome set of nickelled SCALES AND WEIGHTS, with ebonised base, weighing from ½ drachm up to 4 ounces, may be obtained for 6s. 6d.—To facilitate the work of cutting out perfectly circular photographs of any size, the 'BEAM' CIRCULAR TRIMMER (7s. 6d.) has been introduced, and appears to do its work simply and efficiently. The 'ARGUS' PRINT AND CARD TRIMMER is arranged with the cutting blades on the shear principle, giving clean, smooth edges to the print. Prices range from 6s. 6d. to 28s., according to the length and strength of the cutting blades.—For compactness, rigidity, and neatness the 'PORTABLE' TRIPOD STAND (6s. 6d.) will be hard to beat; while the 'FEATHERWEIGHT' (7s. 6d.), a very light and portable threefold tripod stand, made for use with hand cameras, weighing only 19 oz., and when folded measuring 19 × 1½ × 1½ inches, is a specially suitable stand for cyclists.—The 'HOLBORN' MOUNTANT (in white glass, nickel capped, 3 oz. and 8 oz. jars, at 6d. and 1s. each) has been specially prepared to meet the requirements of both amateur and professional photographers, and is equally serviceable for any purpose for which a mountant is required.—A SET OF THREE TANKS in box for "washing," "fixing," and "alum," respectively, is good value at 3s. 9d. The 'SIMPLEX' WASHING TROUGH, for nineteen ¼-plates and nine ½-plates, is a new, cheap form of trough, black japanned, with syphon and removable zinc back; price 1s. 3d. each. A superior article of an improved pattern in zinc is the 'A. 1' ZINC WASHING TROUGH (3s. 6d.), for fifteen ¼-plates and seven ½-plates.—The 'ANTI-SPLASH' (1s.) is a handy filter, easily fixed to any tap, which prevents splashing; also no solid particles can pass through.—Several improvements have been added to the 'HOLBORN' HAND CAMERAS for the 1900 season, making them as complete and perfect instruments as it is possible to obtain. The additions include, among others, a complete set of magnifiers for taking portraits or near objects at 3 ft., 5 ft., and 9 ft.; bushes and tripod screw for using the camera both upright and

oblong way. The principal improvements in the 1900 'HOLBORN 21s.' HAND CAMERA are new waterproof covering material, equal in appearance to the finest leather, but superior in wear; automatic recorder; new diaphragm plate, and cover of registered design.—In stand cameras the 'EMPRESS' CAMERA SET (¼-plate, 21s.; ½-plate, 32s. 6d.) is a perfect marvel of value. The 'VICTO' complete ½-plate set, with Thornton-Pickard snap-shot shutter, is also good value at £3 10s. A similar set, but of superior finish, is that known as the 'BRASS BOUND VICTO,' specially suitable for export trade and for use in hot climates. This is made in various sizes, at prices ranging from £4 to £14 5s.—The 'SANDERSON' HAND AND STAND CAMERAS are so well-known as to need no mention here, it being sufficient to say that they continue to deserve the high reputation they have already acquired.

POWELL'S COMPRESSED DEVELOPERS AND TONING BATHS.

T. H. Powell, 116, Denmark Hill, London, S.E.

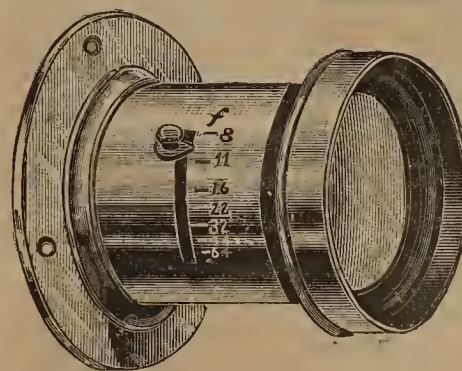
These developers and toning baths are put up in the smallest compass compatible with practical utility. They give the finest possible results and are invaluable to travellers, whether by sea or land, and are equally useful in the dark room, superseding bulky solutions, and being in a dry condition they neither spoil nor decompose. The Pyro "Developoids" shown in the illustration are small, compressed tablets, of such strength that one dissolved in 1½ ozs. of water will develop a quarter-plate. "Developoids" of Hydrokinone, and also for both restraining and accelerating, are supplied by Mr. Powell, who, it may be mentioned, claims to have been the first to introduce compressed developers into Eng-



land (in 1889).

THE 'FARRINGDON' RAPID RECTILINEAR.

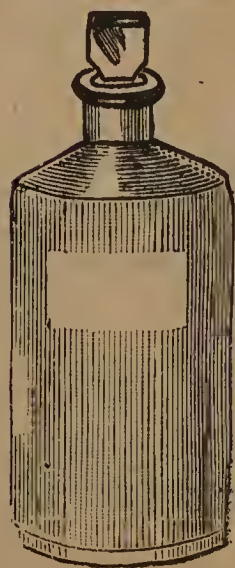
Barclay and Sons, Limited, 95, Farringdon Street, London, E.C.



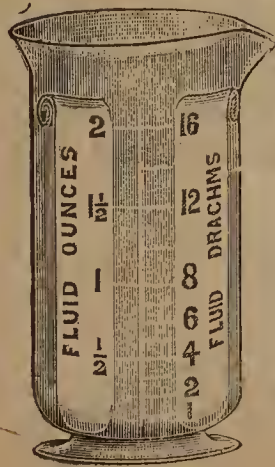
Messrs. Barclay and Sons, Limited, have a large assortment of lenses for all classes of work, a specialty being the 'Farringdon' Rapid Rectilinear—illustrated herewith—working at F/8; with index or ring iris diaphragm. It may be had to cover ¼, ½ or whole-plate, the focal length being 5½, 9, and 11 inches respectively, and the prices 13s. 6d., 15s. and 22s.

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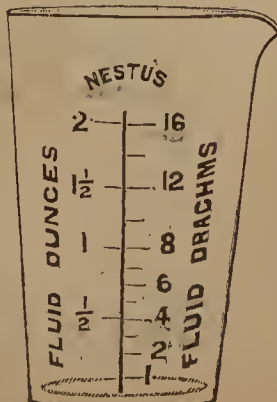
Errol Street, Whitecross St., LONDON, E.C.



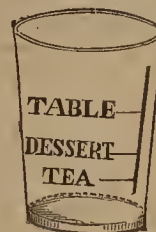
MARKUS' PENCIL LABELS.



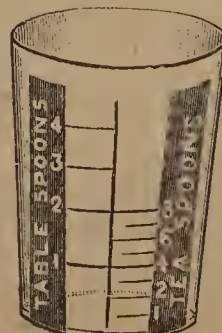
"Clear Letter" for Dark Room.



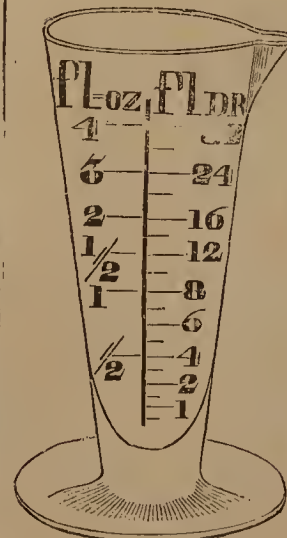
"Nestus" for Cheapness.



Engraved Medicine Tumblers.



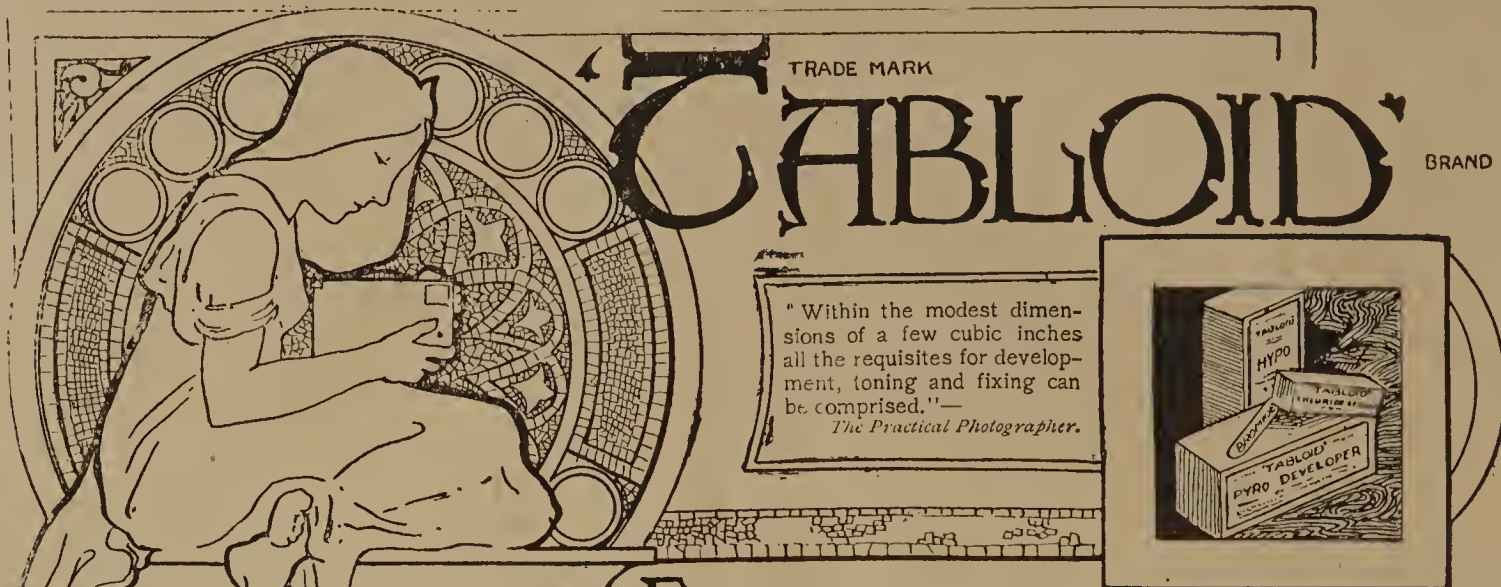
Clear Letter Medicine Tumblers.



ENGRAVED MEASURES

PRICES POST FREE.

Correspondence invited.



PHOTOGRAPHIC CHEMICALS

LIST.

Developing.

- 'TABLOID' Brand
 ,, AMIDOL DEVELOPER.
 ,, EIKONOGEN DEVELOPER.
 ,, GLYCIN DEVELOPER.
 ,, HYDROQUINONE (Quinol)
 DEVELOPER.
 ,, METOL DEVELOPER.
 ,, METOL-QUINOL DEVELOPER.
 ,, ORTOL DEVELOPER.
 ,, PYRO DEVELOPER.
 ,, PYRO-SODA DEVELOPER
 (Ilford Formula).

In cartons complete, 10s. per dozen.

Accessory.

- 'TABLOID' Brand
 ,, AMMONIUM BROMIDE.
 ,, AMMONIUM PERSULPHATE.
 ,, POTASSIUM BROMIDE.
 ,, SODIUM CITRATE.
 ,, SODIUM SULPHITE.

In tubes, 4s. per dozen.

Toning.

- 'TABLOID' GOLD CHLORIDE,
 with Borax,
 Sodium Bicarbonate,
 Sodium Formate,
 Sodium Phosphate,
 or Sodium Tungstate.
 'TABLOID' PLATINUM COMPOUND.

In cartons complete, 10s. per dozen.

Fixing.

- 'TABLOID' SODIUM THIOSULPHATE
 ('Hypo.')

In bottles, at 4s. per dozen.

"Within the modest dimensions of a few cubic inches all the requisites for development, toning and fixing can be comprised."—
The Practical Photographer.



'TABLOID' Brand Chemicals offer many advantages both to experts and beginners. They are made from chemicals of the finest quality, divided, ready for immediate use, into accurate and convenient quantities. They keep perfectly and are always reliable. Dissolved in water they at once produce fresh, active solutions. Their use entirely does away with complicated formulae, weights and scales.



THEY ENABLE THE PHARMACIST to stock a complete equipment of photographic chemicals for all ordinary purposes in a small space and at a small cost. There is no fear of loss owing to deterioration, as with many ordinary photographic chemicals and solutions.



PHOTOGRAPHIC PAMPHLETS GRATIS. — A new and enlarged edition of "Practical Points" is now ready, and supplies will be sent to chemists free on request.



Burroughs Wellcome and Co.

LONDON and SYDNEY.

NEWS IN BRIEF.

MR. W. ELBORNE, of Peterborough, has been appointed Public Analyst for that city.

MR. CHARLES WASS, M.P.S., has purchased the old-established business at Holbeach, carried on for the last twenty-two years by Mr. J. Best, who has retired.

MR. A. G. JEFFREY, of Londonderry, a Student-Associate of the Pharmaceutical Society of Great Britain, has joined the Imperial Yeomanry, and sailed for South Africa on Wednesday last.

THE EASTER VACATION.—The Pharmaceutical Society's premises in London and Edinburgh will be closed on April 13, 14, 15, and 16. Normal conditions will set in on Tuesday, 17th inst., at 9 a.m.

THE MUNICIPAL ENCOURAGEMENT OF PHOTOGRAPHY is to be discussed by Mr. Thomas Bedding (editor of the *British Journal of Photography*) at a meeting of the Royal Photographic Society on Tuesday, April 10.

THE BRITISH PHARMACEUTICAL CONFERENCE, 1900, General Committee, will meet at 16, Bloomsbury Square, London, W.C., on Tuesday next, April 10, to receive the report of the Local Executive Committee, and to discuss future arrangements.

MR. ALFRED FENNINGS, Chemist and Druggist, of Cowes, Isle of Wight, who died on January 7, aged 84, left personal estate valued at £72,526, and bequeathed £1,000 to the Society for the Relief of Aged and Infirm Ministers, and £1,000 to the Society for the Relief of Necessitous widows of Protestant Dissenting Ministers.

MR. JAMES LLOYD (chemist and druggist, 123, Battersea Rise) and his family were very much startled on Tuesday, March 27, whilst having tea in the shop-parlour, by the entrance into the shop, through the closed glass door, of a horse between the shafts of a light cart, the whole door frame and fanlight being smashed up.

MR. HUGH KERR, M.P.S., Dalbeattie, is a volunteer in the Galloway Rifles, and the author of a new spirited patriotic song, "Our Watchword," which appears to have "caught on" locally, and has been favourably noticed by the Scottish press. Mr. Kerr, who is an excellent shot, has made arrangements for his business to be conducted by a qualified manager should he be called to the front.

NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION.—A meeting of this Association will be held on Wednesday, April 11, at 8.30 p.m., at the Hotel Metropole, Newcastle-on-Tyne. Mr. C. Ridley (President of the Association) will read a paper entitled "The Botany and Materia Medica of the Bible." This being the last meeting of the session, members are requested to make it convenient to be present, as various items of interest will be brought before the meeting.

THE CHEMISTS OF BIRKENHEAD AND DISTRICT, at a meeting held on Tuesday, April 2, decided to form a local association, and that the name should be "The Birkenhead and District Chemists' Association." Mr. Cragg James was elected president, Mr. Dutton vice-president, Mr. Breeze treasurer, and Mr. Hicken secretary. Meetings are to be held quarterly, or oftener when necessary, the object of the Association not being so much educational as for social and trade purposes.

NORTH LONDON CHEMISTS' MEETING.—A meeting of the chemists of Hampstead, St. Pancras, Islington, Hackney, and adjoining districts will be held at "The Old Cock Tavern," Highbury, on Wednesday afternoon next (April 11), at three o'clock. Entrance by saloon door, near Highbury Station doors. The meeting will be in easy, conversational style. Agenda: To discuss the subject of defence against vexatious prosecutions, insurance against risks in selling medicine, and (if time permit) any other business brought forward. The Chairman, Secretary, etc., of the Chemists' Defence Association are expected to be present. Note: Only registered chemists are invited.

TRADE NOTE.

"FORMIC-SULPHUGATORS" (Kingzett's Patent).—The "Sanitas" Company, Limited, Bethnal Green, London, E., has recently introduced some new patented disinfecting and fumigating appliances under the name of "Formic-Sulphugators." These new appliances are portable, safe, thoroughly reliable, and economical for use in the fumigation and disinfection of rooms, etc., and may also be employed for destroying insect pests and vermin. In use, they generate sulphurous acid gas in association with the vapours of formaldehyde or para-formaldehyde, thus affording the most reliable and up-to-date means for disinfecting after cases of infectious illness. There are two forms of "Formic-Sulphugators," retailing at 1s. and 1s. 6d. respectively.

PHOTOGRAPHIC ENLARGEMENTS.—One of the oldest enlarging firms in this country is that of Messrs. Myers and Frost, 46A, Market Street, Manchester, carrying on business as The Manchester Photo-Engraving Company, it having been established nearly forty years. During recent years the business has been so successful that additional premises became a necessity, consequently the proprietors built a new workshop and studios in Urmston, a residential suburb of Manchester. The new premises are fitted with



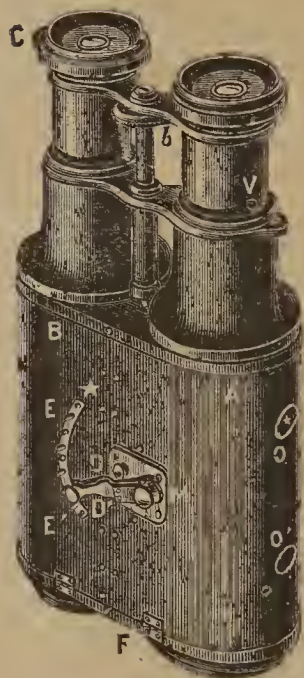
every appliance that modern knowledge could suggest to adapt them to the needs of photography and photographic enlarging, the various rooms being arranged so that the work of enlarging, developing, washing, etc. may proceed independent of sunlight, as Messrs. Myers and Frost manufacture their own oxy-hydrogen gas; in fact, completeness with simplicity and perfection is evident in every department. The firm work exclusively for the trade, therefore in applying for price list, business card should be enclosed.

THE MANHATTAN OPTICAL COMPANY, of New York, is now represented in this country by Messrs. Seabrook Bros. and Co., 21, Edmund Place, Aldersgate Street, London, E.C., who send a beautifully printed and illustrated catalogue of the 'Wizard' cameras, Manhattan lenses, etc., which have gained a splendid reputation in America for stability, finish, and optical efficiency.

SOUTHALL BROTHERS AND BARCLAY. The annual meeting of the shareholders of this company was held at Birmingham on March 30, Mr. T. Barclay presiding. The balance-sheet showed that after making provision for bad debts, depreciation, and directors' remuneration the profits had been sufficient to pay 5 per cent. on the preference shares and 10 per cent. on the ordinary shares, and to carry forward £1,577 17s. 6d. to next year's account. Mr. Barclay remarked that the business had never been more vigorous. This was illustrated by the departure at Sattley, where new works were rapidly nearing completion, which would introduce a new industry to Birmingham, viz., the bleaching of cotton and weaving of various fabrics. The fact was, the firm now consumes such large quantities of absorbent wool, bandage and cloth in the business that it was necessary to save

manufacturers' profit. It was the intention of the company to increase the output and extend the variety of manufactures, so as to include surgical dressings in all their variety. Referring to the company's cod-liver oil factory in Norway, Mr. Barclay stated that although the present season commenced with the best prospects, it might now be said that the season had been a failure, the fish having left the East Lofoten coast. A recent letter from the manager contained the statement that the number of fish caught up-to-date in the Lofotens was the lowest ever known. Mr. Wilfred Francis Southall having been re-elected a director, the meeting terminated.

THE STEREOSCOPIC "BINOCULAR" CAMERA.—Messrs. W. Watson and Sons, 313, High Holborn, London, W.C., send particulars of the Stereoscopic "Binocular" Camera, which is deceptive in appearance, and has been designed with that intent. It is used and, at a short distance, looks like an ordinary field glass, but while apparently gazing at an object in the far distance, the operator may surreptitiously take a snap-shot of some near object, two lenses being placed in the left tube of the Camera. The shutter is set for exposure by moving the lever "M," shown in the illustration, alternately right and left, along the scale "EE." This movement uncovers one of the two buttons "DD," which must be pressed to make the exposure. The shutter can be set at four different speeds by moving the lever "M" along the scale, the speed increasing according to the distance of the lever from the centre of the scale. The Camera carries twelve plates; when all have been exposed, and changed to the back of the magazine, there remains in front an aluminium sheet, which, by keeping the magazine light tight, enables it to be drawn out in daylight and another magazine inserted. The shutter may be fitted with time arrangement if desired. No focussing is required, all objects from 6 ft. to infinity being focussed sharply on the plate. The cost of the Camera



fitted with pair of first quality rapid rectilinear lenses, and with sling case complete, is £10.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, APRIL 4, 1900.

AMMONIA SALTS.—Sal Ammoniac, £38 to £40 per ton: Sulphate, £12 per ton.

BEESWAX.—6 bags Peruvian at auction at £7 5s. per cwt.

CANARYSEED.—220 bags of Turkish sold at 34s. per 464 lbs.; a further lot of 50 made 34s. 6d.

CHILLIES.—61 bags of Sierra Leone sold on private terms.

COPPERAS.—Is firm at 37s. to 39s. per ton.

COPPER SULPHATE.—Is dull at £25 7s. 6d. per ton.

HONEY.—Some fine Californian sold at 45s. per cwt.

LINSEED.—Is firm in all positions, with little offering and no business of importance to report.

OILS (FIXED) AND SPIRITS.—Castor is quietly steady, with a limited amount of sales. Calcutta is quoted at 3 $\frac{3}{4}$ d. per lb.; French at 3 $\frac{3}{8}$ d. to 3 $\frac{1}{2}$ d., 2nd pressure 3 $\frac{1}{8}$ d.; Madras at 3 $\frac{1}{2}$ d. per lb. Olive continues steady at £35 10s. to £36 10s. per tun. Linseed is steady as regards Liverpool makes at 25s. 6d. to 26s. per cwt. Cottonseed is steadily held for 23s. 6d. to 24s. per cwt. Spirits of Turpentine have advanced to 42s. 3d. per cwt. with a good demand.

POTASH SALTS.—Bichromate, 4d. to 4 $\frac{1}{2}$ d. per lb.; Chlorate, 4 $\frac{1}{2}$ d. to 4 $\frac{3}{4}$ d. per lb. Pearlshes, 33s. 6d. to 35s. per cwt. Potashes, 27s. 6d. to 27s. 9d. per cwt. Prussiate is quiet at 8d. per lb. Salt-petre, £21 5s. per ton.

QUILLAYA BARK.—10 tons of Chilian sold at £13 5s. to £13 7s. 6d. per ton, and superior quality at £13 10s.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is strong at £17 to £18 per ton. Caustic, 76 to 77 per cent., £11 per ton; 70 per cent., £10 5s. per ton; crystals, £3 7s. 6d. per ton; nitrate, 8s. 9d. to 8s. 10 $\frac{1}{2}$ d. per cwt.

LONDON, THURSDAY, April 5, 1900.

Business in Drugs and Chemicals has been somewhat unsettled during the past few days. Quinine improved and then had a relapse. Camphor is up. Acid Carbohc dull. Bromides very firm. Iodides weak and unsteady. Cod Liver Oil dearer, although buyers are not taking much at the high figures asked by the agents. Quicksilver and Mercurials very firm. Glycerin dearer and still tending upwards. Opium, Morphine, and Codeine very firm. Acid Citric dull. Acid Tartaric and Cream of Tartar quiet, but steady. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE.—There has been some talk of an improvement in this article, which has, however, so far not taken place, prices remaining weak at 9 $\frac{1}{2}$ d. to 1s. per lb., according to quantity, packing and make.

ACID BORACIC.—Steady at 26s. for crystals and 28s. per cwt. for powder.

ACID CARBOLIC.—Has been dull and rather off-colour during past week, owing to slackening off of the demand. Quotations remain nominally 10d. to 10 $\frac{1}{2}$ d. per lb. for 35° ice crystals in 2 $\frac{1}{2}$ cwt. drums and overcasks; 10 $\frac{3}{4}$ d. to 11 $\frac{1}{4}$ d. for 39/40° ice crystal, and 11 $\frac{1}{2}$ d. to 1s. for the 39/40 B.P. quality in detached crystals. Crude 60° F. 2s. 6d. per gallon; 75° F., 3s. Liquid, 95 to 98 per cent. of pale straw colour, 1s. 7d. to 1s. 8d. per gallon in 40-gallon casks; ditto of darker colour, 9d. to 1s. per gallon.

ACID CITRIC.—Quiet at 1s. 4d. to 1s. 4 $\frac{1}{2}$ d. per lb., according to quantity and make for crystals in 5 cwt. casks.

ACID TARTARIC.—English is quoted 1s. 0 $\frac{3}{4}$ d. to 1s. 1d. on the spot, foreign 1s.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3 $\frac{1}{2}$ d. to 4 $\frac{1}{2}$ d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate flat; grey, 24 per cent., London, prompt, £11 16s. 3d. Hull, prompt, £11 15s. Leith, prompt, £11 16s. 3d. Beckton, April-May, £11 15s. Beckton, terms prompt, £11 13s. 9d. Sulphocyanide, 1s. to 1s. 1d. per lb.

ANTIMONY.—Regulus is quoted £38 10s. to £39 10s. per ton, and Crude Japan (Black Sulphide) £22 to £22 10s.

BORAX.—Unchanged at 17s. per cwt. for crystals and 18s. for powder.

BROMIDES.—Are very firm at 1s. 11 $\frac{1}{2}$ d. per lb. for Potassii Bromid., the other Bromides being also unchanged.

CAMPHOR.—The market for crude is firmer, with more business doing, including 100 piculs China afloat at 175s. with sellers April-May steamer at 177s. 6d. and buyers at 172s. 6d., and 400 piculs Japan March-April steamer at 177s. 6d. to 182s. 6d. c.f. and i. Refined makers advanced their price 1d. per lb. to 2s. 3d. per lb. for Bells and Flowers, tablets being quoted in proportion, according to size.

CASTOR OIL.—Easier; Belgian, first pressing, spot, £31; April-June, £30, f.o.b.; Antwerp, second pressing, spot, £28 10s. per ton, wharf. Hull manufactured, guaranteed cold-drawn pure Pharmaceutical, £33 5s. per ton in barrels, 3 $\frac{1}{8}$ d. per lb. in cases. Pure firsts, £30 15s.; seconds, £29 15s. per ton, in barrels; firsts, 3 $\frac{3}{8}$ d. per lb. in cases; seconds, 3 $\frac{1}{8}$ d., ex-wharf, London.

CLOVES.—At auction, 331 bales Zanzibar offered and mostly bought in at 4 $\frac{1}{2}$ d., only a few bales damaged sold. Privately, Zanzibar opened steady, but closed weaker at a further fractional decline. A fairly large number of bales sold, comprising March-May at 4 $\frac{3}{4}$ d., and June-August at 4 $\frac{1}{2}$ d. to 4 $\frac{9}{16}$ d. Stems: 100 bales offered and bought in at 1 $\frac{3}{4}$ d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, 90 per cent., 1s. 1d. to 1s. 3d. per gallon; pure, 1s. 10d. to 2s. Benzole, 50 per cent., 9 $\frac{1}{2}$ d.; 90 per cent., 7 $\frac{1}{2}$ d. per gallon. Creosote, 3d. to 5d. per gallon, according to quantity. Crude Naphtha, 4d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 6d.; 90 per cent. at 160° C., 1s. 1d.; 90 per cent. at 190° C., 1s. 1d. per gallon. Anthracene: A, 3 $\frac{3}{4}$ d.; B, 2 $\frac{1}{2}$ d. per unit. Pitch, 38s. per ton, f.o.b. Tar: refined, 13s. per barrel; 2 $\frac{3}{4}$ d. per gallon; crude, 12s. 6d. per barrel; 2 $\frac{1}{2}$ d. per gallon.

CODEINE—Very firm at 13s. 1d. to 13s. 6d. per oz. for the pure, and 1s. per oz. less for the Muriate, Phosphate, and Sulphate Salts.

COD LIVER OIL.—The reports as to the results of the fishing continue to be anything but favourable, and while buyers remain very unwilling to operate, unless absolutely forced, at present advanced prices, it is reported that 95s. per barrel, f.o.b., has been paid for a good brand of best new non-congealing Norwegian oil, in tin-lined barrels of 25 gallons. In some quarters it is more than doubted whether present comparatively high rates can be maintained, especially in view of the fact that the consuming season is now practically over, and will not recommence until towards the end of the year.

CREAM OF TARTAR—Quiet at 73s. per cwt. for first white crystals on the spot, powder 75s., ditto, 95 per cent., 76s. per cwt.

GALLS.—At auction 150 cases Japan offered and sold, including fair at 65s., being steady; for arrival, April-May steamer, the quotation is 61s. 6d. c. f. and i.

GINGER.—At auction Cochin, in fair supply, met with a slow demand, and of 452 bags and 131 cases only 80 packages sold, small cut tips, partly limed, at 38s. 6d.; medium and small, roughly cut and scraped, much limed, without reserve at 32s. 6d., with one lot at 33s.; bright Calicut tips at 29s. 6d. to 31s.; good cuttings at 27s. to 27s. 6d. Jamaica in small demand, and prices easier. Of 539 barrels offered 104 sold, good bright bold at 70s. to 75s.; middling to good middling, 55s. 6d. to 60s.; good common, 51s. 6d. to 53s. 6d.; common Rhatoon at 43s.

GLYCERIN.—The upward tendency of price of this article continues both as to the crude and also in the case of the refined article. Best double distilled, chemically pure, 1260 S.G., odourless and colourless, B.P. 1898, in tins and cases (2 or 4 × 56lb. tins in a case), is quoted 59s. to 62s. 6d. per cwt. for English and 60s. to 75s., according to brand, for German make.

JAPAN WAX—Is firm on the spot, with little offering, but for arrival the price is cheaper, with sellers April-May steamer at 31s. 6d. c. f. and i.

MERCURIALS—Are very firm at 3s. 2d. per lb. for Calomel and 2s. 10d. per lb. for Corrosive Sublimate.

MORPHINE—Is firm at 5s. per oz. for the Hydrochlorate Powder, and 2d. per oz. more for the crystal salts.

OILS (FIXED) AND SPIRITS.—Linseed strong at about 10s. advance. On the spot pipes, London, ordinary, £25 10s. to £26 (E.I. 10s. premium); barrels, £25 10s. to £25. Hull also stronger and dearer; spot, naked, £23 10s. Rape firm; ordinary brown, on spot, £27 10s.; refined, spot, £28 15s. Ravison naked, spot, £25 10s. Cotton steady; London crude, spot, £21; refined, spot, £22 15s. to £23 10s., according to make. Hull easier; naked refined, spot, £20 10s.; crude, spot, £19 5s. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut: Ceylon, on the spot, £25 10s. to £25 15s.; Cochin, spot, £28 10s. to £29. Palm: Lagos, on the spot, quoted £29. Petroleum (oil) quiet; Russian, spot, quoted 7d. to 7½d.; American, spot, 7½d. to 7¾d. Water White, 8¾d. to 9d. Petroleum (spirit): American, 9¾d.; deodorised, 10d. to 10½d. Turpentine dearer; American, spot, 41s. 6d.; April, 41s. 6d.; May, 40s. 9d. to 41s.

OPIUM.—There has been a fair business doing in both soft shipping and manufacturing kinds at full rates; prices remain very firm, with a decidedly upward tendency.

PARAFIN WAX.—Crude is quoted 3¼d. to 3½d. per lb., and refined 4d. to 4¼d.

PHENACETIN.—Makers are firm at 5s. 3d. per lb. for crystals or powder in 5 cwt. lots, while second-hand, which has been offering at a somewhat cheaper figure, is now getting nearly sold out. In view of the position of the raw material, it would appear probable that price of Phenacetin will, at least, be fully maintained for the next few months, and very likely for a still longer period of time.

POTASH COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. Bromide, 1s. 11½d. Chlorate, spot, London, crystals, 4½d.; powder, 4¾d. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Per-manganate, small crystals quoted 50s. to 60s. per cwt., according to make. Large crystals, 5s. per cwt. more. Prussiate, yellow, English make 8d., Beckton 7½d.; red 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton, ex-ship.

QUICKSILVER—Very firm at £9 12s. 6d. per bottle from the importer, second-hand not offering.

QUININE—Has been quiet and again lower, with only small sales, including 30,000 ozs. B&S and/or Brunswick May delivery at

1s. 4d., June at 1s. 4½d. to 1s. 4¼d., and August at 1s. 5d., closing sellers at 1s. 4½d. The landings during March were 360,976 ozs. and the deliveries 293,488 ozs., making the stock on May 31 3,161,872 ozs., against 2,107,440 in 1899. Makers of the favourite B&S brand of sulphate maintain their price of 1s. 6d. per oz. for 1,000-oz. lots in 100-oz. tins.

SHELLAC.—The demand privately continues slow, and sales on the spot are of a retail character. Futures are dull, with sellers of TN Orange, August delivery, at 62s. At auction to-day the small supply of Second Orange met a fair demand, and the larger proportion sold, prices opening 1s. lower, but closing at a slight recovery, the value of fair TN being 59s. to 60s. Garnet and Button: Only a few cases sold at easy rates. A total of 475 cases offered and 324 cases sold. Second Orange: Of 386 cases, 303 sold, partly without reserve, fair reddish, little matted, at 59s. to 60s.; fair bright leafy cakey at 59s.; mixed palish broken at 59s.; flimsy flat livery at 57s. to 58s.; claret colour cakey at 55s. Garnet: 30 cases offered and 5 cases sold, without reserve, weak Rangoon at 58s. cash. Button: Of 59 cases, 6 sold, including ordinary thirds, without reserve, at 46s.

SODA COMPOUNDS.—Crystals: barrels quoted 60s.; bags, 57s. 6d. Acetate, £14 per ton, ex-ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, £7 5s., landed, per ton. Bichromate, 3¼d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent. white, £10 15s. to £11; 50 per cent., £1 less. Chlorate, 4¾d. per lb. Hyposulphite (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9; ordinary, £9; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate (salt cake), £1 7s. 6d. per ton. Glauber Salts, £1 10s. per ton. Sulphide, crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: At auction no Singapore was offered; 30 bags Lampong offered and sold at 5¾d. for fair; 545 bags Penang bought in at 5¾d., and 85 bags Aleppy, including good, at 6¼d. White Pepper neglected: 112 bags Singapore bought in at 9¼d. to 9½d. for fair to good, and 62 bags good white limed Penang at 8¾d. Chillies quiet and rather easier: 12 bags Japan offered, and 8 bags sold at 40s. 6d.; remainder, good, bought in at 48s.; of 79 bags Zanzibar offered, 9 bales sold, ordinary stalky at 38s. 6d.; good bright bought in at 45s. Capsicums steady: of 220 packages Bombay, 133 sold, fair bright at 33s.; good bright long stalky, 32s.; fair ditto, 29s. 6d. Pimento: of 658 bags offered, only a few bags damages sold. Cassia Vera: 60 bales offered and bought in, coarse Padang quills at 27s. Cassia Lignea: 300 bales broken sold, without reserve, at 26s. 6d. Cinnamon: 150 packages Ceylon Will bought in. Chips quiet, and 450 bags fair Ceylon bought in at 3¾d. Nutmegs: no Penang offered; 5 cases Bombay bought in, broken at 4d.; West Indian: 86 barrels offered and 74 sold, 65's at 2s.; 78's at 1s. 5d. to 1s. 6d.; 98's at 1s.; 92's at 9d. Mace: No Penang catalogued; 4 packages Bombay Wild bought in, including good bright at 5d.

STICKLAC.—At auction 21 cases Madras offered and sold, fair bright sifted at 47s. 6d. 20 cases Siam bought in, unsifted, little woody, at 40s.

SULPHATE OF COPPER—Steady at £24 5s. to £26 per ton on the spot.

SULPHONAL.—Makers remain firm at 20s. 6d. per lb. for crystals or powder, with a certain reduction for large quantity and bulk packing, while from second hand there is now practically nothing offering from second-hand below makers' prices.

TURMERIC—In slow demand, and 103 bags Madras in auction were bought in, fair to good bright finger at 30s. to 35s.; rough dark ditto at 26s.; ditto finger and bulbs at 28s. 491 bags Cochin offered and bought in, fair bright split bulbs at 10s. 6d. to 11s. 34 bundles Coconada withdrawn.

VANILLA.—At the auctions to-day the fair supply of 281 tins was offered, and with only a moderate demand about 181 tins sold, good qualities being full up to the decline established at previous sale to occasionally rather dearer, whilst medium and fair sorts sold at steady to rather easier rates. Seychelles: Of 168 tins 140 sold, fair to good colour, 9 inch at 26s., 8 to 8½ inch at 23s. to 24s., 7 to 8 inch at 22s. to 22s. 6d., 6½ to 7 inch at 19s. to 22s., 3½ to 6½ inch at 16s. to 20s.; common, etc., 3 to 8½ inch at 15s. 6d. to 16s. 6d. Mauritius: Of 44 tins 20 sold, fair to good colour, 6 to 6½ inch at 19s. to 20s., 4 to 5 inch at 14s. to 16s. 6d.; common, 6½ to 7½ inch at 15s. 6d. Madagascar: 14 tins sold, common, 3½ to 7½ inch at 12s. 6d. to 14s. Bourbon: Of 34 tins 6 sold, fair, 3½ to 6½ inch at 15s. to 16s. Tahiti: Of 15 tins 1 sold, 4 to 6 inch at 6s. 3d. The remainder and Australian bought in.

Calendar for the Week.

Sunday, April 8.	Palm Sunday.	Sun rises 5.22; sets 6.42.
Monday, April 9.		Sun rises 5.20; sets 6.44.
Tuesday, April 10.		Sun rises 5.18; sets 6.45
BRADFORD AND DISTRICT CHEMISTS' ASSOCIATION.—Annual dinner.		
BRITISH PHARMACEUTICAL CONFERENCE, 1900, General Committee, 16, Bloomsbury Square, London, W.C., at 3.0 p.m.—Meeting to receive report of Local Executive Committee, and to discuss future arrangements.		
ROYAL COLONIAL INSTITUTE, Whitehall Rooms, Hotel Metropole, London, S.W., at 8.0 p.m.—Sir John C. R. Colomb on "British Defence, 1800-1900."		
ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—"The Municipal Encouragement of Photography," by Thomas Bedding.		
Wednesday, April 11.		Sun rises 5.16; sets 6.46.
MANCHESTER PHARMACEUTICAL ASSOCIATION, Victoria Hotel, at 7.30 p.m.—Annual General Meeting.		
NEWCASTLE-ON-TYNE AND DISTRICT CHEMISTS' ASSOCIATION, Hotel Metropole, Newcastle-on-Tyne, at 8.30 p.m.—C. Ridley (President) on "The Botany and Materia Medica of the Bible."		
NORTH LONDON CHEMISTS' MEETING, The Old Cock Tavern, Highbury, at 3.0 p.m.—Meeting to discuss the objects of the Chemists' Defence Association.		
SHEFFIELD PHARMACEUTICAL AND CHEMICAL SOCIETY, at 8.30 p.m.—Open Night, conducted by Members.		
Thursday, April 12.		Sun rises 5.14; sets 6.48
Friday, April 13.	Good Friday.	Sun rises 5.11; sets 6.50.
Saturday, April 14.		Sun rises 5.8; sets 6.52.

Publications Received.

THE PHOTO-MINIATURE: A Monthly Magazine of Photographic Information. Edited by JOHN A. TENNANT. Vol. I., No. 10.—The "Blue Print" and its variations. January, 1900. Price 6d. London: Dawbarn and Ward, Limited, 6, Farringdon Avenue, E.C. From the Publishers.

PHARMACEUTICAL LIST OF QUEENSLAND FOR THE YEAR 1900. Printed and published under the direction of the Pharmacy Board of Queensland. Price 1s. Brisbane: Edmund Gregory, Government Printer, William Street, 1900. From the Publishers.

LEVENSGESCHIEDENIS EN BESTRIJDING VAN HET TABAKS-AALTJE (HETERODERA RADICICOLA) IN DELI. Door Dr. J. VAN BREDA DE HAAN. Pp. 16. Reprinted from *De Indische Mercur*. Amsterdam: J. H. de Bussy, 1900. From the Publisher.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Quinine, Howard's 100 ozs., 1/6 (ounce posted, 1/8).—Warnes, 333, Gray's Inn Road, W.C.

Clinicals, one dozen as Maw's, 30 seconds, 24/-; ordinary, 16/-; engraved "English make," plated cases; any post free.—Warnes, 333, Gray's Inn Road, W.C.

2-oz. Morph. Hydroch. 10s. 6d.; 1 lb. Iodof. Crystal, 12s.—Eastman, Forest Lane, Stratford.

Photographic Mounts, Plate Sunks, 10 by 8, 30/-; 12 by 10, 45/- 1,000; cabinets, plain, 10/-; G.B.E., 22/6 1,000. Samples free.—Edward Peck, East Dereham.

Eastman's Kodet, 3 double dark slides, in good condition, cost 4 guineas. What offers? Or would exchange for Student's Microscope.—Cornish, 67, Wells Rd., Bristol.

For Sale.—One nearly new Copper Vacuum Pan, 5 ft. diameter, fitted with Stirring Gear, Condenser and all fittings. One Mild Steel Steam Jacketed Still, 4 ft. diameter, fitted inside with Copper Steam Coils, Stirrer and Pulleys, Galvanised Iron Still Head.—Apply to W. J. Fraser & Co., Engineers, 98, Commercial Road East, London, E.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

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8d., 1/-, and 2/6 Bottles.

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PRESERVED PEROXIDE OF HYDROGEN (Kingzett's Patent).

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WEED DESTROYER, &c., &c.

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Contains all the active principles of the Kola Nut, Caffeine, Theobromine Kola Red and Tannin in a soluble, agreeable, and portable form. Recommended as a powerful stimulant of the physical and mental forces.

Retail 3/6 per bottle; Wholesale 34/- per dozen.

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FRENCH AND GERMAN

Specialities and

PROPRIETARY MEDICINES.

Goods not in Stock procured to order.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Alcock, Ashton, Bartlett, Booth, Cross, Cummings, Duffield, Eldred, Gairn, Gilderdale, Gilmour, Hobson, Jackson, Jones, Lawson, Longstaff, Lothian, Mumbray, Nourse, Pickering, Reid, Sheppard Smith, Vince, Wass, Wilkinson.

TRADE NOTES.

MARTINDALE'S PORTABLE SPITTOON.—Mr. W. Martindale, 10' New Cavendish Street, Portland Place, W., sends particulars of a portable spittoon which is being brought under the notice of

the public to meet one of the requirements of the now advancing crusade against consumption. It has been designed by Dr. W. Harrison Martindale, in accordance with suggestions of eminent physicians. Its special features are that it is easy to clean, as it can

be boiled with impunity, being made entirely of non-corrosive white metal, in two segments (see illustrations); its non-suggestive and inoffensive appearance; being oval in shape, it may be conveniently carried in the inside or outside breast pocket, and having a broad basis, will stand firmly on the table by side of invalid's chair or bed. Another feature is a convenient folded rim for wiping the mouth; also, that when in use, the lid hides the mouth of the patient from view. Finally, the vessel is easily opened with one hand, by holding it firmly and pressing the front of the lid upwards with the thumb. It is recommended that the spittoon should contain some disinfectant when in use, and for this purpose small antiseptic tablets containing thymol are supplied. The net price is 6s. 6d.; complete with bottle of antiseptic tablets, post free, 7s. 6d.



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WELLCOME'S PHOTOGRAPHIC EXPOSURE RECORD AND DIARY, 1900.—Messrs. Burroughs Wellcome and Co. announce that the sixth edition of the above-mentioned publication is exhausted, and it is not intended to reprint it for the current year.

CONDY'S CRYSTALS.—Messrs. Condy and Mitchell, 65, Goswell Road, London, E.C., send particulars of several trade mark cases which have been tried in Australia, wherein injunctions have been obtained restraining several persons from selling, under the designation of "Condy's Crystals," permanganate of potash, or any chemical not being of plaintiff's manufacture, or from selling or offering for sale to persons desiring to procure "Condy's Fluid," permanganate of potash, in solution, as the equivalent, and being then the same in composition as "Condy's Fluid."

SANITARY POLISHES AND CLEANSERS.—"Ronuk" is the name given to a series of polishes manufactured by "Ronuk," Limited, Brighton (London depot, 83, Upper Thames Street, E.C.). It is in paste form, possesses a very pleasant aromatic odour, and is said to be much more economical and agreeable to use than the old-fashioned liquid polishes and creams. Moreover, "Ronuk" is an antiseptic polish, hence it is most suitable for application to the flooring and wood fittings of hospitals and other institutions where numbers of persons congregate, and where the existence of disease germs would be a source of danger. "Ronuk" fills the pores of the wood, so that it presents a hard, smooth surface, which will harbour no germs. It also tends to preserve the wood. In addition to woodwork, "Ronuk" is useful in polishing linoleum, leather, bicycles, enamelled goods, etc., while special preparations are made for brown, black, white, or green boots or shoes, and for harness.

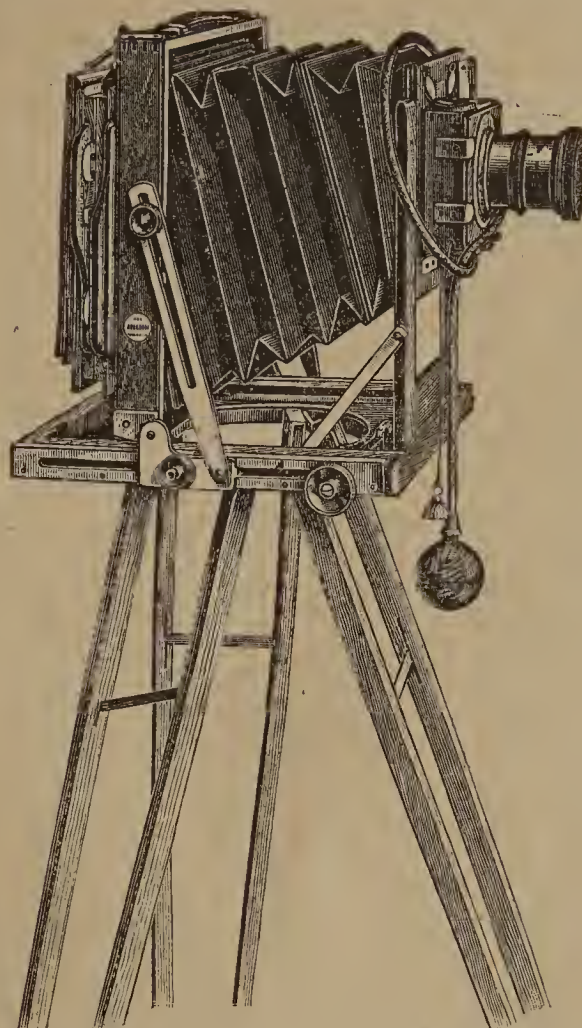


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MATERIA MEDICA SPECIMENS AND MICROSCOPICAL SLIDES.—Messrs. Wright, Layman and Umney, Limited, Southwark Street, S.E., have arranged, for the use of students and others, a collection of official and unofficial drugs, consisting of about 230 specimens,

carefully selected with a view to exhibiting their principal characteristics and distinguishing features, and packed in a neat series of slide wooden boxes, each labelled with the name of the specimen, its source, natural order, and habitat. The price of the complete collection, packed in case, is £2 12s. 6d. Messrs. Wright, Layman and Umney have also arranged, for the convenience of students and others, a short series of 48 microscopical slides, showing the typical portions of various plants used in medicine, viz.: Leaves, flowers, fruits, herbs, seeds, woods, barks, rhizomes, roots, starches, glands, etc. Each slide is labelled and the whole packed in a portable case, the price of the collection being £1 5s.

THE 'PEMBROKE' HALF-PLATE OUTFIT.—Messrs. Evans, Sons, and Co., 56, Hanover Street, Liverpool, offer the 'Pembroke' half-plate outfit, at £3 10s., which provides the amateur photographer with a compact, serviceable mahogany camera of sound construction at a reasonable price. The camera is manufactured by the firm, and every attention has been bestowed



to turn out a useful instrument. It has good leather bellows, reversing and swing back, double extension, back slides to the front for wide angle lenses. As may be noticed in the illustration, the rising front is of unusual range; the base board is cut out and fitted with a turntable. One double dark slide is furnished with the camera, a 'Hanover' time and instantaneous shutter with speed indicator, rapid rectilinear lens, iris diaphragms, and a three-fold tripod.

MESSRS. HARRIS AND CO., LIMITED, wholesale chemists and manufacturers of scientific apparatus, Birmingham, have decided to give an interest in the business to their heads of departments. In future Mr. Standley Belcher and Mr. H. S. Shorthouse will be associated with Mr. Charles S. Ellis in the joint management of the business. Mr. Belcher will continue to manage the scientific apparatus department and workshops, and Mr. Shorthouse will continue the management of the laboratories, and will also superintend the wholesale drug department.

MESSRS. WILCOX AND CO., LONDON, direct attention to three novelties of special interest to pharmacists and medical men—Kola Astier, Gonal, and Nitro-Propiol tablets. The first is a standardised granulated preparation which contains all the more

important principles of the kola nut, including 2 grains of caffeine in each teaspoonful, and is soluble in water, wine, etc. Gonol, or gonorol, is a purified preparation of sandalwood oil, which is claimed to contain 99.5 per cent. of pure santalol. It is a colourless oil with a faint odour and is said to produce more uniform and satisfactory results than ordinary sandalwood oils. The Nitro-Propiol tablets contain the reagent in a convenient form for the detection of sugar in urine. One tablet is dissolved in 10 C.c. of water, 10 drops of the suspected urine added, and the mixture boiled slowly for three to five minutes; if glucose be present indigo blue is formed, but no other substance gives the reaction.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LONDON, WEDNESDAY, APRIL 11.

Business in drugs and chemicals has been quiet during the past week. German makers reduced price of quinine, which has caused quite a flutter in the speculative market. Quicksilver and mercurials are very firm, as also are bromides. Iodides weak at, however, unchanged prices for the present. Salicylates and Salol unchanged. Acid Carbohc dull. Camphor, Cod Liver Oil, and Glycerin firm. Cocaine and Phenacetin firmer. Lycopodium again dearer. Bismuth Salts unchanged, as also is Sulphonal. Acetanilide dull and weak. Acid Citric, Acid Tartaric, and Cream of Tartar quiet. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE—Continues dull and weak at 9½d. to 11d. per lb., according to make, quantity, and packing.

ACID BORACIC—Unchanged at 26s. per cwt. for crystals and 28s. per cwt. for powder.

ACID CARBOLIC—Dull and weak at 9¾d. to 10½d., according to quantity and make for 35-36° ice crystal in large bulk packing, 10¾d. to 11¼d. for 39-40° ice crystal, and 11½d. to 1s. 0¼d. for 39-40° detached crystals (B.P. quality). Crude, 60° F., 2s. 6d. per gallon; 75° F., 3s. 4d.; liquid, 95-98 per cent. of pale straw colour, in 40-gallon casks, 1s. 7d. to 1s. 8d. per gallon; ditto, 25-30 per cent., 10d. to 1s. per gallon.

ACID CITRIC—Quiet at 1s. 4d. to 1s. 5d. per lb., according to quantity and make, for crystals in 5-cwt. casks.

ACID TARTARIC—Quiet at 1s. 0¾d. to 1s. 1d. per lb. for English, and 1s. per lb. for foreign.

ACID OXALIC—Unchanged at 3d. to 3½d. per lb., spot, net, free delivered, London.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate easier. Grey, 24 per cent., London prompt, £11 15s. Hull, prompt, £11 12s. 6d. Leith, prompt, £11 12s. 6d. Beckton, nominal. Beckton, terms prompt, £11 10s. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

ARSENIC.—Best white powder is firm at £20 10s. to £21 per ton.

ATROPINE.—Makers are very firm at 15s. 6d. per oz. for the Sulphate, B.P., and 17s. 10d. per oz. for the pure Alkaloid.

BALSAM CANADA—Is very scarce and tending higher, as new crop will not be available until August. Casks, on the spot, 1s. 5d. per lb.

BALSAM TOLU.—Stocks have been greatly reduced, and price is firm at 1s. 6d. per lb. for good quality.

BELLADONNA ROOT—Is quoted 40s. to 45s. per cwt., according to quality, really good root remaining scarce.

BISMUTH—Unchanged at 5s. 1d. per lb. for the Subnitrate and 5s. 8d. per lb. for the Subcarbonate. The commercial quality of the metal is also unchanged at 5s. per lb.

BLEACHING POWDER (CHLORIDE OF LIME)—Unchanged at £7 per ton for English.

BORAX—Is still quoted 17s. per cwt. for crystals, and 18s. per cwt. for powder.

BROMIDES—Are very firm and scarce for prompt delivery, prices being 1s. 11½d. per lb. for Potassii Bromid., 2s. 3d. per lb. for Ammon. Bromid., 2s. 2½d. per lb. for Sodii Bromid. Bromine is also unchanged at 2s. to 2s. 2d. per lb., according to quantity, in 60-lb. cases.

CAMPHOR.—The position of crude is practically unchanged. English refiners are firm at 2s. 3d. per lb. for Bells and Flowers, and it would appear probable that any change in price will be an upward direction.

CANNABIS INDICUS (GUAZA).—It is difficult to get a quotation for this article, as the entire stock seems to be concentrated. It is said that a heavy export duty has been put upon the article, so that it is evident that high prices must rule in the future.

CASCARA SAGRADA.—Some new arrivals are offered at 27s. 6d. per cwt.

CASTOR OIL—Quiet; Belgian, first pressing, spot, £31; April-June, £30, f.o.b. Antwerp, second pressing, spot, £28 10s. per ton, wharf. Hull manufactured, guaranteed cold-drawn pure Pharmaceutical, £33 5s. per ton in barrels, 3¼d. per lb. in cases; pure firsts, £30 15s.; seconds, £29 15s. per ton in barrels; firsts, 3½d. per lb. in cases; seconds 3¼d. ex-wharf, London.

CINCHONA BARK.—The fourth of the series of auctions were held yesterday, with the fair supply of 3,065 packages of all descriptions, as compared with 4,440 packages at the previous sales. Active competition prevailed throughout, and the bulk found buyers, at and since the sales, at prices which showed some improvement on the last Dutch sales, the average unit being 1¾d.; while Cinchonidine bark realised in some cases 2½d. per unit. Ceylon: 249 packages offered and 238 sold, according to analysis, Succirubra, stem chips and shavings, ordinary to good at 2¾d. to 4¾d., good root at 6½d. East Indian: 2,101 bales and 36 cases offered and about 1,850 packages sold. Red stem chips and shavings, fair to good at 3½d. to 5½d., ordinary to good root at 2½d. to 5½d., fair branch at 3½d.; renewed chips and shavings, fair to good rich, at 4d. to 7¾d.; Officinalis, fair to good at 4½d. to 6½d., low to fair at 1¾d. to 4¾d., branch at 1¾d., fair silvery quill at 5d. to 5½d.; renewed chips and shavings good to fine rich at 6½d. to 7¾d., fair to good at 4¾d. to 5¾d.; Ledger stem chips and shavings, good to fine at 5¾d. to 9d., fair at 4¾d. to 4½d., branch at 3d. to 5d., fine root at 8½d.; hybrid stem chips, good at 5¾d. to 5½d., fair branch at 3½d. Java: 226 packages offered and 11 sold, ordinary quill at 4½d. South American: 172 packages Bolivian cultivated Calisaya offered and mostly sold, fair to good quill at 8¾d. to 10¾d., fair to good flat at 6¾d. to 10¾d. Soft Columbian: Of 235 bales 39 sold at 2½d. to 2¾d. for chips and shavings. Cuprea: 5 bales offered and sold, stem chips at 2d. 25 bales flat Carthagena bought in at 6½d., and 13 packages Maracaibo at 6d.

CLOVES.—Zanzibar remain very quiet, but prices are firm. Only a small business has been done, comprising June-August delivery, at 4 17-32d. to 4 7-6d., and August-October at 4 7-6d. March-May closes buyers at 4 7-6d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. per gallon; pure, 1s. 9d. to 2s. Benzole, 50 per cent., 8½d.; 90 per cent., 7d. per gallon. Creosote, 3d. to 5d. per gallon, according to quantity, etc. Crude Naphtha, 30 per cent. at 160° C., 5d. per gallon. Solvent Naphtha, 95 per cent., at 160° C., 1s. 6d.; 90 per cent. at 160° C., 1s. 2d.; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene, A, 3¾d.; B, 2¾d. per unit. Pitch, 38s. per ton, f.o.b. Tar, crude or refined, 12s. 6d. per barrel, 2¼d. per gallon.

COCAINE—Is firmer; makers of the favourite B&S brand still, however, quote the Hydrochlorate 16s. 9d. per oz. in 25-oz. tins, down to 16s. 3d. per oz. for 200-oz. lots.

CODEINE—Remains exceedingly firm at 13s. 1d. per oz. for 300-oz. lots up to 13s. 6d. per oz. for smaller quantity for the pure, and 1s. per oz. less for the salts.

COD LIVER OIL.—It is stated that the Lofoten fishery has yielded less favourable results than has been the case for many years past. It now remains to be seen whether the Finnmarken catch will help to make up the deficiency. The agents of the makers quote high prices, up to 100s. and even 110s. per barrel for best new non-congealing Norwegian oil in tin-lined barrels of 25 gallons each. There is, however, practically no business passing at these high prices.

CREAM OF TARTAR.—First white crystals, on the spot, 73s. per cwt.; powder, 75s., and 95 per cent., 76s.

CUTCH—Continues very quiet without any business of importance.

DAMIANA LEAVES—Are dearer at 6d. per lb.

ESERINE (PHYSOSTIGMINE)—Very firm at 2s. to 2s. 6d. per gramme, according to quantity, for the Sulphate and Salicylate Salts, and 3s. to 3s. 6d. per gramme for the pure.

GALLS—Firm; China continue in demand, with buyers for arrival at 67s. 6d. Japan are quoted higher, at 62s., c.i.f., for April-May shipment.

GENTIAN ROOT—Dearer, holders ask 16s. 6d. per cwt. here for good dry root.

GLYCERIN—Continues very firm, both for crude and also for the refined article; for the latter the English makers quote 58s. 6d. to 62s. 6d., and German makers 60s. to 75s., according to brand, for the best white, double distilled, chemically pure, odourless, 1260, S.G. quality, in tins and cases.

GOLDEN SEAL ROOT—This article is in good inquiry, and business has been done at 2s. 6d. per lb.

GUARANA—Is scarce, and 1s. 8d. per lb. is asked for small quantity available.

GUM KINO—The parcel in the last sales which was offered at 1s. per lb. has been cleared, and in addition a good quantity has been sold, and 1s. 9d. per lb. is now asked. Stocks will probably be found to be greatly reduced at the end of this month.

IODINE AND IODIDES—The market remains in a precarious position, and prudent buyers are covering their wants strictly from hand to mouth. So far, the combined makers made no change in their prices, which are: Potassii Iodid., 10s. 6d. per lb.; Ammon. Iodid., 13s. 10d. per lb.; Sodii Iodid., 11s. 10d. per lb.; Iodine Resublimed, 12s. per lb. Iodoform crystals, powder, or precipitated, 13s. 10d. per lb. Crude Iodine is also unchanged at 7½d. per oz.

IPECACUANHA—Firm for Rio at 11s. 6d. per lb., whilst for Carthagena 8s. per lb. is asked.

JAPAN WAX—There are sellers at 30s. 6d., c.i.f., being again cheaper, sellers of good squares, on the spot, at 34s. Business has been done for arrival, but there are no particulars to hand.

LYCOPodium—Is dearer, as much as 2s. 5d. per lb. being asked for double-sifted in case lots.

MENTHOL—There are sellers of the favourite Kobayashi brand at 8s. 6d. per lb. for case lots (12 × 5lb. tins in a case).

MERCURIALS—Are very firm at unchanged prices—viz., 3s. 2d. per lb. for Calomel and 2s. 10d. per lb. for Corrosive Sublimate, other Quicksilver preparations being quoted in proportion.

MORPHINE—Is firm at 5s. per oz. for the Hydrochlorate Powder and 2d. per oz. more for the crystal salt.

OILS (FIXED) AND SPIRITS—Linseed quiet and easier. On the spot, pipes, London, ordinary, £27 (E.I., 10s. premium), barrels £27 5s.; May, £26 7s. 6d.; May-Aug., £26; Sept.-Dec., £24 10s. Hull, spot, naked, £25; May-Aug., £24 10s.; Sept.-Dec., £23. Rape firm; ordinary brown, on the spot, £27 10s.; refined, spot, £28 15s.; Ravison, naked, spot, £25 10s. to £25 15s. Cotton firm; London, crude, spot, £21 to £21 5s.; refined, spot, £23 5s. to £23 15s., according to make. Hull, naked, refined, spot, £21 5s.; crude, spot, £20. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut quiet; Ceylon, on the spot, £25 10s., near £24 5s., c.i.f.; Cochin, spot, £28 10s. to £29, near £25, c.i.f. Palm: Lagos, on the spot, quoted £28 10s. Petroleum (oil) quiet; Russian, spot, quoted 7d. to 7½d.; American, spot, 7½d. to 7¾d.; water white, 8¾d. Lubricating: Pale American, spot, 9s. to 10s. 9d.; black, 7s. to 9s.; Russian, black, 6s. 6d. to 7s.; pale, 8s. 9d. to 10s. 3d. Petroleum (spirit): American, 8¾d. to 9d.; deodorised, 10d. to 10½d. Turpentine dull: American, spot, 42s.; April, 41s. 6d. to 41s. 9d.; July, 35s. 3d.

OPIUM—Market is firm at about prices ruling last week, say, 9s. to 9s. 9d. per lb. for manufacturing and druggists', and 11s. to 11s. 6d. for soft shipping. For Persian as much as 13s. per lb. has been paid for fine quality, with very little obtainable even at this high figure.

ORRIS ROOT—Picked Florentine is obtainable in limited quantity at 55s. to 57s. 6d. per cwt. The syndicate in Italy are reported to be holding out for much more than above figures.

QUININE—On Saturday the agents for the favourite German brand B&S reduced their price from 1s. 6d. to 1s. 4½d. per oz. for the Sulphate for 1,000-oz. lots in 100-oz. tins. This caused quite a flutter amongst weak-kneed speculators, and sales were made down to 1s. 3d. per oz. for B&S and/or Brunswick. The speculative market has, however, become steadier again, price being nominally 1s. 3½d. to 1s. 4d., according to delivery. For the moment there is practically no speculative business passing in the article.

PHENACETIN—Is decidedly firmer in second-hand, makers maintaining their price of 5s. 3d. per lb. for powder or crystals in 5-cwt. lots in bulk packing, smaller quantity being quoted higher in proportion.

PILOCARPINE—Makers quote 41s. 9d. per oz. for the Hydrochlorate and Nitrate Salts in 8-oz. lots. There are, however, sellers from second-hand at 37s. 6d. to 40s. per oz., according to quantity.

POTASH COMPOUNDS—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. Chlorate, spot, London crystals, 4½d.; powder, 4¾d. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small cryst. quoted 50s. to 60s. per cwt., according to make; large cryst., 5s. per cwt. more. Prussiate, yellow, English makes, 8d.; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton, ex-ship.

QUICKSILVER—Is firm at £9 12s. 6d. per bottle from the importer, second-hand not offering.

SALICIN—Makers are very firm at 20s. 6d. per lb. down to 20s. for cwt. lots.

SALICYLATES—Acid Salicylic, Soda Salicylate, and Salol are unchanged.

SANTONIN—Makers quote 11s. 3d. per lb. for 2-cwt. lots. There are, however, sellers from second-hand at 10s. 6d. per lb.

SASSAFRAS BARK OF ROOT—This is scarce, and 7d. per lb., c.i.f. terms, is the lowest quotation.

SERPENTARIA ROOT—This article is very scarce and dearer at 1s. 10d. per lb. on the spot.

SHELLAC—An important correction has been made by "Reuter," per mail, of the shipments at Calcutta for the first half of March; they now read U.K. 1,900 cwt., U.S. 11,800 cwt. (returned previously as nil), and Continent 3,100 cwt., against 1,700 cwt., 5,500 cwt., and 2,300 cwt. respectively last year. The altered figures for the whole month, as given below, show a comparative deficiency of 3,200 cwt. to all parts, the total being 24,700 cwt., against 27,900 cwt. last year, U.K. taking 5,500 cwt., and U.S. 2,100 cwt. less, and Continent 4,400 cwt. more than in the corresponding period of 1899. The shipments from Calcutta (per "Reuter") to the United Kingdom were for the last half of March 1,600 cwt., making 3,500 cwt. for the month, against 9,000 cwt. last year, and to the United States for the last half of March nil cwt., making 11,800 cwt. (corrected) for the month, against 13,900 cwt. last year. To the Continent the shipments were 6,300 cwt., making 9,400 cwt. for the whole month, against 5,000 cwt. last year. The market here continues very quiet, and sales on the spot are limited at previous rates. Futures are quite inactive, and prices nominal in the absence of business. TN Orange March-May steamer 57s., c.f. and i., and August delivery 61s., buyers.

SODA COMPOUNDS—Crystals, barrels, quoted 60s., bags 57s. 6d. Acetate, £14 per ton, ex-ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, £7 5s., landed, per ton. Bichromate, 3¼d. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent., white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4¾d. per lb. Hyposulphite (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9 5s.; ordinary, £8 16s. 3d.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate (salt cake), £1 7s. 6d. per ton. Sulphide, crystals, £6 10s. Sulphite, £5 15s. per ton.

SPERMACEIN—American is dearer at 1s. 4d. per lb., which, however, is cheap still, compared with the price ruling in New York.

SUGAR OF LEAD—White is quoted £25 to £27 10s. per ton, c.i.f., according to quantity.

SULPHATE OF COPPER—Firmer. Spot, £24 10s. to £26.

SULPHONAL—Second-hand appears to be sold out; makers are firm at 20s. 6d. per lb. for both crystals and powder, with a certain reduction for 4-cwt. lots.

THYMOL—One maker is now hawking this article round at 9s. 3d. per lb. for 7-lb. lots.

TURMERIC—Remains quiet, and business in all kinds is on a small scale. Bengal very scarce, and would command high prices. Cochin slow of sale at 10s. 3d. to 10s. 6d. for fair split bulbs. Madras good bright finger sold in small lots at 35s.

BURROW'S SELTZER AND REAL SODA. Are unequalled for Brandy and Whisky. Six Dozen Carriage Paid.	THE PUREST MINERAL WATERS.	BURROW'S LITHIATED MALVERNIA. The best remedy for GOUT and RHEUMATISM. Six Dozen Carriage Paid.
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EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

For Sale.—One nearly new Copper Vacuum Pan, 5 ft. diameter, fitted with Stirring Gear, Condenser and all fittings. One Mild Steel Steam Jacketed Still, 4 ft. diameter, fitted inside with Copper Steam Coils, Stirrer and Pulleys, Galvanised Iron Still Head.—Apply to W. J. Fraser & Co., Engineers, 98, Commercial Road East, London, E.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

Calendar for the Week.

Sunday, April 15. Easter Sunday. O 12 M. Sun rises 5.6; sets 6.53.

Monday, April 16. Sun rises 5.4; sets 6.55.

Tuesday, April 17. Sun rises 5.3; sets 6.57.

Wednesday, April 18. Sun rises 5.1; sets 6.58.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 36, York Place, Edinburgh, at 8.30 p.m.—Evening meeting: "Dispensing Notes on (a) Solution of Arsenic and Iron Wine and (b) Glycerin of Codeine," by Archibald Currie; also a Dispensing Query relative to Copper in a Mixture will be dealt with by J. Rutherford Hill.

Thursday, April 19. Sun rises 4.58; sets 7.0.

LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 8 p.m.—Evening Meeting; Papers will be read on "Alpine Vegetation of Tibet and the Andes," by W. Botting Hemsley and H. H. W. Pearson, and on "Some Mosses from China and Japan," by E. S. Salmon.

Friday, April 20. Sun rises 4.56; sets 7.2.

Saturday, April 21. Sun rises 4.54; sets 7.4.

ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C.—National Record Association's Exhibition will close.

CUCUMBER EMULSION

under one name or another is still the favourite preparation for the toilet it is best prepared by using

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which produces a uniformly good article, and saves trouble, time, and temper. Other methods give variable results, and will be avoided by chemists who wish to obtain and maintain a sale for this preparation.

½-lb. jars (= 3 lb. Emulsion), 2/3; 1-lb., 4/3; 7-lb., 25/-, post free.

Full directions and attractive labels and handbills in crimson and black, free with each jar, also formulæ for Milk of Roses, etc., etc.

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Notices to Correspondents.

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

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Abram, Bartlett, Billinton, Burns, Carter, Evans, Ferrall, Findlay, Foster, Hardy, Hill, Johnstone, Judge, Keen, Lowe, Morgan, Passmore, Pound, Prance, Reynolds Sargeant, Surfleet, Wallis, Wheeler, Wright.

NEWS IN BRIEF.

PROFESSOR H. G. GREENISH is announced to communicate a paper to the Chemists' Assistants' Association on Thursday next, April 26.

MESSRS. HICKMAN AND METCALF, of Newbury, intimate that they have fitted up a photographic dark-room, complete with every convenience, for customers' use.

MR. J. WALTON, M.P.S., announces that he has opened a new pharmacy at 1, Alexandra Terrace, South Margate, newly fitted and stocked with everything appertaining to a modern pharmacy.

MESSRS. S. J. D. MANSON AND E. A. RIDER, chemists and druggists, have purchased the business hitherto carried on by Mr. William Pearson at 18, Great George's Road, Waterloo, near Liverpool.

A CENTURY OF CHEMISTRY IN THE ROYAL INSTITUTION is to be the subject of a series of four lectures by Prof. J. Dewar, the first lecture to be delivered at the Royal Institution, on Thursday, April 26, at three o'clock.

THE BRISTOL CHEMISTS are to hold their annual dinner on Wednesday, April 25, at the Royal Hotel, College Green, at 7 p.m. Amongst the visitors expected to be present are Mr. Michael Car-teighe, Mr. F. R. Cross, Dr. P. Watson Williams, and Mr. R. S. Atkins. Tickets, 5s. each, may be obtained of the President, Mr. G. T. Turner, or the Hon. Secretary, Mr. B. Keen.

MESSRS. WRAY AND THOMPSON, chemists, Wheelgate, Malton, narrowly escaped having a serious fire at their shop on Good Friday. The sun, shining brightly through one of the carboys, set fire to the window-blind; fortunately a passer-by noticed the occurrence, an entrance was forced into the shop and the fire extinguished before much damage was done.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, APRIL 18, 1900.

There has been rather a quiet tone about the market here during the week, and miscellaneous sales do not call for much comment. Considerable rises have taken place in Linseed Oil owing to high price of material, and an upward movement has again set in with Spirits of Turpentine. The attention centred in Canary Seed latterly seems to be diminishing, though prices are constant. Spices have not been much in evidence, Chillies alone being dealt in at good figures. Sales of Chilian Honey effected show no falling off in price in any quality. Full rates have been secured for what Carnauba Wax has been offered, "yellow" being in good request. A quiet tone is reported in Chemicals, with less business than usual transacted.

AMMONIA SALTS.—Sal ammoniac is firm at 38s. to 40s. per cwt. Sulphate continues dull at £11 15s. to £11 17s. 6d. per ton.

BEESWAX.—2 cases Peruvian made £7 12s. 6d. per cwt., ex store.

BLEACHING POWDER.—Is firm at £7 to £7 10s. per ton.

CANARY SEED.—90 bags of Turkish have been sold at 34s. 6d. per 464lb., and further amounts at the same rate since.

CARNAUBA WAX.—19 bags of yellow fetched 100s. per cwt. since auction, and grey has sold at 80s. also.

COPPERAS.—Is very firm at 37s. to 39s. per ton.

COPPER SULPHATE.—Is somewhat dull at £25 5s. to £25 7s. 6d. per ton.

HONEY.—60 barrels of Chilian made 23s. 6d. per cwt. for Pile 2 and 25s. 6d. for Pile 1.

KOLA NUTS.—9 bags of dried changed hands at 1½d. per lb., ex quay.

LINSEED.—There is a very firm feeling at present, with little offering forward. 500 tons of River Plate sold on the spot at 44s. 6d., 4 per cent. basis, early in last week. Since then 200 tons sold at 47s., and none is offering now in any position. North American at 48s. per 416lb., store, and Turkish at 52s. Calcutta has been offering, "to arrive" April to May, 49s.; River Plate, on passage, at 47s., and for April at 47s. 3d. to 48s.

OILS (FIXED) AND SPIRITS.—Castor Oils dealt in have been mostly Calcutta, of which 50 cases sold, ex store, at 3½d. per lb. Subsequently 3½d. was asked. First pressure French at 3¾d. to 3¼d. per lb. has been changing hands moderately; second French is at 3¼d., and Madras 3½d. per lb. Olive Oils of Spanish make continue steadily moving off at £35 10s. to £36 10s. per ton for spot lots. Linseed Oils of Liverpool pressure have risen considerably in price, and are selling readily at 27s. 3d. to 27s. 6d. per cwt. Cotton Seed Oil is steadily held for 23s. to 24s. per cwt., with a fair business doing. Spirits of Turpentine are quoted by sellers at 43s. per cwt., but only a small trade is doing.

POTASH SALTS.—Bichromate, 4d. to 4½d. per lb. Chlorate is very steady at 4½d. to 4¾d. per lb. Pearlash, 33s. 6d. to 35s. per cwt. Potashes are in steady demand at 27s. 6d. to 27s. 9d. per cwt. Prussiate is firm at 8d. per lb. Saltpetre, 21s. 6d. per cwt.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is firm and in better inquiry at 17s. to 18s. per cwt.

CAUSTIC SODA.—Is very firm and scarce for immediate delivery, 76 to 77 per cent. at £11 per ton, 70 per cent. at £10 5s., and 60 per cent. at £9 5s. per ton. Soda Crystals, £3 5s. to £3 7s. 6d. Hyposulphite is scarce at £7 5s. to £7 15s. per ton. Nitrate is easier and offers at 8s. 6d. to 8s. 9d. per cwt.

LONDON, THURSDAY, APRIL 19, 1900.

As might have been expected, business in Drugs and Chemicals, as well, in fact, as in most other commodities, has been quite restricted during past week; in fact, it may be said that business only really commenced to-day after the holidays, while there are practically no changes at all of any importance to report in value or position of articles of any great interest to the readers of these columns, with the exception that Sulphate of Quinine waked up a bit, but afterwards again suffered a slight relapse. Otherwise prices are practically unchanged, the following being those ruling for some articles of principal importance:—

ACETANILIDE.—Remains dull and weak at 9½d. to 1s. per lb.

ACID BORACIC AND BORAX.—Quiet, but steady at unchanged prices.

ACID CARBOLIC.—Quiet and somewhat weak at nominally unchanged prices. Market for refined acid has, however, somewhat stiffened up during past two days, and makers now look for better prices again rather than a further decline. Crude: 60° F., 2s. 6d. per gallon; 75° F., 3s. Liquid, 95 to 98 per cent. of pale straw colour, 1s. 7d. to 1s. 8d. per gallon in 40-gallon casks; ditto 25-30 per cent. of dark colour, 11d. to 1s. per gallon.

ACID CITRIC.—Quiet at 1s. 4d. to 1s. 4½d. per lb. for crystals in 5-cwt. casks.

ACID OXALIC.—3¼d. to 3½d. per lb. nett, free delivered London.

ACID TARTARIC.—English is still 1s. 0¾d. to 1s. 1d. per lb. on the spot. Foreign, 1s. to 1s. 0¼d. per lb.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate, dull gray, 24 per cent., London prompt, £11 12s. 6d.; Hull prompt, £11 10s.; Leith prompt, £11 10s. to £11 11s. 3d.; Beckton, £11 12s. 6d.; Beckton terms prompt, £11 10s. Sulpho-cyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus, £38 10s. to £39 10s. per ton. Crude Japan (Black Sulphide), £22 to £22 10s.

ASHES.—Pots, 28s. 6d. Pearls, 34s.

BISMUTH.—Unchanged, both for the metal and the salts.

BLEACHING POWDER.—English is still quoted £7 per ton.

BROMIDES.—Remain very firm at prices given in our last, say, 1s. 11½d. per lb. for potassii bromide, the other bromine preparations being also unaltered in value.

CAMPHOR.—Firm but unchanged, both for the crude and for the refined article, price of latter, of English make, being 2s. 3d. per lb. for bells and flowers, tablets being quoted in proportion.

CASTOR OIL.—Firm. Belgian 1st pressing spot, £31 10s.; May-June, £30, f.o.b., Antwerp; 2nd pressing spot, £28 10s. per ton. Hull manufactured: Guaranteed cold drawn pure Pharmaceutical, £33 5s. per ton in barrels, 3 15-16d. per lb. in cases. Pure firsts, £30 15s.; seconds, £29 15s. per ton in barrels; firsts, 3 9-16d. per lb. in cases; seconds, 3 7-16d., ex wharf London.

CINCHONA BARK.—The exports from Java for the first half of the month were 275,000 Amsterdam lb., against 585,000 Amsterdam lb. in the corresponding period last year.

CLOVES.—The market for Zanzibar continues firm, but quiet; a moderate business has been done, and comprises March-May delivery reported at 4 19-32d., closing buyers at 4 ½d., June-August at 4 19-32d. to 4 ½d., and sellers October-December at 4 ½d., and January-March at 4 19-32d. No Public Spice Auctions have been held this week, but they will be resumed on the 25th inst.

COAL TAR DISTILLATION PRODUCTS.—Toluol Commercial, 1s. 2d. to 1s. 4d. per gallon. Benzole: 50 per cent., 8d. per gallon; 90 per cent., 7d. Creosote, 3d. to 6d. per gallon, according to quantity, etc. Crude Naphtha, 30 per cent. at 120° C., 4½d. to 5d. per gallon. Solvent Naphtha: 95 per cent. at 160° C., 1s. 5d.; 90 per cent. at 160° C., 1s. 2d.; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene: A, 3½d. per unit; B, 2¾d. Pitch, 38s. per ton f.o.b. Tar, refined, 13s. 6d. per barrel, 2½d. per gallon. Crude, 12s. 6d. per barrel, 2¼d. per gallon.

COCAINE.—Makers of brands most in favour remain firm at 16s. 3d. per oz. for the Hydrochloride for 200-oz. lots, in 25-oz. tins.

COD LIVER OIL.—Agents for the refiners are not quite so stiff in their ideas. Prices, however, remain practically quite nominal, there having been no business passing in the article during the past week.

CODEINE.—Very firm, at 13s. 6d. per oz. for the pure and 1s. per oz. less for the salts.

COPPER SULPHATE.—Steady at £24 10s. to £26 per ton, according to make, quantity, and packing.

CREAM OF TARTAR.—Unchanged, at 73s. per cwt. for first white crystals on the spot, 75s. per cwt. for powder, and 76s. per cwt. for ditto 95 per cent.

GLYCERIN.—Both crude and refined are firm at nominally unchanged prices.

IODIDES.—The uncertain feeling reported last week continues to prevail as regards the position of this article. Prices are, however, so far unchanged.

MERCURIALS.—Are very firm at unchanged prices.

MORPHINE.—Firm, at 5s. per oz. for the hydrochloride powder and 2d. per oz. more for the crystal salt.

OILS (FIXED) AND SPIRITS.—Linseed opened firm, but forward positions were rather easier at the close. On the spot, pipes, London ordinary, £27 to £27 5s. (E.I., 10s. premium); barrels, £27 5s.; Hull spot, naked, £25 10s. Rape firm. Ordinary brown, on spot, £28; refined, spot, £29 10s.; Ravison, naked, spot, £26. Cotton firm. London Crude, spot, £21 15s.; refined, spot, £23 10s. to £24 5s., according to make; Hull, naked, refined, spot, £22 2s. 6d.; Crude, spot, £20 12s. 6d. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut quiet. Ceylon, on spot, £25 10s.; near, £24, c.i.f. Cochin, spot, £28 10s. to £29. Palm Lagos, on the spot, quoted £28 10s. Petroleum (oil) quiet. Russian, spot, quoted 7d. to 7½d.; American, spot, 7½d. to 7¾d.; Water white, 8¾d. Lubricating Oil: Pale American, spot, 9s. to 10s. 9d.; black, 7s. to 9s.; Russian black, 6s. 6d. to 7s.; pale, 8s. 9d. to 10s. 3d. Petroleum (Spirit): American, 8¾d. to 9d.; Deodorised, 10d. to 10½d. Turpentine opened weak at 39s. 9d. for spot, but subsequently an improved inquiry brought higher prices,

the close being firm throughout. American, spot, 40s.; April, 40s.; May, 39s.; July, 34s.

OPIUM.—Market is firm at nominally unchanged prices. There has, however, been practically no business passing in the article since the holidays.

PARAFFIN WAX.—Crude, 3¼d. to 3½d. per lb. Refined, 4d. to 4½d. per lb.

PEPPER.—There has been more demand to-day for Singapore, and a fair business has resulted at dearer rates. About 75 tons have been sold, largely spot, on a basis of 6½d. for fair, and February-April shipment at 6¾d. The shipments to London for the first half of April were:—Singapore, 40 tons against 20 tons, and Penang 100 tons against 40 tons last year. To America shipments were 20 tons against 240 tons, and to the Continent 40 tons against 70 tons in 1899.

PEPPER, WHITE.—Is without alteration, and business unimportant. The shipments to London for the first half of the month were:—Singapore 30 tons against 20 tons, and Penang 20 tons against 40 tons last year; to the Continent the shipments were nil against 20 tons in 1899.

PHENACETINE.—Makers still quote 5s. 3d. per lb. for crystals or powder in 5 cwt. lots. It is, however, still possible to buy from second hand in limited quantities at somewhat below this price.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate spot, London crystals, 4¾d.; powder, 4½d. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £20 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow English makes, 8d.; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton, ex-ship.

QUICKSILVER.—Firm, at £9 12s. 6d. from the Importer; second-hand not offering.

QUININE.—The market opened steadily, but showed more firmness on receipt of the favourable bark shipments, prices closing ¾d. dearer; business, however, has been limited owing to scarcity of sellers, comprising about 15,000 ozs. B. & S. and/or Brunswick, on the spot at 1s. 2½d.; closing value, 1s. 3¼d.; May, at 1s. 2¾d.; closing value, 1s. 3¾d.; June, at 1s. 3d.; closing value, 1s. 3¾d.; and August closing buyers at 1s. 4d., at which prices there are now rather buyers than sellers. Makers of these brands maintained their price of 1s. 4½d. per oz. for 1,000-oz. lots in 100-oz. tins.

SALOL SALICYLATES.—Are without change in price.

SHELLAC.—The market remains very quiet, and with a slow demand few sales have occurred, but prices are unchanged, TN Orange on the spot at 60s. for fair. For arrival 100 cases TN March-May shipment have been sold at about 56s. 6d. c. f. and i.; August delivery quoted rather buyers at 60s.

SODIUM COMPOUNDS.—Crystals, barrels quoted 60s.; bags, 57s. 6d. Acetate, £14 per ton, ex-ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3¼d. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent. white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4½d. per lb. Hyposulphate (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9; ordinary, £8 16s. 3d.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate (Salt Cake), £1 7s. 6d. per ton. Sulphide, crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES.—No public auctions have been held this week, and business privately in most articles has been quite unimportant. The auctions will be resumed on the 25th inst.

SULPHONAL.—Makers maintain their price of 20s. 6d. per lb. for both crystals and powder, with a certain reduction for 4-cwt. lots and bulk packing.

TAR.—Stockholm, 26s.; Archangel, 18s. 6d.

THYMOL.—While one maker still quotes 9s. 3d. per lb., other makers hold out for 11s. 6d. to 11s. 9d. per lb.

The Annual Dinner

MEMBERS OF THE PHARMACEUTICAL SOCIETY

OF THE

AND THEIR FRIENDS WILL TAKE PLACE AT

WHITEHALL ROOMS (HÔTEL MÉTROPOLE)

On *TUESDAY, MAY 15th, 1900, at 6.45 for 7 precisely.*



THE VICE-PRESIDENT—MR. G. T. W. NEWSHOLME—IN THE CHAIR.

FIRST LIST OF STEWARDS.

Allen, C. B.	Kilburn, N.W.	Gulliver, W. F.	Lower Belgrave Street, S.W.	Robinson, R. A.	Brompton Road, S.W.
Arkinstall, W.	Chiswick, W.	Hampson, R.	St. Leonard's-on-Sea.	Rogers, Frank A.	Oxford Street, W.
Arnold, H. R.	Coleman Street, E.C.	Harrington, J. F.	Kensington.	Royle, H. W.	Upper Thames Street, E.C.
Atkins, S. R.	Salisbury.	Harrison, J.	Sunderland.	Sanger, C.	Winsley Street, W.
Attfield, J.	Watford.	Harvey-Gibson, R. J.	Liverpool.	Saul, J. E.	New Bond Street, W.
Ayre, G. M.	Perth.	Hill, A. B.	Southwark Street, S.E.	Savory, A. L.	New Bond Street, W.
Baiss, A.	Jewry Street, E.C.	Hills, Walter	Oxford Street, W.	Silverlock, H.	Blackfriars, S.E.
Bateson, T.	Kendal.	Hodgkinson, C.	Whitecross Street, S.E.	Smith, F. A. U.	Bloomsbury Square, W.C.
Benger, F. B.	Manchester.	Holmes, E. M.	Belgrave Mansions, S.W.	Smith, J. H.	Commercial Road, E.
Boa, Peter	Edinburgh.	Hopkin, W. King	Brondesbury, N.W.	Squire, P. W.	Oxford Street, W.
Bottle, A.	Dover.	Hugill, J. H.	Miles Lane, E.C.	Stamp, E. B.	Hampstead, N.W.
Bourdas, I.	Belgrave Road, S.W.	Humphrey, J.	Bloomsbury Square, W.C.	Storrar, D.	Kirkealdy.
Bowen, J. W.	Curzon Street, W.	Hyslop, J. C.	Marylebone, N.W.	Street, Edmund	Cornhill, E.C.
Branson, F. W.	Leeds.	Idris, T. H. W.	Camden Town, N.W.	Sutton, F.	Norwich.
Bremridge, Elias	Bloomsbury Square, W.C.	Ince, J.	Aeton, W.	Symes, C.	Liverpool.
Bremridge, Harding	Bloomsbury Square, W.C.	Johnston, J.	Aberdeen.	Tanner, A. E.	Tottenham.
Bremridge, R.	Bloomsbury Square, W.C.	Kipping, F. S.	Nottingham.	Taubman, R.	Southampton Row, W.C.
Bullock, J. Lloyd	Hanover Street, W.	Lansdown, G. A.	Regent Street, S.W.	Taylor, G. S.	St. John's Wood, N.W.
Butt, E. N.	Hamilton Terrace, W.	Lescher, F. H.	Bartholomew Close, E.C.	Thompson, J.	Aldersgate Street, E.C.
Carteighe, M.	New Bond Street, W.	Lucas, E. W.	Oxford Street, W.	Thomson, John M.	Kensington, W.
Collier, H.	Guy's Hospital, S.E.	Lunan, G.	Edinburgh.	Tiekle, T.	Bloomsbury Square, W.C.
Cooper, Albert	Gloucester Road, S.W.	MacEwan, Peter	Cannon Street, E.C.	Tyrer, T.	Stratford, E.
Coulson, T.	Graechurch Street, E.C.	Martin, N. H.	Newcastle-on-Tyne.	Umney, C.	Southwark Street, S.E.
Cross, W. Gowen	Shrewsbury.	Martindale, W.	New Cavendish Street, W.	Umney, J. C.	Southwark Street, S.E.
Darby, S.	Leadenhall Street, E.C.	Mathews, J. H.	Queen's Gardens, W.	Walker, Henry	Cannon Street, E.C.
Davenport, Horace	Great Russell Street, W.C.	Matthey, G.	Hatton Garden, E.C.	Want, W. P.	Bishopsgate Without, E.C.
Davidson, P.	Brondesbury, N.W.	Maw, Charles	Aldersgate Street, E.C.	Warren, W.	Covent Garden, W.C.
Dunlop, T.	Glasgow.	Miles, C. J.	Edgware Road, W.	Warrick, F. W.	Portpool Lane, E.C.
Eastes, E. J.	Chancery Lane, W.C.	Millard, E. J.	Charlotte Street, E.C.	Wellcome, H. S.	Snow Hill Buildings, E.C.
Ekin, C.	New Bond Street, W.	Morson, T. P.	Southampton Row, W.C.	Weston, S. J.	Westbourne Terrace, W.
Everett, J. G.	Windsor.	Naylor, W. A. H.	Southwark Street, S.E.	Whiffen, T.	Battersea, S.W.
Ewing, J. L.	Edinburgh.	Newsholme, G. T. W.	Sheffield.	White, Edmund	St. Thomas' Hospital, S.E.
Farmer, J. Bretland	Wimbledon.	Park, C. J.	Plymouth.	Wigginton, A.	Sloane Street, S.W.
Farr, E. H.	Uekfield.	Parker, R. H.	Maida Vale, W.	Wills, G. S. V.	South Croydon.
Farries, T.	Coleman Street, E.C.	Paul, B. H.	Bloomsbury Square, W.C.	Wilson, Harold	Univ. Coll. Hospital, W.C.
Flux, Wm.	East India Avenue, E.C.	Peek, E. S.	Cambridge.	Wilson, Harry	Southampton.
Francis, G. Bult.	Southwark Street, S.E.	Phillips, A. J.	Cromwell Road, S.W.	Woolley, G. S.	Manchester.
Gerrard, A. W.	Wimbledon.	Philp, W. J. I.	Notting Hill, W.	Worsley, A. G.	Ladbroke Grove Road, W.
Glyn-Jones, W. S.	Poplar, E.	Preston, A. C.	Bishopsgate Street, E.C.	Wretts, J. R.	Oxford Street, W.
Green, J. Reynolds	Cambridge.	Probyn, Clifford	Grosvenor Square, W.	Wright, R.	Buxton.
Greenish, H. G.	Bloomsbury Square, W.C.	Ransom, F.	Hitchin.	Young, J. Rymer	Warrington.
Grimwade, E. H.	Bishopsgate Street, E.C.	Reynolds, R.	Leeds.		
Grose, N. M.	Swansea.	Robbins, J.	Warrington Crescent, W.		

TICKETS, ONE GUINEA EACH (including Wine), may be obtained from RICHARD BREMRIDGE, 17, BLOOMSBURY SQUARE, W.C.

Calendar for the Week.

Sunday, April 22.	1st after Easter. ☾ 2.23 A. Sun rises 4.52; sets 7.6.
Monday, April 23.	Sun rises 4.49; sets 7.7.
Tuesday, April 24.	Sun rises 4.47; sets 7.8.
Wednesday, April 25.	Sun rises 4.46; sets 7.10.
BRISTOL PHARMACEUTICAL ASSOCIATION, Royal Hotel, College Green, at 7 p.m.—Annual Dinner. Tickets, 5s. each.	
PUBLIC AND POOR LAW DISPENSERS' ASSOCIATION, St. Bride's Institute, St. Bride's Lane, Ludgate Circus, at 8 p.m.—Descriptive Lecture on "Practical Photography," by F. Noad Clark. Meeting free to all dispensers.	
ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—Exhibition of F. H. Evans' Photographs (mainly architectural); with an address.	
WESTERN CHEMISTS' ASSOCIATION (of London), Westbourne Restaurant, 1, Craven Road, Paddington, W., at 9 p.m.—Smoking Concert.	
Thursday, April 26.	Sun rises 4.44; sets 7.12.
CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Paper by Professor H. G. Greenish. Subject not announced.	
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Professor J. Dewar, on "A Century of Chemistry in the Royal Institution." (Lecture I.)	
Friday, April 27.	Sun rises 4.42; sets 7.14.
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—Lord Kelvin on "Nineteenth-Century Clouds over the Dynamical Theory of Heat and Light."	
Saturday, April 28.	Sun rises 4.40; sets 7.15

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the "Exchange" should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., not later than 5 p.m. on Thursdays.

OFFERED.

Two vols. **Green's Botany**, unsoiled, latest edition. Best cash offer.—Woollatt, Ware.

Ten Incandescent Electric Lamps, 2, 4, 6, 12 volts, well made, new. Also patent 4 volt Flat Accumulator, 7 hours, unused, perfect. Price 18/6 the lot, post free.—H. B. Cox, Charlton Road, Shepton Mallet.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

Robert Milne Beaton and Adam Alexander, Physicians and Surgeons, 183, Kentish Town Road, and 7, Dartmouth Park Road, Kentish Town. Debts will be received and paid by Adam Alexander.

George Taylor and William Smith, trading as A. and G. Taylor, Photographic Colourists, Enlargers, etc., and Manufacturing Chemists, Victoria Works, Stanstead Road, Forest Hill. Debts will be received and paid by George Taylor, who will continue to carry on the business under the same style.

Egerton Charles Augustus Baines, John Arthur Rigge, and Arthur Blackwood Ward, Surgeons, Physicians, Accoucheurs, Apothecaries, and General Medical Practitioners, Henley-on-Thames. Debts will be received and paid by Mr. J. B. Reeves, Chartered Accountant, 3, Church Court, Old Jewry, London, E.C. The business will be carried on in future by Messrs. Baines and Ward.

Richard Heaton and C. F. Baines, trading as the Dalton Chemical Company, at Long Lane, Dalton, Huddersfield. Debts will be received and paid by R. Heaton, who will continue to carry on the business under the same style.

George Cheverton and John Henry Ogle, Chemists and Druggists, 3, The Broadway, Tunbridge Wells. Debts will be received and paid by J. H. Ogle, who will in future carry on the business.

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FOREIGN PRESCRIPTIONS are dispensed for the trade. The scrips are not stamped.

Publications Received.

PROCEEDINGS OF THE CHEMISTS' ASSISTANTS' ASSOCIATION, containing papers and discussions and full particulars of the meetings held during the Session, 1898-1899, etc. No. XV. Pp. 67, Price 2s. 6d. London: Chemists' Assistants' Association, 73, Newman Street, W. 1900. From the Publishers.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Alcock, Bird, Braun, Cooper, Dewhurst, Doe, Dudderidge, Ellul, Evans, Fairley, Ferrall, Forster, Hickman, Hill, Holroyd, Johnston, Keen, Kemp, Pearson, Philp, Pickering, Reynolds, Wright.

NEWS IN BRIEF.

MR. CHARLES A. PRATT, M.P.S., was unanimously re-elected an Overseer of the Poor by the Town Council of Saltash at its last meeting.

THE STATUTORY MEETING OF CAMWAL, LTD., will be held at the Registered Office, 112, Pembroke Street, Caledonian Road, N., at 3 o'clock on Tuesday next, May 1.

MR. F. MAITLAND, M.P.S., President of the Plymouth, Devonport, Stonehouse, and District Chemists' Association, has been unanimously elected Chairman of the East Stonehouse Urban District Council.

A CARBOY OF CARBON BISULPHIDE exploded on Saturday, April 21, in the cellar of premises occupied by Messrs. Max Schliephak, Limited, manufacturing chemists, Charlotte Street, Fitzroy Square, W. The front of the shop was destroyed, also nearly the whole of the contents, and certain damage was done to the adjoining buildings. The explosion was attributed to the sudden change in the weather from cold to heat.

MR. F. D. PHILLIPS, M.P.S., who was for some years senior assistant with Messrs. Davies and John Bath, and latterly managing one of Messrs. Cruse and Co.'s businesses at Southsea, has taken over the old-established business hitherto carried on by Mr. W. Williams, chemist and druggist, at 17, Market Street, Haverfordwest. Alterations are being carried out by Messrs. Parnall and Son, Bristol.

TRADE NOTES.

GILBERTSON'S ILLUSTRATED PRICE LIST.—Messrs. H. Gilbertson and Sons, Limited, 11, St. Andrew Street, Holborn Circus, E.C., have just issued a new "prices current" of their goods, including druggists' sundries, shop fittings, show-cases, etc. The list, which is well printed and illustrated, contains over eighty pages, and the prices bear favourable comparison with those of any other sundry house.

MESSRS. WILCOX AND Co. intimate that they have recently enlarged and refitted their premises in the Haymarket, where business has long been carried on under the name of G. Jozeau, and that after May 1 their wholesale and retail business of importers and dealers in foreign pharmaceutical preparations, etc., will be transferred and continued at the one address—49, Haymarket, under the title of Wilcox, Jozeau, and Co.

KEATING'S NEW PATENT BELLOWS FOR INSECT POWDER.—An effective means of distributing "Keating's" in crevices and the haunts of beetles and other insects is provided by the new patent bellows, recently introduced by Messrs. Keating. The bellows consist of a flat circular tin, having a long thin nozzle, the expelling force being an ingenious arrangement in the lid, which can be removed for refilling. The retail price of the bellows, filled with insect powder, is 9d.

NATIONAL PHOTOGRAPHIC AND ALLIED TRADES' EXHIBITION.—Mr. Fredk. Boehm, 16, Jewry Street, London, E.C., announces that he has secured Stand No. 7 at the exhibition to be held in the Portman Rooms, Baker Street, London, from April 27 to May 5, and intends to exhibit chemical preparations on behalf of the following firms:—Administration der Minen, Buchsweiler; Heidelberger Gelatine-Fabrik (Stoess and Co.), Ziegelhausen; Deutsche Gold and Silber Scheide-Anstalt, Frankfurt a/Main; E. Merck, Darmstadt.

TOWNSEND'S "CENTURY" BILLS.—Messrs. James Townsend and Son, Little Queen Street, Exeter, send a set of attractive, illustrated handbills, assorted in pink, primrose and blue colours, advertising various preparations sold by chemists. Those bills should, if wisely distributed, effectively direct the attention of the public to the articles advertised thereon. A sample set will be sent to any chemist on applying to the firm.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, APRIL 25, 1900.

Business continues quiet here, but prices remain firm. In consequence of the abnormal prices asked and obtained for Linseed during the week, the oil has reached a figure higher than has been reached during the last twenty-five years, and fully 2s. 6d. per cwt. dearer than that quoted last week. Other oils are as last week, except Cottonseed, which has risen, as usual, in sympathy with Linseed Oil. Spirits of Turpentine experienced a rapid fall in price early in the week, due to arrivals from America, but a shortage being again felt the price has risen to last week's quotation. Good sales of Honey, both Peruvian and Chilian, have been made, and Ginger and Chillies, both of West African origin, have been largely dealt in. Chemicals have been quiet, and are without alteration.

AMMONIUM SALTS.—Sal ammoniac still selling at 38s. to 40s. per cwt. Sulphate is quiet at £11 12s. 6d. per ton, an easier rate than last week.

BLEACHING POWDER—Sells well at the firm price of £7 to £7 10s. per ton.

CHILLIES.—Sierra Leone, of good quality, have changed hands at 42s. 6d. per cwt.

LINSEED—Is very strong, and 100 tons of Calcutta 4 per cent. sold, to arrive shortly, at 51s. per 416 lbs.—the highest figure made for 25 years. 6,000 bags, or about 400 tons, of River Plate sold for 48s. per 416 lbs.

OILS (FIXED) AND SPIRITS.—Castor is firm, with fair inquiry and satisfactory sales. 100 cases of Calcutta to arrive, Jan.-March shipment, sold at 3 31-64d. per lb., 100 ditto 3½d., and 50 3 15-32d. 500 cases to arrive July-August made 3½d., 250 cases to arrive April 3½d., and now 3½d. is asked for oil in similar forward position. Spot prices are: Calcutta 3½d. per lb., French, first pressure, 3½d. (5 tons sold); second pressure, French or Belgian, 3½d., and Madras 3½d. per lb. Olive is only selling to small extent, but is held for £35 10s., and £36 per tun for Seville. Linseed Oils of Liverpool make have advanced rapidly from 27s. 3d. and 27s. 6d. per cwt. to 30s. 6d. and 31s.—a price not reached in 1880. Cottonseed Oil: Liverpool, refined, has advanced to 24s. 6d. and 25s. per cwt., packed in export barrels. Spirits of Turpentine, after dropping to 41s. 6d. per cwt., rose again to 43s., at which figure they are stationary.

POTASSIUM SALTS.—Bichromate, 4d. per lb. Chlorate, 4½d. to 4¾d. per lb. Cream of Tartar is quiet at 74s. to 80s. per cwt. Pearlashes are 33s. 6d. to 35s. per cwt. Potashes have a slow sale on the spot at 27s. 6d. to 27s. 9d. per cwt. Prussiate is firm at 8d. per lb.

SODIUM SALTS.—Bicarbonate £6 5s. to £6 15s. per ton. Borax is firm at 17s. and 18s. per cwt. Caustic Soda, 70 to 77 per cent., £11 per ton; 70 per cent., £10 5s.; 60 per cent., £9 5s. Crystals, £3 5s. to £3 7s. 6d. per ton. Nitrate is only in moderate request on the spot at 8s. 6d. to 8s. 9d. per cwt.

LONDON, THURSDAY, APRIL 26, 1900.

Business in drugs and chemicals has been quiet during the past few days, and with the exception of a slump in the speculative market for quinine and a further advance in English makers' price for refined camphor, there are no changes of any particular importance to record. Quicksilver is rather lower, but so far there is no change in price of mercurials. Iodines still unchanged, although the position continues unsettled. Carbolic the turn harder, as also is citric. Cocaine also appears to have a slightly upward tendency. Glycerine remains firm. Cod liver oil dull and weak. Bromides very firm. Acetanilide, phenacetine, and sulphonal unchanged. Salicylates and salol without change. The following are the prices ruling for some articles of principal interest:—

ACID CARBOLIC—Is just a shade firmer, prices remaining nominally about same as quoted last week, both for refined, crude, and liquid.

ACID CITRIC.—There is more inquiry, and tone is decidedly firmer at 1s. 4d. to 1s. 4½d. per lb. for crystals in 5-cwt. casks. It is reported that makers are not willing to make sales for forward delivery.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate very weak; grey, 24 per cent., London, £11 10s.; Hull, prompt, £11 6s. 3d. to £11 7s. 6d. Leith, prompt, £11 7s. 6d. Beckton, £11 10s. Beckton, terms prompt, £11 7s. 6d. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

BORAX AND BORACIC ACID.—Steady, at unchanged prices.

CAMPHOR.—Market for crude remains quiet but firm, there being practically no business passing at the moment. For refined English makers advanced their price 1d. per lb. to 2s. 4d. per lb. for Bells and Flowers, Hamburg still quoting a rather lower figure.

CASTOR OIL.—Firm; Belgian, first pressing, spot, £31 10s.; May-June, £30, f.o.b. Antwerp, second pressing, spot, £28 10s. per ton. Hull manufactured, guaranteed cold drawn pure Pharmaceutical, £33 10s. per ton in barrels, 4d. per lb. in cases. Pure firsts £31, seconds £29 per ton in barrels; firsts 3½d. per lb in cases, seconds 3½d., ex-wharf, London.

CLOVES.—At auction, 100 bales Zanzibar offered and bought in at 4½d. 29 cases Penang bought in, good to fine bright picked at 9d. to 1s. 18 cases Ceylon sold, picked dark at 5½d. 6 bags Seychelles sold at 4½d. for fair. Privately Zanzibar are flat and lower, closing with sellers of June-August delivery 4½d., and August-October at 4¾d., but no business whatever has been transacted.

COD LIVER OIL.—Dull and weak. To effect business the agents here would probably accept rather lower prices than they were lately asking, but buyers continue to hang off.

GINGER.—At auction Cochin was more freely offered, but demand was slow and only a little sold at steady rates to some advance for bold Calicut rough. Of 97 cases and 748 bags catalogued 55 packages sold, bold dull rough Calicut, in cases, much limed, at 42s. 6d., cut limed tips at 35s., bright brown ditto at 30s.; the remainder bought in, including good to fine medium and bold cut and scraped at 75s. to 90s.; washed rough, fair to good bright at 32s. to 35s. Jamaica, in large supply and demand, was fair, a good proportion selling at irregular rates. Good to fine quality brought firm prices to 2s. advance. 1,450 barrels and 5 half-barrels offered and 804 packages sold, extra fine bright (½ barrel) at 82s., fair at 61s. 6d. to 65s. 6d., low middling to middling, 54s. 6d. to 60s., good to good common 45s. to 53s., common to fair Rhaton, 40s. 6d. to 44s.

GLYCERIN.—Firm, with a continued upward tendency, although prices are nominally unchanged.

MORPHINE.—Quiet and unchanged, with, however, a firm undertone.

OILS (FIXED) AND SPIRITS.—Linseed quiet, forward positions being 10s. easier. On the spot, pipes, London ordinary, £29 15s. (E. I. 10s. premium); barrels, £29 15s. Hull, spot, naked, £28 10s. Rape quiet, ordinary brown, on the spot, £28; refined, spot, £29 10s. Ravison, naked, spot, £25 10s. Cotton firm; London, crude, spot, £22 10s.; refined, spot, £24 to £24 10s., according to make. Hull, naked, refined, spot, £22 10s.; crude, spot, £21 5s. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut steady; Ceylon, on spot, £25 5s. Cochin, spot, £28 10s. Palm: Lagos, on the spot, quoted £28. Petroleum Oil steady; Russian, spot, quoted 6½d. to 7½d.; American, spot, 7½d. to 7¾d.; water white, 8½d. to 8¾d. Lubricating: Pale American, spot, 9s. to 10s. 9d.; black, 7s. to 9s.; Russian, black, 6s. 6d. to 7s.; pale, 8s. 9d. to 10s. 3d. Petroleum Spirit: American, 8¾d. to 9d.; deodorised, 10d. to 10½d. Turpentine quiet; American, spot, 41s. 6d.; April, 41s. 6d.; May 40s. 9d. to 41s.; June, 37s.

OPIUM.—Prices are firm. There is, however, but little business passing in the article at the moment.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot, London, crystals, 4½d. net, powder 4½d. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small cryst. quoted 50s. to 60s. per cwt., according to make; large crystals 5s. per cwt. more. Prussiate, yellow, English makes, 8d., Beckton 7½d.; red 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

QUICKSILVER.—The importer reduced his price 2s. 6d. per bottle, to £9 10s.

QUININE.—A fair business has been done in best German brands, but at declining prices. The sales are about 80,000oz., comprising B&S and/or Brunswick May delivery at 1s. 3d. to 1s. 2¾d. and since reported at 1s. 2¾d., June at 1s. 3¼d. to 1s. 3½d., and August at 1s. 3¾d. Makers of these brands maintain their price of 1s. 4½d. per oz. for the Sulphate in 1,000-oz. lots, in 100-oz. tins. With regard to the above reported sales in the speculative market, it is believed that some of them, at least, are "bear" sales, the ultimate result of which may very likely prove anything but advantageous to those who have sold.

SHELLAC.—The market remains very quiet, and privately little business of importance has occurred in any position, but prices show no quotable change. The auctions were resumed on Tuesday, after having been suspended since the 3rd inst. Supplies were small, but demand slow, the few cases of Second Orange sold bringing about previous rates, TN. value being 59s. to 60s. Rangoon Garnet steady. Button all bought in. A total of 502 cases offered and 39 cases sold. Second Orange: Of 250 cases 30 cases sold, good bright reddish at 60s., flat livery at 58s., fine lemony LM& Co. little matted bought in at 73s., and good to fine pale BR&Co. A1, more or less cakey and blocky, at 70s. to 74s. Garnet: Of 46 cases 9 sold, fair flat "Rangoon" at 58s., blocky AC. bought in. 502 cases Button offered and all bought in. Futures continue dull and inactive, with sellers of TN Orange at 55s. per cwt., c.i.f., for April-June shipment, and at 60s. for August delivery.

SODIUM COMPOUNDS.—Crystals, barrels, quoted 60s., bags 57s. 6d. Acetate, £14 per ton, ex-ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3¼d. Bromide, 2s. 2½d. Caustic, 70 per cent., white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4½d. per lb. Hyposulphate (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9; ordinary, £8 16s. 3d.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate (Salt Cake), £1 7s. 6d. per ton. Sulphide crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: No Singapore offered; 64 bags Alleppy bought in at 6d. to 6¼d., also 200 bags Penang at 5¾d. White Pepper: 43 bags Singapore bought in at 10½d., and 69 bags Penang at 8¾d.; 33 bags Ceylon sold at 8¾d. Capsicums quiet but steady; good bright cherry pods bought in at 45s., and 5 bales fair bright long sold at 31s. Cinnamon Chips and Bark dull; of 720 bags only 20 bags Chips sold, fair at 3¾d. Nutmegs slow of sale; 83 packages West Indian sold, 69's at 1s. 9d., 73's at 1s. 7d., 96's at 1s., 117's to 121's at 10½d. to 11d., 136's at 9d. to 9½d., 140's at 7½d. Mace quiet; 3 cases Penang bought in; 22 packages Bombay wild sold, fair pale at 5d. to 5¼d., reddish at 4d., pickings at 3d. Pimento steady; of 414 bags 115 sold, ordinary to middling at 3¼d. to 3¾d.

SULPHONAL.—It is reported that a Swiss maker who had been selling the article at lower figures than those fixed by the combined makers is not delivering promptly against his contracts, consequently buyers have had to revert to the other makers, who maintain price of 16s. 3d. per oz. for the Hydrochlorate in 200-oz. lots. The market has assumed a firmer tone, and some people think an advance in price not quite improbable.

TURMERIC.—At auction 920 bags Cochin split bulbs met little demand, and all were bought in, including fair bright at 10s. 6d. 69 bags fair Madras finger retired.

THURSDAY'S DRUG SALES.

To-day's Drug Auctions comprised twenty-one catalogues, making up a very considerable number of lots. Ipecacuanha and Cardamoms sold well. The following are particulars, as far as it has been possible to procure same up to time of going to press:—

ACONITE ROOT.—18 bales Japan, which were catalogued, had been sold prior to the sales.

ALOES.—22 cases Cape part sold at 25s. to 29s. per cwt., according to quality. Other 50 cases chiefly bought in at 28s. to 30s. per cwt. for good hard bright quality, the less desirable selling at 25s. to 26s. per cwt. 6 cases Zanzibar in skins sold at 50s. to 57s. 6d. per cwt. for good and 40s. per cwt. for lower quality. 20 kegs Socotrine were taken out at 75s. per cwt.

AMBERGRIS.—4 tins part sold at £5 15s. per oz. for good quality.

ANATTO SEED.—3 bags of fair quality sold at 1¾d. per lb.

ANISEEDS.—30 bags fair Spanish part sold at 27s. 6d. per cwt.

ANTIMONY.—50 cases Japan crude (black sulphide) bought in at £24 per ton.

ARECA NUTS.—90 bags taken out at 20s. per cwt.

ARGOL.—10 bags Cape held for 45s. to 50s. per cwt., only 47s. 6d. being bid for good pale.

ASAFETIDA.—315 packages part sold at 47s. to 81s. per cwt. for medium to fair to good almondy block, heavy sandy block being taken out at 50s. to 55s., lower quality at 30s. to 40s. per cwt. Other 88 cases fair almondy block, some dark, realised about same figures. Other 101 cases, chiefly of low quality, being salvages from a late fire at the docks, and offered without reserve, sold at 6s. 6d. to 18s. per cwt.

BALSAM COPAIBA.—12 barrels thin part sold at 1s. 1d. per lb.

BALSAM PERU.—8 cases were bought in at 6s. 9d. per lb.

BALSAM TOLA.—6 cases were taken out at 1s. 5d. per lb.

BIRD LIME.—8 cases good Japan bought in at 1s. 3d. per lb.

BITTER ALMONDS.—4 cases Bombay taken out at 40s. per cwt.

CAMPHOR.—15 cases Japan refined, each 60lbs. (in ¼oz. tablets and 1lb. tin boxes), were bought in at 2s. 3d. per lb.

CARDAMOMS.—80 cases part sold at 2s. 1d. to 3s. 4d. for medium to fair to good bold Ceylon, Mysore, smaller sizes realising 1s. 1d. to 1s. 3d., 6 cases wild longs part selling at 3s. 2d. per lb., subject to holder's approval. Other 40 cases Ceylon Mysore were chiefly bought in at 2s. 9d. per lb., part selling at 1s. 1d. to 2s. 1d. per lb. 7 cases seeds bought in at 2s. 3d. per lb. Other 26 cases were also chiefly bought in, 3 cases very fine bold at the high price of 4s. 3d. per lb. Another lot of 89 cases sold well up to 4s. 5d. per lb. for fine bold pale Mysore. Seed at 2s. 2d. per lb. 60 cases Mangalores all sold at 2s. 9d. up to 3s. 8d. per lb. for good bold pale.

CASCARA SAGRADA.—60 bags good bright bark bought in at 27s. 6d. per cwt. 143 bags sea-damaged offered, without reserve, sold readily at 15s. to 21s. 6d. per cwt.

CHIRETTA.—15 bales of fair quality part sold at 4½d. per lb.

CINCHONA BARK.—38 serons crown sold at 7d. to 7½d. per lb.

COCAINE.—1 box, about 200 oz. crude, bought in at 14s. per oz.

COCCULUS INDICUS.—64 bags bought in at 8s. 9d. per cwt.

COLOCYNTH.—18 cases fair, small to medium, Turkey bought in at 1s. 6d. per lb. 10 cases fair but broken Spanish were also bought in; 3 cases unpeeled Persian also failed to find a buyer. Other 4 casks good medium Turkey sold comparatively cheaply at 1s. 2½d. to 1s. 3d. per lb.

DRAGON'S BLOOD.—11 cases dull reeds bought in at £11 to £11 10s. per cwt. 20 cases also bought in at 75s. per cwt. for Zanzibar drop.

ESSENTIAL OILS.—Two cases Bergamot bought in at 7s. per lb. 21 cases Lemon at 4s. 3 drums. 8 cases Pimento at 8s. per lb. 10 cases Cajeputa at 3s. per bottle. 9 cases Lemongrass sold at 2¾d. per oz. 15 cases Eucalyptus taken out at 1s. 10d. per lb. Other 7 cases of only commercial quality at 7d. per lb. 4 cases West Indian Distilled Oil of Limes sold at 3s., and one case of superior quality as 7s. per lb. 1 case Citronelle bought in at 1s. 2d. 4 cases Cinnamon Leaf at 1s. 6d. per oz. 5 boxes Bay Oil at 6s. 3d. per lb.

GAMBOGE.—10 cases part sold at £8 17s. 6d. per cwt.; balance bought in at £7 10s. to £9 10s. 5 cases semi-liquid, but of fair colour, offered, without reserve, realised 77s. 6d. per cwt.

GUAZA (HERBA CANNABIS INDICA).—80 bales chiefly fair green tops and 17 bales siftings were all taken out, buyers not being prepared to meet holders' views as to price.

GUM ARABIC.—13 packages sorts were bought in at 45s. to 75s. per cwt. 15 bales Aden gum were taken out at 50s. per cwt.

GUM BENZOIN.—49 bales part sold at £7 15s. for medium to fair Sumatra seconds. Other 23 cases were taken out at £8 and 30 cases Palembang at 55s. per cwt. 13 cases Siam all bought in at £9 to £11 per cwt. for small to loose almondy.

GUM ELEMI.—4 cases of very dark colour taken out at 85s. per cwt.

GUM GALBANUM.—13 bales were bought in at 1s. 1d. per lb. for good blocky and 9d. per lb. for only fair.

GUM GUAIAECUM.—12 bales good glassy block part sold at 1s. 4d. to 1s. 6d. per lb., and at 1s. 2d. per lb. for rather drossy.

GUM KINO.—14 cases genuine black Cochin were taken out at 1s. 6d. per lb., and 2 cases East African at same figure.

GUM MYRRH.—For 19 packages, chiefly dark blocky, part siftings, only 25s. per cwt. was bid, which offer was declined. 3 bales of better quality sold at 48s. per cwt., subject to owner's approval. 9 bales dark blocky, offered without reserve, only realised 15s. per cwt. 5 casks fair sorts were taken out at 55s. per cwt.

GUM TRAGACANTH.—2 cases fair white were taken out at £15 per cwt., lower grades selling without reserve at £5 15s. to £9 15s., according to quality; 1 case, badly sea damaged, at 45s. per cwt.

HONEY.—26 packages fair Jamaica part sold at 30s. for cases and 25s. for barrels. Other 6 casks Jamaica sold at 29s. per cwt. for good quality down to 25s. Other 56 packages Jamaica sold freely up to 31s. 6d. per cwt.

IPECACUANHA.—28 bales fair to good Rio nearly all sold at 11s. 3d. to 11s. 6d. per lb. Other 17 bales all sold at 11s. 5d. to 11s. 8d. per lb. 5 bags Carthage 1 CCD were taken out at 8s. per lb. Other 6 packages selling readily at 7s. 6d. to 7s. 8d. per lb. for 3 and 4 CCD.

JALAP.—39 bales sold at 6d. per lb. for good bold heavy tubers, down to 5d. to 5½d. per lb. for smaller.

LEMON JUICE.—8 hogsheads of new juice were bought in at 1s. 4d.

LIME JUICE.—60 packages West Indian were all taken out at 1s. 9d. per gallon.

LIQUORICE JUICE.—14 cases, each about 2cwt., in 2-oz. sticks, marked "Barone Amarelli," were taken out at 65s. per cwt.

MATICO LEAVES.—8 bales fair green but broken part sold at 2d. per lb., subject to owner's approval.

MUSK.—6 tins of low quality were bought in at 25s. per oz.

NUX VOMICA.—328 pockets dull Calcutta were taken out at 10s. per cwt. 117 bags small dull Cochin all sold at 7s. per cwt.

OPIUM.—4 packages Turkey, quality of which did not, however find favour in buyers' eyes, were taken out at 7s. to 7s. 6d. per lb.

ORANGE PEEL.—9 packages part sold at 2½d. per lb. for thick cut and 6d. per lb. for thin cut.

ORRIS ROOT.—13 bags only fair Florentine were taken out at 50s. per cwt.

OTTO OF ROSES.—5 vases bought in at 12s. to 17s. per oz.

PATCHOULI LEAVES.—14 bales of only medium quality were bought in at 5d. per lb.

SARSAPARILLA.—20 serons fair to good Honduras were taken out at 1s. 6d. to 1s. 8d. per lb. 49 bales Jamaica all sold at 1s. 6d. per lb. for the sound, down to 1s. 4d. per lb. for 1 C.C.D., and 1s. 3d. per lb. for 2 C.C.D.

SCAMMONY.—10 cases were all bought in at 14s. to 22s. per lb., according to quality.

SOY.—12 casks China taken out at 1s. 2d. per lb.

SQUILLS.—14 bags were taken out at 2d. per lb.

TAMARINDS.—20 barrels West Indian sold at 12s. 6d. per cwt.

TONQUIN BEANS.—1 cask good Angostura held for 3s. per lb. 3 cases Paras sold at 1s. to 1s. 8d. per lb.

TURMERIC.—50 bags China sold at 28s. per cwt.

VANILLINE.—300oz. of French make offered without reserve only realised the low price of 1s. 11d. per oz.

WAX.—Fair to good Madagascar realised £6 10s. to £7 2s. 6d. per cwt. Madras and Calcutta bought in at £6 10s. 5 cases bleached American at £8 (only £7 17s. 6d. being bid); good Zanzibar fetched £7. 54 packages fair to good Jamaica sold readily at £7 2s. 6d. to £7 10s. 26 cases Bombay part sold at £6 2s. 6d. per cwt.

EXCHANGE COLUMN.

OFFERED.

2 lb. Potass. Iodid., 19s.; 1 oz. Cocain Hydrochlor., 17s.—Eastman, Forest Lane, Stratford.

To Dispose of, last five years' "Chemist and Druggist," "Pharmaceutical Journal," "British Colonial," unbound; "Enterprise" Tincture Press, never used.—Hamiltons, Chemist, Bangor, Wales.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Calendar for the Week.

Sunday, April 29. 2nd after Easter. ☉ 5.23 m. Sun rises 4.38; sets 7.16.

Monday, April 30. Sun rises 4.36; sets 7.18.

DEWSBURY AND DISTRICT CHEMISTS' ASSOCIATION, Church House, Church Street, at 8.30 p.m.—Selection of Candidates for the Pharmaceutical Council.

Tuesday, May 1. Sun rises 4.33; sets 7.21.

CANWAL, LIMITED, 112, Pembroke Street, Caledonia Road, London, N., at 3 p.m.—Statutory Meeting.

CHEMISTS' ASSISTANTS' UNION, Horse Shoe Hotel, Tottenham Court Road, London, W.C., at 8.30 p.m.—Smoking Concert. All chemists and their assistants invited.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 5 p.m.—Annual Meeting.

Wednesday, May 2. Sun rises 4.32; sets 7.22.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 11 a.m.—Meeting of the Council.

NOTTINGHAM AND NOTTS. CHEMISTS' ASSOCIATION, Albert Hotel, at 9 p.m.—To discuss (a) Clause 2 of the Companies Bill; (b) Chemists' Defeuce Association, Ltd. Address by W. S. Glyu-Jones.

Thursday, May 3. Sun rises 4.30; sets 7.24

CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—Papers by A. W. Gilbody, W. H. Perkin, jun., and J. Yates; and F. D. Chattaway and K. J. P. Orton.

CHEMISTS' ASSISTANTS' ASSOCIATION, 73, Newman Street, London, W., at 9 p.m.—Annual General Meeting.

LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 8 p.m.—Papers on "The Movements in Fishes," by Prof. R. J. Anderson; "New Species of Halimeda, from Funafuti," by Miss E. S. Barton; "West Indian Fungi," by Miss A. L. Smith.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Professor Dewar on "A Century of Chemistry in the Royal Institution."

Friday, May 4. Sun rises 4.29; sets 7.25.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—Professor T. E. Thorpe on "Pottery and Plumbism."

Saturday, May 5. Sun rises 4.27; sets 7.27.

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

Charles James Mouncey and James Wood Boyd, Physicians and Surgeons, Haydock Street, Earlestown. Debts will be received and paid by C. J. Mouncey.

Henry Edward Brameld and Ernest Joseph Burnett, Physicians and Surgeons, Saltburn-by-the-Sea. Debts will be received and paid by E. J. Burnett.

Thomas Ingham and Thomas Joseph McCulloch, Manufacturing Chemists and Drysalters, 4, York Street, Manchester, and Green Lane Chemical Works, Padiham, near Burnley.

Roderick Frazer Mackenzie and Arthur James Henry Boyton, Physicians and Surgeons, Grove House, Vauxhall, and 167, Broad Street, Birmingham. R. F. Mackenzie will in future practise at 167, Broad Street, and A. J. H. Boyton at Grove House, Vauxhall.

CUCUMBER EMULSION

under one name or another is still the favourite preparation for the toilet it is best prepared by using

ROUSE'S CUCUMBER PASTE

which produces a uniformly good article, and saves trouble, time, and temper. Other methods give variable results, and will be avoided by chemists who wish to obtain and maintain a sale for this preparation.

$\frac{1}{2}$ -lb. jars (=3 lb. Emulsion), 2/3; 1-lb., 4/3; 7-lb., 25/-, post free

Full directions and attractive labels and handbills in crimson and bl free with each jar, also formulæ for Milk of Roses, etc., etc.

N.B.—Cucumbers actually enter into the manufacture of Rouse's Cucumber Paste.

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Every Description always on hand.

Marriages.

SNOWDEN—COULSON.—On April 18, at the Albemarle Baptist Church, by the Rev. A. E. Dearden, Arthur Sidney Snowden, chemist and druggist, youngest son of the late Jacob Snowden, to Mary Elizabeth, eldest daughter of John Coulson, both of Scarborough.

CROOK—HACKING.—On April 25, at St. Paul's Church, Blackburn, by the Rev. D. E. Davies, Thomas Crook, M.P.S., only son of the late Levi Crook, to Hettie, daughter of the late John Hacking.

Pharmaceutical Society of Great Britain.

ANNUAL GENERAL MEETING.

NOTICE IS HEREBY GIVEN that, in accordance with the provisions of the Royal Charter of Incorporation, the Fifty-Ninth Annual General Meeting of the Members of the Society will take place at 17, Bloomsbury Square, on *Wednesday, May 16th, 1900*, at noon precisely, for the purpose of receiving the Report of the Council, and of Electing the Council and Auditors for the ensuing year.

RICHARD BREMRIDGE,

Secretary and Registrar.

17, Bloomsbury Square, London, W.C

NEWS IN BRIEF.

MR. J. LAIDLAW EWING, J.P., has been elected one of the directors of the Edinburgh Chamber of Commerce.

MR. JAMIESON LAMONT MORTON, M.P.S., has taken over the business formerly conducted by his father at Market Place, Ramsgate.

MR. PERCY KNOTT, M.P.S., at the last meeting of the Bolton Board of Guardians, was unanimously elected vice-chairman for the ensuing year.

MESSRS. MAY'S DRUG STORES, LIMITED, have disposed of their Upper Tooting branch, at 269, Balham High Road, S.W., to Mr. J. E. Monaghan, chemist and druggist. Is this a sign of the times?

MR. GEORGE MACKIE, M.P.S., has purchased the old-established business carried on by the late Mr. D. Gorrie at 31, Minto Street, Edinburgh, of which he has had the sole management for nearly two years.

"ERRAND BOY WANTED, by Doctor; a suitable one would be taught to dispense, and found regular work.—K 36, 'Evening Post' Office." The foregoing advertisement appeared recently in the *Nottingham Evening Post*. Comment is needless.

MR. J. W. DEAKIN, M.P.S., has been re-elected Chairman of the Northwich Urban Council. He has also been the recipient of a beautiful silver cradle, presented to him by his colleagues and the staff of the Council in commemoration of the birth of a son during his first year of office.

DR. FARQUHARSON has introduced a Bill to amend the law relating to medical officers of health, inspectors of nuisances, and sanitary inspectors, and to provide for suitable pension allowances to such persons, as well as to permit of contributions being made towards such allowances by the officers themselves.

MESSRS. MAX SCHLIEPHAX, LIMITED, of 44, Charlotte Street, W., write to say that the cause of the fire and explosion which occurred at their premises on April 21, and was referred to in last week's Journal, has not yet been determined. They state that the carbon bisulphide was stored in a metal drum weighing about one hundred-weight, which not only did not explode, but was taken out intact after the explosion.

MR. SAMUEL LAWRENCE, M.P.S., Oban, has erected a commodious warehouse and laboratory in John Street, where he now conducts his wholesale and manufacturing business, especially in his medical, toilet, household, and veterinary specialties. The new premises adjoin the retail shop in George Street. On the opening day more than 100 of the leading citizens visited the new premises, and were shown over them by Mr., Mrs., and Master Lawrence, and afterwards entertained to cake and wine.

THE CHEMISTS' ASSISTANTS' UNION closed the winter session with a smoking concert on Tuesday, May 1, at the Horse Shoe Hotel. The attendance was not quite so numerous as usual. The chair was taken by Mr. A. Cooper, who in the course of his remarks impressed upon his hearers the necessity of being practical in their work. An excellent programme had been arranged, under the direction of Mr. Cyril Davis, in which Messrs. Tasker, Sillitoe, H. Buckland, Tom Taylor, A. P. Wilkinson, Dyce-Scott, W. Coates, and S. Bryant took part. During the evening Mr. C. E. Pickering, the assistants' candidate, asked his fellow-assistants to support him at the coming election, stating the policy he intended to pursue if elected. Mr. E. Whineray (President) had also a few words to say on the remuneration of assistants and long hours. A vote of thanks to the Chairman, proposed by Mr. A. C. Wootton, followed by the singing of the National Anthem, closed the concert at 11.20 p.m.

THE INTER-PHARMACY FOOTBALL LEAGUE CUP.—The idea of forming a pharmaceutical football league had its origin amongst the "Square" students of the Session 1898-99. A committee, consisting of two representatives from each of the London Schools of Pharmacy, was formed, and met at 17, Bloomsbury Square to

draw up the rules of the league. Subsequently, Mr. W. Watson Will, of the Metropolitan College of Pharmacy, kindly presented the league with its first cup, a photo of which is reproduced herewith. The cup has to be won three times consecutively before becoming the property of the winning team, the proud holders of the cup this year being the "Square" team. The following colleges are associated with the league:—(1) The School of



Pharmacy; (2) the Metropolitan College of Pharmacy; (3) the South London School of Pharmacy; (4) the London College of Pharmacy; (5) the Westminster College of Pharmacy. The officials for the season 1899-1900 were:—President, Mr. Walter Hills; vice-presidents, Professor J. Norman Collie, F.R.S., Messrs. A. H. Mitchell Muter, G. S. V. Wills, W. Watson Will, and H. Wootton; hon. treasurer, Mr. George S. Branch; hon. sec., Mr. J. Evans.

TRADE NOTES.

MERCK'S DIGEST, No. 7, treats of iodipin and bromipin, easily absorbable organic substitutes for iodides and bromides. It is published at Darmstadt by E. Merck.

"BRITISH EMPIRE" SACHET.—Messrs. Ayrton and Saunders, Hanover Street, Liverpool, have introduced the "British Empire" Sachet as a "souvenir of the times." It is attractively got up in red, white and blue colours, with gilt border, and has, in addition to a portrait of the Queen Empress, pictorial representations of the colonies and the national emblems, and a copy of Rudyard Kipling's appeal on behalf of "The Absent-Minded Beggar." Particulars as to price, etc., will be supplied by the firm on application.

KHAKI-COLOURED COURT PLASTER.—Messrs. Max Schliephax, Limited, 44, Charlotte Street, Fitzroy Square, W., intimate that they have taken over the business of Messrs. Glover and Co., 19, Gough Street, W., which firm has manufactured waterproof court plaster since 1827 as a specialty. The latest novelty in that line is a khaki-coloured court plaster which may suitably replace the ordinary black plaster now in use.

MARKET REPORT.

LIVERPOOL, WEDNESDAY, MAY 2, 1900.

The advances in Linseed and its Oil and Cottonseed, together with the high rates for Spirits of Turpentine have not been appreciably reduced during the week. Sales of Honey, Chilian and Californian, have been effected, the latter at high rates; whilst Beeswax of West African and Chilian origin has found ready buyers. In Spices good amounts of Sierra Leone Ginger, both spot and forward, have changed hands, together with Chilies and Madras Turmeric. In the Chemical Market prices remain unchanged, but demand has been limited.

AMMONIA SALTS.—Sal Ammoniac is firm at 38s. and 40s. per cwt. Sulphate is dull at £11 10s. per ton.

BEEWAX.—15 sacks of Chilian sold at £7 10s. per cwt., and 6 of Gambia made £7 5s.

BLEACHING POWDER.—Is firm at £7 to £7 10s. per ton.

COPPERAS.—Is firm at 37s. and 39s. per ton.

COPPER SULPHATE.—Is very quiet at £25 5s. per ton.

GINGER.—25 tons of Sierra Leone, on the spot and for forward delivery, found buyers at 27s. per cwt.

LINSEED.—Is still strong, and business is nil in consequence of the high prices asked by holders in any position. North American, November delivery, has been quoted at 43s. 6d. per 416 lbs. River Plate, to arrive shortly, 49s. 6d. Calcutta, April to May shipment, 49s. 3d.; and a small amount of "spot" River Plate, feeding quality, at 51s.

OILS (FIXED) AND SPIRITS.—Castor Oils remain firm at last week's rulings, but the amount of business done is unimportant; Calcutta at 3⁵/₈d. per lb., 1st French 3³/₁₆d. to 3¹/₄d., 2nd Belgian and French 3¹/₁₆d., Madras 3¹/₈d. Olive Oils of Spanish origin are till quoted at £35 10s. to £36 per tun, but trade is in small compass. Linseed Oils of Liverpool pressure have again advanced, and are selling at 31s. per cwt., firm. Cottonseed Oils, Liverpool refined, have likewise risen further, and are now at 25s. 6d. to 26s. per cwt. in export barrels. Spirits of Turpentine are firmly held for 42s. 6d. per cwt.

POTASH SALTS.—Bichromate, 4d. per lb. Chlorate steady at 4¹/₂d. to 4³/₄d. per lb. Pearlash, 33s. 6d. to 35s. per cwt. Potashes, 27s. 6d. to 27s. 9d. per cwt. Prussiate, 8d. per lb. Saltpetre is scarce at 21s. 6d. per cwt.

SODA SALTS.—Bicarbonates, £6 5s. per ton. Borax is firm at 17s. per cwt. Caustic soda, 76 to 77 per cent., £11 per ton; 70 per cent., £10 5s. per ton. Soda crystal, £3 5s. to £3 7s. 6d. per ton. Nitrate is steady at 8s. 4¹/₂d. to 8s. 9d. per cwt.

TURMERIC.—52 bags of Madras, split bulb, sold at 10s. per cwt. in store.

LONDON, THURSDAY, MAY 3, 1900.

With the exception of a renewed speculative flutter in Sulphate of Quinine (it being rumoured that the "bears" have been "caught short"), business in Drugs and Chemicals has been quiet during past week. Linseed Oil is dearer. Glycerin continues firm, as also does Camphor. Acid Carbolic has slightly recovered. Salicylates and Salol remain unchanged. Iodides weak. Bromides firm. Cod Liver Oil dull and weak. Cocaine the turn harder. Acetanilide, Phenacetin, and Sulphonal unchanged. Quicksilver and Mercurials steady. Acid Tartaric and Cream of Tartar quiet. Acid Citric slightly dearer. Borax and Boracic Acid unchanged. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE.—Continues dull and weak at 9¹/₂d. to 11d. per lb., according to make, quantity, and packing.

ACID BORACIC.—Unchanged at 26s. for crystals and 28s. per cwt. for powder.

ACID CARBOLIC.—Has been in more active demand, and prices are slightly dearer again. Makers of the refined acid quote 34-35° C. ice crystal 9³/₄d. to 10¹/₄d. per lb., according to make, quantity and packing, 39 to 40° C. ice crystal 10¹/₂d. to 11d., and 39 to 40° C. detached crystals, which is now the quality prescribed by the B.P., 11¹/₂d. to 1s. per lb.; crude, 60° F., 2s. 9d. per gallon; 75° F., 3s. 6d.; Liquid, 95 to 98 per cent. of pale straw colour, 1s. 6d. to 1s. 8d. per gallon, in 40-gallon casks; ditto, 25 to 30 per cent. of dark colour, 9d. to 10d.

ACID CITRIC.—Is decidedly firmer, makers being unwilling to sell, especially for forward delivery. Price is nominally 1s. 4¹/₄d. to 1s. 4³/₄d. per cwt. for crystals in 5 cwt. casks.

ACID TARTARIC.—Quiet but steady at 1s. 0³/₄d. to 1s. 1d. per lb. for English and 1s. per lb. for foreign.

ACID OXALIC.—Is still quoted 3¹/₄d. to 3¹/₂d. per lb. nett, free delivered, London.

AMMONIUM COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3¹/₂d. to 4¹/₂d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate flat; grey, 24 per cent., London, prompt, £11 7s. 6d. to £11 10s.; Hull, prompt, £11 5s. to £11 6s. 3d.; Leith, prompt, £11 7s. 6d. Beckton; £11 10s., nominal. Beckton, terms prompt, £11 5s. Sulpho-cyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus is quoted £38 to £39 per ton, and crude Japan (Black Sulphide) £22 15s. to £23 10s.

ATROPINE.—Makers are firm at 15s. 6d. per oz. for the Sulphate P.B., and 17s. 10d. per oz. for the pure alkaloid.

BISMUTH.—Unchanged, at 5s. per lb. for the commercial quality of the metal, 5s. 1d. per lb. for the Subnitrate, and 5s. 8d. per lb. for the Subcarbonate.

BROMIDES.—Continue very firm at 1s. 11¹/₂d. per lb. for Potassii Bromid., 2s. 3d. per lb. for Ammon. Bromid., 2s. 2¹/₂d. per lb. for Sodii Bromid. Bromine, 2s. to 2s. 2d. per lb., according to quantity, in 60 lb. cases.

CAMPHOR.—Crude is firm, with, however, practically no business passing. For the refined, English makers quote 2s. 4d. per lb. for Bells and Flowers, tablets being quoted higher in proportion, according to size.

CASTOR OIL.—Firm; Belgian, first pressing, spot, £31 10s.; May-June, £30 10s., f.o.b. Antwerp, second pressing, spot, £29 10s. per ton. Hull manufactured, guaranteed cold-drawn pure pharmaceutical. £33 10s. per ton in barrels, 4d. per lb. in cases. Pure firsts, £31; seconds, £29 per ton in barrels; firsts 3⁵/₈d. per lb. in cases; seconds, 3³/₈d., ex-wharf, London.

CLOVES.—At auction no Penang were catalogued. 4 cases of Zanzibar fine bold picked sold at 6d. Privately, Zanzibar weak and prices are further reduced 1¹/₈d. Business has been done comprising March-May at 4⁵/₈d., June-August at 4³/₈d. to 4⁵/₈d., August-October at 4³/₈d., closing sellers in most positions at 4⁵/₈d. Clove stems: 40 bales Zanzibar bought in at 1¹/₂d.

COAL TAR DISTILLATION PRODUCTS.—Toluol, commercial, 1s. 3d. to 1s. 6d. per gallon; pure, 2s. to 2s. 6d. Benzole, 50 per cent., 8¹/₂d. per gallon; 90 per cent., 7d. Creosote, 3d. to 5d. per gallon, according to quantity, etc. Crude Naphtha, 30 per cent. at 120° C., 5d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 5d.; 90 per cent. at 160° C., 1s. 2d.; 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene: A, 3³/₄d. per unit; B, 2³/₄d. Pitch, 37s. 6d. per ton, f.o.b. Tar: refined, 14s. per barrel; 2¹/₂d. per gallon; crude, 13s. per barrel; 2¹/₂d. per gallon.

COCAINE.—The combined makers are firm at 16s. 6d. per oz. for the Hydrochlorate in 25-oz. tins for 100-oz. lots, there being now practically no good brands offering at a lower figure from second-hand.

CODEINE.—Remains very firm at 13s. 1d. to 13s. 6d. per oz., according to quantity, for the pure, and 1s. per oz. less for the Muriate, Phosphate, and Sulphate Salts.

COD LIVER OIL.—The agents for the refiners would no doubt accept lower prices than those which they quote nominally—viz., 75s. to 82s. 6d. per barrel for best new Norwegian Oil in tinned barrels of 25 gallons, but at the moment there is practically no business passing in the article.

CREAM OF TARTAR.—First white crystals are still quoted 73s. per cwt. on the spot. Powder, 75s.; ditto, 95 per cent., 76s. per cwt.

ESERINE (PHYSOSTIGMINE).—Very firm at 2s. to 2s. 6d. per gramme, according to quantity, for the Sulphate and Salicylate, and 3s. to 3s. 6d. per gramme for the pure Alkaloid.

GINGER.—At auction the small quantity Cochinchina offered only partly sold. No cut kinds were offered; rough sold at rather easier rates. 205 bags offered and 105 sold, bright Calicut, rough medium and small, some bold at 31s. to 31s. 6d. Washed rough medium and small bought in at 34s. Japan: 100 bags offered and 40 sold previous to auction, remainder bought in at 26s. Jamaica: The small quantity offered met a good demand, good to fine qualities selling at 2s. advance, common and Rhatoon quiet at previous rates. 629 barrels 15 half-barrels and 25 cases offered and 450 packages sold at and since the sale, good to fine bright at 70s. to 78s., fair bright 63s. 6d. to 69s., low middling to middling 54s. 6d. to 62s., common to good common 46s. to 53s.

GLYCERIN.—Crude remains very firm at £35 to £42 10s. per ton, while refined is also firm at 60s. to 65s. per cwt. for English

and 62s. 6d. to 75s. per cwt., according to brand, for German best double distilled, chemically pure, white and odourless, 1260 S.G., B.P., 1898, quality, in tins and cases (2 or 4 × 56 lb. tins in a case).

IODINE AND IODIDES.—Market continues unsettled, the combined makers, however, so far made an alteration in their prices, which remain as follows: Potassii Iodid., 10s. 6d. per lb.; Ammon. Iodid., 13s. 10d. per lb.; Sodii Iodid., 11s. 10d. per lb. Iodine, resublimed, 12s. per lb. Iodoform, crystal, powder, or precipitated, 13s. 10d. per lb. Crude Iodine is still quoted 7½d. per oz.

LYCOPodium—Remains very scarce and dear, 2s. 3d. per lb. being asked for case lots.

MENTHOL.—The favourite Kobayashi brand is quoted 8s. 6d. to 9s. per lb., according to quantity, packed in 5 lb. tins (12 tins in a case).

MERCURIALS—Continue firm at 3s. 2d. per lb. for Calomel and 2s. 10d. per lb. for corrosive sublimate, other Quicksilver preparations being quoted in proportion.

MORPHINE—Makers quote 5s. to 5s. 3d. per oz., according to quantity and packing, for the Hydrochlorate Powder, and 2d. per oz. more for the Crystal Salt.

NITRATE OF SODA.—On the spot refined, £9; ordinary, £8 12s. 6d. From the Permanent Nitrate Committee's statistics: 1. Total exports to Europe, April, 1,037,000 quintals; loading for Europe, May 1, 511,000 quintals. 2. Imports, Europe, April, 151,830 tons. 3. Deliveries, Europe, April, 171,450 tons. 4. Visible supply, Europe, May 1, stocks and afloat, 386,350 tons.

OILS (FIXED) AND SPIRITS.—Linseed strong at 10s. advance. On the spot pipes, London, ordinary, £31 (E.I. 10s. premium); barrels, £31; Hull, spot, naked, £28 15s. to £29. Rape steady: ordinary brown, on the spot, £27 15s.; refined, spot, £29; Ravison naked, spot, £25 10s. Cotton firm: London crude, spot, £22 10s.; refined, spot, £24 to £24 10s. according to make; Hull quiet: naked refined, spot, £22 15s.; crude, spot, £21 10s. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut: Ceylon, on spot, £25; Cochin, spot, £28. Palm: Lagos, on spot, quoted £27 10s. Petroleum dull and easier for Russian: spot, 6½d. to 6¾d.; American, spot, 7¼d.; Water White, 8¾d. Lubricating: Pale American, spot, 9s. to 10s. 9d.; Black, 7s. to 9s.; Russian black, 6s. 6d. to 7s.; pale, 8s. 9d. to 10s. 3d. Petroleum Spirit: American, ordinary, 9½d.; deodorised, 9¾d. Turpentine quiet: American, spot, 42s. 6d.; May, 42s. to 42s. 3d.; June, 37s. 3d.

OPIUM—Steady at nominally unchanged price, there being but little doing in the article, quotations are 9s. 3d. to 10s. per lb. for manufacturing and druggists, and 11s. to 11s. 9d. per lb. for soft shipping. Persian firm at 12s. 6d. to 13s. 3d. per lb. for good to fine.

PHENACETIN.—Makers are firm at 5s. 3d. in 5-cwt. lots for both crystals and powder, very little being now obtainable from second hand at a cheaper figure.

PILOCARPINE.—Makers quote 41s. 9d. per oz. for the Hydrochlorate and Nitrate Salts in 8-oz. lots, while second-hand still offer in limited quantity at 37s. 6d. to 40s. per oz.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot London, crystals, 4½d. net; powder, 4½d. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small crystal, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow English makes, 8d.; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

QUININE.—The market for best German has been steady, although quiet. The sales are about 50,000 oz., comprising B&S and/or Brunswick, May delivery, at 1s. 4½d.; June, at 1s. 4¾d.; and August, at 1s. 4¾d. to 1s. 5d. The landings during April were 152,480 oz., and the deliveries 47,008 oz., making the stock on April 30 3,428,096 oz. (corrected), against 2,287,376 in 1899. Makers of above-named brands still quote 1s. 4½d. per oz. for the Sulphate for 1,000 oz. lots, in 100 oz. tins. The results of to-day's Bark Sales in Amsterdam, which were not known at time of going to press, will possibly have a decided effect on the price of Quinine.

SHELLAC.—The shipments at Calcutta for the past month (as given below) show a comparative increase of 8,300 cwt., the total being 21,600 cwt., against 13,300 cwt. last year. America and the Continent have taken 6,900 cwt. and 1,800 cwt. more respectively;

while U.K. shows a falling off of 400 cwt. The market here remains dull, and business in all positions is quite unimportant, but prices show no quotable change. On the spot the value of TN Orange is 59s. to 60s. for fair, April-June shipment sellers at 55s. c. f. and i., and August delivery at 59s. 6d. The shipments from Calcutta (per Reuter) to the United Kingdom were for the last half of April 2,700 cwt., making 6,300 cwt. for the month, against 6,700 cwt. last year, and to the United States for the last half of April 4,500 cwt., making 9,400 cwt. for the month, against 2,500 cwt. last year. To the Continent the shipments were 3,300 cwt., making 5,900 cwt. for the whole month, against 4,100 cwt. last year. The landings in London in April were 3,537 chests, against 4,105 chests; the deliveries 4,158 chests, against 3,942 chests; and the stock on April 30, 42,941 chests, consisting of 33,748 chests Orange, 1,898 chests Garnet, and 7,295 chests Button, against 46,366 chests last year. Statement of the landings, deliveries, and stocks of Shellac in the first four months of the last three years: Landed (chests), 1900, 18,052; 1899, 13,901; 1898, 23,259. Delivered, 1900, 16,710; 1899, 16,603; 1898, 15,055. Stock, April 30, 1900, 42,941; 1899, 46,366; 1898, 60,152.

SODIUM COMPOUNDS.—Crystals: barrels quoted 60s.; bags, 57s. 6d. Acetate £14 10s. per ton, ex-ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3¼d. per lb. Bromide, 2s. 2½d., per lb. Caustic, 70 per cent. white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4½d. per lb. Hyposulphate (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9; ordinary, £8 12s. 6d.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate (Salt Cake), £1 7s. 6d. per ton. Sulphide crystals, £6 10s. Sulphite, £5 15s. per ton.

VANILLA.—At the auctions to-day the good supply of 679 tins was offered, which met a brisk demand, and the bulk sold at irregular, but generally steady, prices for good qualities, while brown and foxy descriptions brought rather lower rates than those ruling at the April sales. Seychelles: Of 395 tins 321 tins sold, fair to good, 8 to 8½ inch, at 24s. to 24s. 6d.; 7 to 8 inch, at 22s. 6d. to 23s.; 7 to 7½ inch, at 20s. to 21s. 6d.; 6½ to 7 inch, at 18s. 6d. to 20s.; 4 to 6 inch, at 15s. 6d. to 18s.; common and mouldy, etc., 10s. 6d. to 19s. Mauritius: Of 199 tins 177 sold, fair to good, 7½ to 8 inch, at 22s. to 22s. 6d.; 6½ to 7 inch, at 19s. to 20s. 6d.; 3½ to 6½ inch, at 15s. 6d. to 19s. 6d.; common and mouldy, 10s. to 15s. 6d. Madagascar: Of 31 tins 28 sold, mouldy and common, 12s. to 16s. Bourbon: Of 43 tins 15 sold, fair, 4 to 7 inch, at 18s. to 19s. 6d.; 4 to 4½ inch, at 14s. 6d. to 15s.; mouldy, 9s. 6d. Tahiti: Of 9 tins 7 sold, brown and mouldy, 4 to 6 inch, at 3s. 6d. to 5s. 6d. The remainder, also Australian, bought in.

EXCHANGE COLUMN.

OFFERED.

Soda-water Trolley.—A boy of eight can easily convey 3 dozen syphons and cases any distance; 37s., carriage paid.—Arthur & Co., Theatre Buildings, Cambridge.

6 doz. 9½d. Beecham's Pills, at 6s. 6d.; 8 doz. 1s. Avenue Gold, at 3s. 6d.; 2 lb. Vermilion, at 2s. 6d.; 4 lb. Pulv. Rhei. Opt., at 2s. 6d.; 15 gross Glass Unions, at 1s.—Green & Co., 36, Lower Marsh, S.E.

2 lb. Potass. Iodid., 19s.; 1 oz. Cocain. Hydr., 17s.; 1½ oz. Morph. Acet., 7s. 6d.; 1 oz. Morph. Tart., 6s. 6d.; ½ oz. Atrop.; Sulph., 7s. 6d.; 2 lb. Bism. Carb., 10s.; 5 lb. Bism. Subnitr., 25s. 10 oz. Quin. Sulph., 12s. 6d.—Eastman, Forest Lane, Stratford.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Calendar for the Week.

Sunday, May 6.	3rd after Easter. ☉ 1.39 m.	Sun rises 4.25; sets 7.28.
Monday, May 7.		Sun rises 4.23; sets 7.29.
SOCIETY OF CHEMICAL INDUSTRY, Burlington House, Piccadilly, W., at 8 p.m.— "The Production of Nitrate of Soda in Chili," by Dr. W. Newton.		
Tuesday, May 8.		Sun rises 4.22; sets 7.30.
ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.— "The Effect of Colour on Gradation," by Chapman Jones.		
ROYAL COLONIAL INSTITUTE, Whitehall Rooms, Hôtel Métropole, London, S.W., at 8 p.m.—Paper on "Swaziland," with Lantern Illustrations, by Allister M. Miller.		
Wednesday, May 9.		Sun rises 4.20; sets 7.32.
MIDLAND PHARMACEUTICAL ASSOCIATION, Great Western Hotel, Birmingham, at 7.30 p.m.—Annual General Meeting and Dinner.		
ROYAL SOCIETY, Burlington House, Piccadilly, W.—Annual Conversation.		
Thursday, May 10.		Sun rises 4.18; sets 7.34.
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Professor Dewar on "A Century of Chemistry in the Royal Institution."		
Friday, May 11.		Sun rises 4.16; sets 7.36.
Saturday, May 12.		Sun rises 4.14; sets 7.38.

Marriages.

DUTSON—THOMAS.—At St. Andrew's Church, Llwynypia, on April 30, by the Rev. J. D. James, M.A., Robert Thomas Dutson, chemist and druggist, St. Helen's Road, Swansea, to Agnes Louisa, eldest daughter of Mr. John Thomas, Llwynypia.

EASTES—COLES.—On April 28, at St. Alban's, Holborn, by the Rev. George Hogg, Ernest John Eastes, F.I.C., of 61, Chancery Lane, W.C., and 32, Carlisle Mansions, Westminster, to Arnaud Coles, of Lyston Ville, Malvern, widow of Colonel Charles Henry Coles, Bombay Staff Corps (9th B.I.), and daughter of the late Christian Jacob Ross.

LONDON GAZETTE NOTICES.

PARTNERSHIP DISSOLVED.

Thomas George Kerans and Robert John Collie, General Medical Practitioners, 6, Southwick Place, and 25, Porchester Terrace, Hyde Park, London, W.

RECEIVING ORDER IN BANKRUPTCY.

Andrew Spearing, Physician and Surgeon, Westfield, Liverpool Road, Patricroft, Lancashire.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Austen, Barrow, Bartlett, Benson, Browse, Brunt, Butler, Currie, Davis, Dutson, Gifford, Griffin, Hackforth, Harris, Jelley, Krischke, Lea, Macdougall, Mackie, Metcalfe, Miller, Murray, O'Halloran, Pickering, Pollitt, Schiephax, Smith, Wallis, Ward, Whaley, Whineray, Wilson, Young, Zimmermann.

* "SANITAS" *

EMBROCATION

8d., 1/-, and 2/6 Bottles.

"SANITAS"

AND OTHER

DISINFECTANTS

SULPHUR FUMIGATING CANDLES (Kingzett's Patents), 6d., 9d., and 1s. each.

"FORMIC-SULPHURATORS" 1/- and 1/6 each.

PRESERVED PEROXIDE OF HYDROGEN (Kingzett's Patent).

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The Annual Dinner

OF THE

MEMBERS OF THE PHARMACEUTICAL SOCIETY

AND THEIR FRIENDS WILL TAKE PLACE AT

WHITEHALL ROOMS (HÔTEL MÉTROPOLE)

On TUESDAY, MAY 15th, 1900, at 6.45 for 7 precisely.

THE VICE-PRESIDENT—MR. G. T. W. NEWSHOLME—IN THE CHAIR.

TICKETS, ONE GUINEA EACH (including Wine), may be obtained from RICHARD BREMRIDGE, 17, BLOOMSBURY SQUARE, W.C.

NEWS IN BRIEF.

MR. GEORGE JAMES GOSTLING has been unanimously re-elected Chairman of the Urban District Council of Stowmarket.

MR. T. W. ROBSON, Ph.Ch., Tiverton, N. Devon, was last week gazetted to a lieutenancy in Devon and Somerset Engineers.

THE HALIFAX AND DISTRICT CHEMISTS' ASSOCIATION at a meeting held on May 3 decided to support the candidature of the following gentlemen at the coming Council election:—Messrs. Albert Cooper, Walter Gibbons, John Taylor, and A. C. Wootton.

GOLF MATCH.—A most enjoyable match between representatives of the Edinburgh District and Glasgow Chemists was played over the course of the Western Club at Gales, Ayrshire, on Thursday April 26, in delightful weather, the result being a majority for Glasgow of 19 holes.

MR. F. J. HOUSTON, M.P.S., Market Hall, Chesterfield, had much damage done to the stock in his shop by a fire which occurred on Saturday evening, May 5. Benzoline vapour coming in contact with a lighted lamp is supposed to have been the cause of the outbreak.

INTERNATIONAL PHARMACEUTICAL CONGRESS.—Up to the present only the Pharmaceutical Society of Great Britain and the Apotheker-Verein of Athens, together with two French Associations, have announced their intention of being represented at the Paris Congress. The Roumanian Government will be officially represented by Apotheker Popini.

THE FORTY-FIFTH ANNUAL EXHIBITION held under the auspices of the Royal Photographic Society will take place at the New Gallery, 121, Regent Street, London, W., from October 1 to November 3 next. The exhibition, which will be inaugurated on Saturday, September 29, by a private view, followed in the evening by a *conversazione*, will remain open from 10 a.m. till 5 p.m. daily (Sundays excepted), and on Monday, Thursday, and Saturday evenings from 6 till 10 p.m., when lantern slide exhibitions will be given in the North Gallery. The exhibition will be divided into five sections—viz., Selected Pictorial Photographs; General Professional Work; Photographic Apparatus and Material; Photo-mechanical Processes of Reproduction; Scientific Photography and Photography in its Technical Applications. Particulars regarding exhibits may be obtained of the Hon. Sec., Mr. J. A. Hodges, 66, Russell Square, W.C.

TRADE NOTES.

AN EXTRACT from Heinrich Haensel's 'Quarterly Report on Essential Oils and Fruit Essences,' for April, 1900, is published at Manchester by William Poppelreuter, 54, Portland Street, and gives some useful information regarding essential oils.

MESSRS. BURROUGHS, WELLCOME AND CO., London, submit a specimen of quinine hydrobromide tabloids. As is well known, the hydrobromide appears to be less liable to produce cinchonism than any other salt of quinine, and for that reason it is frequently selected when large doses are required. The tabloids are issued in two sizes containing 3 and 5 grains in each.

'PRIMUS' CATALOGUES.—Messrs. W. Butcher and Son, Blackheath, S.E., have recently issued a complete catalogue of the price lists of their photographic and lantern specialties, together with a special list of trade terms, for the private information of dealers only. The catalogue comprises nearly six hundred pages, including a useful index for reference, and is bound in stiff cloth-boards, with eyelet and loop for suspending in a convenient position. Dealers in photographic goods who wish to possess a copy of the catalogue should apply to the firm.

'TESTIMONIALS AND SEASONABLE LINES' is the inscription on the outside cover of a booklet issued by Messrs. J. H. Smith and Co., Newark-on-Trent. As the title of the publication indicates, it contains, in addition to numerous extracts from letters testifying to the general satisfaction given by the firm's Flydoo fly stickers, particulars of several good selling lines suitable for the coming

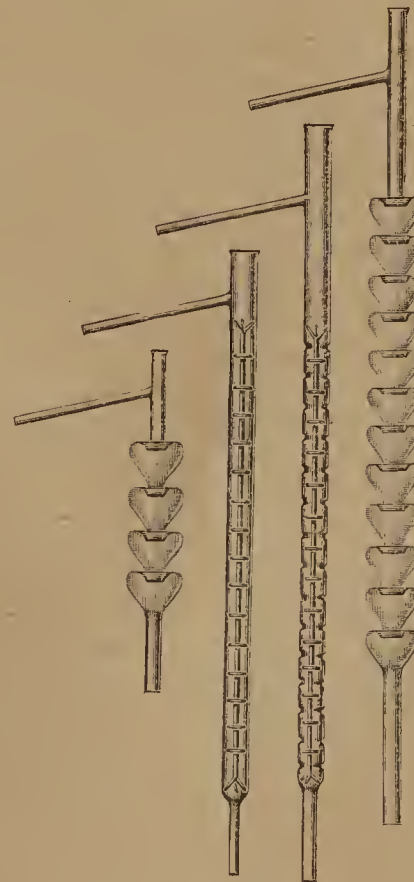
season. A feature of the booklet, which is very neatly printed, is that the whole of the work of production has been done in the firm's own works.

"VAMPIRE" SPIRAL FLY-CATCHER and CHESHIRE BIRD LIME.—Messrs. Kay Brothers, Limited, St. Petersgate Mills, Stockport, have considerably improved the spiral fly-catcher, introduced by them last season, by the adoption of a new gum, specially prepared for the purpose, and by the use of new machinery, which coats each spiral thoroughly and equally. A novel show-card is sup-



plied with the fly-catchers, calculated to strike the eye and arrest attention, being designed and printed so as to resemble an official "Death Warrant." Messrs. Kay Brothers make a special feature of Cheshire bird lime, put up in decorated tins, to retail at 1d., 2d., 3d., 6d., and 1s. For easiness of handling this method of packing cannot be beaten—moreover, a paper seal put round the tin effectually prevents any leakage. The quality of the bird lime is good.

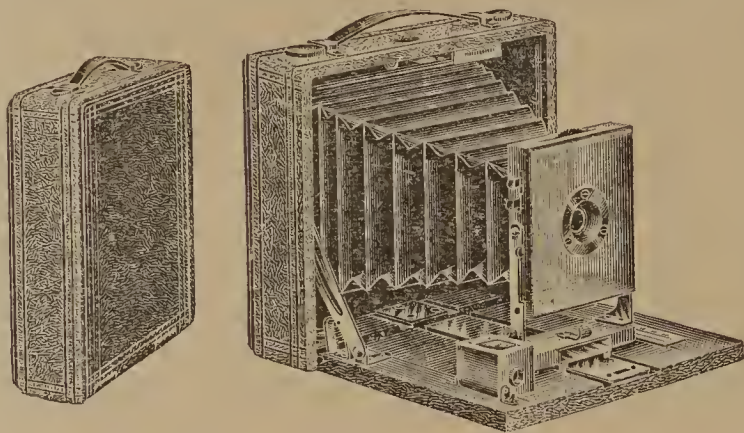
IMPROVED STILL-HEADS.—Messrs. J. J. Griffin and Sons, Limited, Sardinia Street, London, W.C., are now supplying a series of improved still-heads made in accordance with the designs of Professor Sydney Young, F.R.S., of University College, Bristol. The advantages claimed by Professor Young for his 'Rod and Disc' and 'Pear' still-heads are that they are simpler and better suited for the distillation of small quantities, and that after the distillation is stopped, the liquid returns almost completely from the still-



head to the still. A further advantage "of the Rod and Disc" variety is that the central rod bearing the discs may, after use, be removed and washed. The 'Pear' still-head possesses a special advantage. In the course of a systematic fractional distillation it is necessary periodically to introduce fractions from previous operations. With nearly all other improved still-heads these (cold) fractions must either be introduced at the top of the still-head—involving some risk of breakage if the boiling point of the liquid be high—or the flask must be detached, a troublesome operation probably involving loss of material. With the 'Pear' still-head, however, cold liquid may be introduced without danger of fracture or loss, by means of a long funnel; a practical point of some importance.

MESSRS. BARCLAY AND SONS, LIMITED, 95, Farringdon Street, London, E.C., have been appointed sole consignees in this country for the soaps and perfumery manufactured by Messrs. Rieger, Frankfurt-on-Main. They have also been appointed as sole wholesale agents by the Icilma Company, of Paris, and for the Venus Artistic Printing-out Paper, which gives very beautiful results with very little trouble.

NEW 'NO. 1 MONROE' CAMERA.—Messrs. George Houghton and Son, 88 and 89, High Holborn, London, W.C., claim that the new 'No. 1 Monroe' camera is as perfect a little instrument as it is possible to produce at the price, and in appearance and finish equal to most cameras of the folding type at twice the cost. Complete with three double dark slides ($4\frac{1}{4} \times 3\frac{1}{4}$) it certainly is marvellous value at 30s. It is beautifully finished in every respect, no pains having been spared to make it a thoroughly efficient and practical instrument. The camera is



covered in morocco grain leather, is fitted with leather bellows, the woodwork inside is polished, and all brass parts highly lacquered. It has a single achromatic lens with rotating stops, time and instantaneous shutter, engraved focussing scale, pivoted view finder, and ground glass focussing screen with sky shade. The camera is made in two sizes, $4\frac{1}{4} \times 3\frac{1}{4}$, and 5×4 , measuring $5\frac{3}{4} \times 4\frac{7}{8} \times 2$ in., and $6\frac{3}{8} \times 5\frac{3}{8} \times 2$ in., and weighing 18 ozs. and 21 ozs. respectively. The price of the larger size is 35s.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, MAY 9, 1900.

A varied business has been done during the last week at generally higher rates, this being particularly so in Linseed and in oils generally. In Linseed Oil, Cottonseed Oil, and Spirits of Turpentine phenomenal rates have been reached, which at the moment of writing show signs of continuing. Good sales of Chilian produce, viz., Honey, Beeswax, and Quillaya Bark have been effected, the remaining miscellaneous articles dealt in being in Sierra Leone Chillies and Senegal Gum. Chemicals are in much the same state as they have been in for the last three weeks, prices being steady, but business being quiet.

AMMONIUM SALTS.—Carbonate $3\frac{3}{4}$ d. per lb. Sal Ammoniac firm, 38s. to 40s. per cwt. Sulphate is dull at £11 7s. 6d. per ton.

BEESWAX.—5 barrels of American made £7 5s. per cwt.

BLEACHING POWDER.—Is firm at £7 to £7 10s. per ton.

CANARY SEED.—100 bags of Turkish sold for 34s. 6d. per 464 lbs., and now 34s. 6d. to 35s. is asked, but business is quiet.

CHILLIES.—9 bags of Sierra Leone fruit made 45s. per cwt.

COPPERAS.—37s. to 39s. per ton, and very firm.

COPPER SULPHATE.—Is dull at £25 2s. 6d. to £25 5s. per ton.

GUM.—20 bags of Senegal found buyers at the high rate of 52s. 9d. per cwt.

HONEY.—Pile X Chilian has been selling for 32s. per cwt., and Pile 3 at 23s. 6d. Good Californian has also been moving off well from store at 42s. 6d.

LINSEED.—Considerable business has been attempted, but the high rates asked have limited buyers to providing only for their immediate needs. Calcutta, April and May, has been sold at 50s. 9d. to 56s. per 416 lbs. American at 44s. 6d., September and November delivery. River Plate, due, 49s. 9d. to 50s.; feeding quality, 56s., ex quay (200 bags sold, 1,929 offered).

OILS (FIXED) AND SPIRITS.—Castor Oils of all kinds are exceedingly firm with a good demand, and satisfactory business concluded. Calcutta, 30 cases on the spot sold at $3\frac{9}{16}$ d. per lb., and 700 cases forward April to May $3\frac{7}{16}$ d. to $3\frac{8}{16}$ d., price at close $3\frac{1}{2}$ d. per lb., and very firm. Olive is quiet, with Spanish selling at £35 to £35 10s. per tun. Linseed continues to advance with rapidity, and is now offered at 35s. to 35s. 6d. per cwt. casked for export, or 34s. loose. Cottonseed Oil is very firm at 26s. to 26s. 6d. per cwt. for Liverpool refined oil in export barrels. Spirits of Turpentine are very high at present, and are firmly held for 45s. per cwt.

POTASSIUM SALTS.—Unchanged generally.

QUILLAYA BARK.—6 tons Chilian sold, ex quay, at £13 per ton.

SODIUM SALTS.—Unchanged.

LONDON, THURSDAY, MAY 10, 1900.

Business in Drugs and Chemicals has been somewhat disappointing during past week, but beyond a slight weakness in the speculative market for Sulphate of Quinine, caused by the fact that speculators for a rise in this article felt disappointed at the result of last Thursday's Bark Sale in Amsterdam, no changes in value of any special importance have taken place. Acid Carboic is rather dearer. Camphor very firm and rather dearer in Hamburg. Bromides very firm. Iodides so far unchanged. Opium and Morphine steady. Codeine firm, as also is Glycerin. Cod Liver Oil weak. Salicylates and Salol unchanged. Quicksilver steady. Mercurials firm. Acid Citric and Tartaric steady with rather firmer tendency. The following are the prices ruling for some articles of chief interest:—

ACETANILIDE.—Is rather better, there being less pressure to sell at the low prices lately ruling, especially on part of the best makers.

ACID CARBOIC.—The refined Acid is decidedly firmer at about $\frac{1}{4}$ d. per lb. above the prices quoted last week.

ACID CITRIC.—Rather firmer in tone, at nominally unchanged prices, says, 1s. 4d. to 1s. 5d. per lb., according to make and quantity for crystals in 5cwt. casks.

ACID OXALIC.—Steady and unchanged.

ACID TARTARIC.—Steady at nominally unchanged prices.

AMMONIUM COMPOUNDS.—Bromide, 2s. 3d. per lb.; Carbonate, $3\frac{1}{2}$ d. to $4\frac{1}{2}$ d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 35s. to 36s. per cwt. Sal Ammoniac: Firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate, dull; Gray, 24 per cent., London, prompt, £11 6s. 3d.; Hull, prompt, £11 2s. 6d. to £11 5s.; Leith, prompt, £11 6s. 3d.; Beckton, £11 5s.; Beckton terms, prompt, £11 2s. 6d.; Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

BORAX AND ACID BORACIC.—Are in fair demand at unchanged prices.

BROMIDES AND BROMINE.—Are quiet, and without change.

CAMPHOR.—Market is firm, at unchanged prices, both for crude and for English Refined, while the German refiners slightly advanced their prices to nearly same figure as their English competitors.

CASTOR OIL.—Firm. Belgian, 1st pressing, spot, £31 10s.; May-June, £30 10s., f.o.b.; Antwerp, 2nd pressing, spot, £29 10s. per ton. Hull Manufactured: Guaranteed Cold Drawn Pure Pharmaceutical, £34 per ton, in barrels; $4\frac{1}{16}$ d. per lb., in cases; pure firsts, £31 10s.; seconds, £29 10s. per ton, in barrels; firsts, $3\frac{1}{16}$ d. per lb., in cases; seconds, $3\frac{7}{16}$ d., ex-wharf London.

CINCHONA BARK.—At Amsterdam on 3rd instant, 6,855 packages Java offered, and practically the whole sold at a slight advance, the unit average being 10.10 c. per $\frac{1}{2}$ -kilo, against 10.05 c. realised at the previous auctions. The exports of Java bark for April were 524,000 Amsterdam lbs., against 1,009,500 Amsterdam lbs. last year, and 856,000 Amsterdam lbs. in 1898. The total for the four months is 2,418,000 Amsterdam lbs., against

3,034,500 Amsterdam lbs. last year, and 3,225,000 Amsterdam lbs. in 1898.

CLOVES.—At auction 58 bales Zanzibar bought in, good at 4½d.; also 2 cases Ceylon, fair bright picked, little stalky, at 6d.; darker ditto at 5d. Privately Zanzibar have been depressed, and prices for delivery have further declined, ⅓d. arrival being ⅓d. lower. A fair business has been done, comprising for June August delivery at 4⅓d. down to 4½d., and sellers August-October at 4 7-32d. to 4½d., and buyers, and January-March (1901), at 4½d. to 4 1-32d., and sellers; also for arrival December-February and January-March shipment to Holland, at 4d. to 3½d., c.i.f., and sellers.

COAL TAR DISTILLATION PRODUCTS—Are practically without change since last week, with, however, a somewhat firmer tendency.

CODEINE—Continues very firm at 13s. 6d. per oz. for the pure and 1s. per oz. less for the salts.

CODLIVER OIL—Quiet and weak, the downward tendency in values remaining still apparent.

CREAM OF TARTAR—Firm. First white Crystals on spot 73s. Powder, 75s., and 95 per cent., 76s.

GINGER.—At auction the fair supply of Cochin met little demand and was mostly bought in. Of 763 bags and 29 cases offered, only 3 cases sold, cut ends, rather limed, at 35s.; bold and medium, well cut and scraped, bought in at 90s. to 95s. Calicut, rough, fine bright bold, at 50s.; ditto good medium and bold, at 40s.; washed rough, bright medium and bold, at 36s.; and dull medium small at 32s. 6d. to 33s. Jamaica in large supply met a good demand at irregular prices; good and fine qualities at further advance, common qualities and Rhatoon at barely previous rates; 1,271 barrels and 2 half-barrels offered, and 1,100 packages sold at and since sale, good to fine bright, 74s. to 78s.; fair bright, 67s. to 72s.; Rhatoon, at 40s. to 43s.

IODIDES AND IODINE—Are still without change. Buyers, however, continue to supply their wants from hand to mouth only.

MORPHINE—Continues quiet but steady, at 5s. per oz. for the Hydrochlorate powder, and 2d. per oz. more for the crystal salt.

OILS (FIXED) AND SPIRITS.—Linseed: The market has been irregular. On the spot pipers London ordinary, £34 10s. (E.I. 10s. premium); barrels, £34 15s. Hull, spot, naked, £34. Rape dearer. Ordinary brown, on spot, immediate delivery, £28 10s. Refined spot: £29 15s. to £30. Ravison naked spot, £26. Cotton firmer. London Crude spot, £23 paid, closing £23 5s. Refined spot, £24 10s. to £25, according to make. Hull, naked refined spot, £24. Crude spot, £22 12s. 6d. Olive, Mogador, £35. Spanish, £36 10s. Levant, £35. Coconut, Ceylon, on the spot, £25. Cochin, spot, £28. Palm Lagos, on the spot, quoted £27 10s. Petroleum dull. Russian spot, 6½d. to 6¾d. American spot, 7½d. to 7¾d. Water White, 8¾d. Lubricating Pale American, spot, 9s. to 10s. 9d.; Black, 7s. to 9s.; Russian Black, 6s. 6d. to 7s.; Pale, 8s. 9d. to 10s. 3d. Petroleum Spirit: American Ordinary, 9½d.; Deodorised, 9¾d. Turpentine, quiet and easier for forward positions. American spot, 45s.; May, 44s. 9d.; June, 39s.; July, 35s. 9d. to 36s.

OPIUM—Steady at nominally unchanged value, a fair amount of business having been transacted during past week for shipping quality at 10s. to 11s. 6d. per lb. Persian is hardly obtainable in good quality, and very high prices, up to 13s. 6d., would have to be paid for really fine.

PHENACETIN—Firm. Second hand is practically sold out, while makers quote 5s. 3d. per lb. for both crystals and powder in large quantity and bulk packing, smaller lots being quoted higher in proportion.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot: London Crystals, 4½d. nett; powder, 4½d. Carbonate, 90 per cent., £19 10s. per ton ex-ship; Cyanide, 98 per cent., 1s. 2d. per lb. Hydrate (Caustic Potash): 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate refined, £21 5s. per ton. Permanganate, small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate: Yellow English makes, 8d.; Beokton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

QUICKSILVER—Firm at £9 10s. per bottle from the importer, second hand still not offering.

QUININE.—The market for best German brands remains quiet, with only a small business, including 25,000 oz. B&S and/or Brunswick, on the spot, at 1s. 3½d., June delivery at 1s. 4d., and August at 1s. 4½d. The result of last week's Bark sales in Amsterdam appeared disappointing to the speculators, hence the weaker tone in the Quinine market. Makers of above-named brands remain firm at 1s. 4½d. per oz. for 1,000-oz. lots in 100-oz. tins.

SHELLAC.—The market maintains the firmer tone, but sellers are still reserved. There is more business doing, however, for arrival, and about 500 cases TN Orange have been sold, comprising May shipment at 56s. 3d., June-July at 57s., and August-October reported at 55s. 6d. to 56s. and buyers, April-June buyers at 56s. and sellers at 58s., c.f. and i. For August delivery there are buyers at 60s. 6d., but no sellers. The demand on the spot is slow, and privately only small sales have occurred at the auction advance. At auction to-day the moderate supply of Second Orange partly sold without reserve at about 1s. advance on last sales' rates, fair TN on a basis of 60s. 6d. Garnet and Button slow of sale. A total of 473 cases offered and 211 cases sold. Second Orange: Of 368 cases 203 sold, without reserve, fair bright flat red at 59s., with one lot 60s., ordinary red, worked, at 58s., livery reddish shivered at 57s., bronzy red ditto at 56s., common flat liver at 55s. to 56s. Garnet: Of 77 cases 5 cases sold, weak glassy blocky AC at 61s., fine flat free G bought in at 63s. Button: 28 cases offered and 3 cases sold, without reserve, ordinary blocky firsts at 59s.

SODIUM COMPOUNDS.—Crystals, barrels quoted 60s.; bags, 57s. 6d. Acetate, £14 10s. per ton, ex ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate landed £7 5s. per ton. Bichromate, 3¼d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent. white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4½d. per lb. Hypo-sulphate (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 20 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9; ordinary, £8 10s.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate, £1 7s. 6d. per ton. Sulphide crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: At auction no Singapore was offered: other kinds steady. Of 454 bags Tellicherry 408 bags sold, fair at 6d. to 6½d.; good bright heavy bought in at 6½d. 201 bags Malabar shot offered and sold, fair heavy at 6d. to 6½d. 361 bags Wynaad bought in 6d. to 6½d. 74 bags Alleppy, 6 bags small, shelly, and dusty, sold at 4½d. Good fair bought in at 6½d. Pepper Dust: 221 bags offered and 21 bags Alleppy sold at 2¾d. White Pepper: At auction 12 cases Singapore sold, fine bold at 11½d. 184 bags fair limed Penang bought in at 8½d. Capsicums slow of sale, and 336 packages Bombay bought in, good bright long at 35s., pale cherry pods, part perished, at 31s., Nepaul character yellow round at 24s., red 23s. 6d. 3 bags Ceylon sold, good bright round on stalk at 53s. Pimento dull: Of 576 bags offered 157 bags sold, ordinary to good at 3d. to 3¼d. Cassia Vera: 94 bags offered and bought in, coarse Padang Quills at 25s. Cinnamon in slow demand, and 185 bales in auction, chiefly wild, bought in. Cinnamon Chips, etc.: 537 bags chiefly bought in. Only 42 bags sold, fair Ceylon quillings at 6¾d. to 7½d., and bark at 2¾d. Fair chips bought in at 3½d. Nutmegs neglected. Mace quiet: 7 boxes Bombay sold at 1s. 4d. to 1s. 2d. 51 boxes Singapore bought in at 1s. 6d. Bombay Wild: 43 cases bought in at 5½d. to 6d. West Indian: 48 packages sold from 1s. 2d. for broken to 1s. 8d. fair to good pale.

SULPHONAL.—Second-hand appears to be wholly sold out. Makers are firm at 20s. 6d. per lb. for both crystals and powder.

THURSDAY'S DRUG SALES.

To-day's drug auctions passed off quietly and without special change, except that Buchu Leaves showed a decline, and Ipecacuanha a firm market. There were only 14 catalogues, containing a comparatively small number of lots, many of which had to be bought in, the following being the particulars:—

ALOES.—20 kegs Socotrine realised 75s. per cwt. Other 20 kegs were held for same figure. 40 cases Cape part sold at 26s. to 29s. per cwt. Other 17 cases Cape part sold at about same figures, according to quality. 150 boxes Curaçoa practically all sold at 22s. per cwt. for good down to 13s. for inferior. 1,416 gourds part sold at 31s. down to 11s. 6d. per cwt., according to quality.

ANNATTO SEEDS.—25 bags were taken out at 3½d. per lb.
ARGOL.—2 bags Cape realised 42s. per cwt.
BALSAM PERU.—4 cases were bought in at 6s. 3d. per lb.
BUCHU LEAVES.—Of 39 bales, medium rounds, part sold at 6d. per lb., balance being taken out at 8d.
CALUMBA ROOT.—Fair brownish sorts were bought in at 23s. per cwt.; stalky ditto at 20s.; 105 bags dark ditto nearly all sold at 12s. to 12s. 6d.
CARDAMOMS.—60 cases small Ceylon Mysore were taken out at nominally 2s. per lb. Another lot of 42 cases ditto part sold at 2s. 3d. to 2s. 4d. per lb., down to 2s. for splits. Another lot of Ceylon realised 3s. 1d. down to 1s. 2d. per lb., splits selling at 11d. to 1s., and seeds at 1s. 11d. to 2s. per lb. Other 85 cases Ceylon sold up to 4s. 2d. for good pale bold Mysore. 5 cases Mangalore Ceylon were bought in at 3s. 6d. per lb. Other 60 cases ditto sold at 3s. 5d. per lb. for very fine down to 1s. 1d.
CINCHONA BARK.—39 serons yellow bark sold at 1s. 4d. per lb. for the sound down to 8d. to 1s. 2d. per lb. for the damaged.
COCCULUS INDICUS.—64 bags were taken out at 8s. 6d. per cwt.
CUSCUS ROOT.—6 bales were bought in without mention of price.
DRAGON'S BLOOD.—Dull reeds were taken out at £9 10s. per cwt. One case fair lump at 18s.
ESSENTIAL OILS.—20 cases fair commercial quality Oil Eucalyptus were taken out at 11d. per lb. 2 Drums Lime Oil at 3s. 1d. per lb., 3 boxes West Indian Bay Oil at 6s. 3d. per lb.
GALANGAL ROOT.—2 bags were bought in at 25s. per cwt.
GROUND NUT KERNELS.—25 bags bought in at £15 per ton.
QUAZA (CANNABIS INDICA).—23 bales dark siftings were taken out at the fancy price of 1s. per lb.
GUINEA GRAINS.—2 bags sold at £7 12s. 6d. per cwt.
GUM ARABIC.—7 cases fair grain realised £6 10s. per cwt.
GUM BENZOIN.—Medium seconds, Sumatra, sold at £6 5s. to £7 per cwt.; finer quality, at £8 10s., 4 cases fine being held for £9 15s., a bid of £9 12s. 6d. being declined. 23 cases Siam all sold at £8 12s. 6d. per cwt. for almonds, down to 55s. per cwt. for low inferior quality.
GUM GUAIAECUM.—5 barrels part sold at 1s. per lb. for fair glassy block.
GUM KINO.—3 boxes genuine red Cochin were bought in at 1s. 9d. per lb.; 3 cases African at 1s. 2d. per lb.
HONEY.—5 cases fair Jamaica were bought in at 27s. per cwt.; another lot of 59 packages part sold at 24s. to 27s. 6d. per cwt., balance being taken out at 25s. to 32s. Other 2 casks of not so good quality sold at 22s. per cwt.; of other 141 packages Jamaica, a considerable portion sold at 27s. down to 22s. 6d. per cwt.
IPECACUANHA.—7 bales Rio sold readily at 12s. to 12s. 1d. per lb. 10 bags Carthagenia part sold at 8s. 6d. per lb. 3 bags ditto, rather mouldy, at 8s. 3d.
LIME JUICE.—16 packages were bought in at 1s. 8d. per gallon; other 12 puncheons at 2s.
MUSK SEED.—1 box sold at 1s. 3d. per lb.
NUTMEG PASTE.—12 cases taken out at 2d. per oz.
NUX VOMICA.—30 bags medium to fair Calcutta sold at 6s. 6d. to 7s. per cwt. 24 bags Cochin at 12s. 5 ditto pickings at 6s. 6d. per cwt.
ORRIS ROOT.—10 bags Mogador bought in at 20s. per cwt.
SAFFRON.—20 tins Alicante were taken out at 28s. per lb.
SARSAPARILLA.—12 bags red native Jamaica were bought in at 1s. 8d. per lb. Other 7 bales part sold at 2s. 1d. per lb. 14 bags Lima were bought in at 1s. 3d. per lb. Other 12 bales Lima sold at 11d. to 1s. per lb. 20 serons Honduras were bought in at 1s. 6d. per lb.
SENNA.—Inferior small leaf Tinnivelly fetched 1½d. per lb. Other 131 bales Tinnivelly, chiefly also of undesirable quality, all sold at 4¾d. per lb. for good down to 1½d. per lb. for low inferior broken and small leaf. 5 bales good Alexandra pods were bought in at 9d. per lb.
TAMARINDS.—43 barrels West Indian realised 12s. 6d. per cwt.
TONQUIN BEANS.—2 cases frosted Paras were bought in at 2s. 2d. per lb.
TONQUIN MUSK.—7 tins bought in at 70s. per oz.
TURMERIC.—175 bags split bulbs sold at 8s. 6d. per cwt. for the sound, and at 7s. 9d. per cwt. for 1 CSD. 10 bags Cochin were bought in at 10s. per cwt., and 93 bags Madras at 34s. per cwt.
WAX.—Fair Zanzibar sold readily at £6 17s. 6d. to £7 per cwt. down to £6 5s. for the less desirable lots; fair Jamaica fetched £7 5s. to £7 7s. 6d. per cwt. 15 cases White East Indian taken out at £7 15s.

Publications Received.

SEMI-ANNUAL REPORT OF SCHIMMEL AND Co. (Fritzsche Brothers). Pp. 68. April, 1900. Leipzig, New York, and London: Schimmel and Co. From the Publishers.

DIE ROHSTOFFE DES PFLANZENREICHES. Von Dr. JULIUS WIESNER. 2 Lieferung (bogen 11-20), mit textfigur 47-71. Price 5 m. Leipzig: Wilhelm Engelmann. 1900. From the Publisher.

REPORT OF THE PHARMACY BOARD OF VICTORIA FOR THE YEAR 1899. (Medical Act, 1890, Part III., and Poisons Act, 1890.) Pp. 7. Melbourne: H. Hearne and Co., Paragon Printers, 1900. From the Registrar.

THE MIDLAND PHARMACEUTICAL ASSOCIATION: ANNUAL REPORT AND STATEMENT OF ACCOUNTS, 1899-1900. Pp. 12. Birmingham: Silk and Terry, Edmund Street. 1900. From the Secretary.

THE MEDICAL REGISTER, 1900. Printed and Published under the Direction of the General Council of Medical Education and Registration of the United Kingdom. Pp. 1,799. Price 6s. London: Spottiswoode and Co., 54, Gracechurch Street, E.C. From the Registrar.

THE DENTISTS' REGISTER, 1900. Printed and Published under the Direction of the General Council of Medical Education and Registration of the United Kingdom. Pp. 241. Price 3s. 4d. London: Spottiswoode and Co., 54, Gracechurch Street, E.C. From the Registrar.

THE PHARMACOPOEIAS OF THIRTY OF THE LONDON HOSPITALS. By PETER SQUIRE. Seventh edition; revised by Peter Wyatt Squire. Pp. xii. + 402. London: J. and A. Churchill, 7, Great Marlborough Street, W. 1900. From the Author.

Obituary.

BRANFORD.—On May 2, Alfred John Branford, Chemist and Druggist, Strand, London, W.C. Aged 53.

HARRIES.—On April 29, William George Augustus Harries, Chemist and Druggist, late of West Croydon. Aged 28.

LONDON GAZETTE NOTICES.

PARTNERSHIP DISSOLVED.

John Hopkin Davies and John Arnallt Jones, physicians and surgeons, of Aberavon and Taibach.

RECEIVING ORDERS IN BANKRUPTCY.

George Weldon, doctor of medicine, 84, Brompton Road, Middlesex.

William Sykes, soap and chemical manufacturer, in partnership with William Burnside Macphail, under the style of Wm. Sykes and Son, 179, Cleveland Street, Hull, and New Bridge Mills, Meltham, near Huddersfield.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

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

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

Pharmaceutical Society of Great Britain.

ANNUAL GENERAL MEETING.

NOTICE IS HEREBY GIVEN that, in accordance with the provisions of the Royal Charter of Incorporation, the Fifty-Ninth Annual General Meeting of the Members of the Society will take place at 17, Bloomsbury Square, on Wednesday, May 16th, 1900, at noon precisely, for the purpose of receiving the Report of the Council, and of Electing the Council and Auditors for the ensuing year.

17, Bloomsbury Square, London, W.C.

RICHARD BREMRIDGE,
Secretary and Registrar.

NOTICE OF MOTION TO BE PROPOSED BY MR. F. T. PERCY WELLS.

"That after June 30th, 1890, the undermentioned shall be omitted from the Journal, and printed in the Supplement— 1, Market Reports ; 2, Publications Received, and Reviews and Notices of Books and Preparations ; 3, Extracts from Consular Reports ; 4, Poisoning Cases ; 5, Food and Drugs Act Prosecutions ; 6, English and Scottish News ; 7, Irish News, including Proceedings of the Pharmaceutical Society of Ireland ; 8, Foreign News ; 9, Pharmacy in Australia ; 10, Facts and Fancies ; 11, Reports of Pharmaceutical, Chemists and Druggists, and Assistants' and Apprentices' Associations and Chemists' Assistants' Unions ; 12, Reports of Pharmaceutical Associations ; 13, Obituary Notices ; 14, Report of dinners, suppers, balls and dances ; 15, Proceedings under the Pharmacy Act ; 16, Annotations ; 17, Political Gossip ; 18, Chemists' Defence Association ; 19, Public and Poor Law Dispensers' Association ; 20, Dental and Photographic Notes ; 21, Chemists' Defence Association."

SPECIAL GENERAL MEETING.

A SPECIAL GENERAL MEETING OF THE SOCIETY will be held at 17, Bloomsbury Square, London, W.C., on Wednesday, May 16th, 1900, at the conclusion of the Business of the Annual General Meeting, for the purpose of considering the future working of the Research Laboratory of the Pharmaceutical Society and, if necessary, of considering the manner in which it has been conducted since its establishment.

By Order of the Council,

17, Bloomsbury Square, London, W.C.

RICHARD BREMRIDGE,
Secretary and Registrar.

NOTICE OF MOTIONS TO BE PROPOSED BY MR. E. N. BUTT.

"(a) That the Research Laboratory of the Pharmaceutical Society of Great Britain be reconstituted and placed under the control of a Special Committee consisting of the President, the Vice-President (*ex-officio*) and Two Members of the Council, four Pharmaceutical Chemists not being members of the Council, and the Professors of Chemistry, Botany, and Pharmacy in the School of the Society.

"(b) That the Research Laboratory be used for the purpose of Pharmaceutical investigations and research only and be placed under the direction of the Professors of Chemistry and of Pharmacy.

"(c) That the Special Committee shall have absolute power in selecting the Research workers, the subjects for investigation and control the publication of the results of their investigations. All such workers should preferably be Pharmacists and if necessary may be subsidised."

Calendar for the Week.

Sunday, May 13. 4th after Easter. Sun rises 4.13; sets 7.39.
Monday, May 14. O 3.37 A Sun rises 4.11; sets 7.41.
Tuesday, May 15. Sun rises 4.10; sets 7.42.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, Whitehall Rooms, Hôtel Métropole, London, S.W., at 6.45 p.m.—Annual Dinner.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Dr. A. Hill on "Brain-tissue considered as the Apparatus of Thought."

Wednesday, May 16. Sun rises 4.8; sets 7.44.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 11 a.m.—Meeting of Council, followed at 12 noon by the Annual Meeting of Members and Election of Council, and a Special General Meeting.

Thursday, May 17. Sun rises 4.7; sets 7.45.

CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—Paper on "Chlorine Derivatives of Pyridine VI. The Orientation of some Amino-chloropyridines," by W. J. Sell and F. W. Dootson.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C.—Adjourned Annual Meeting.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Professor Dewar on "A Century of Chemistry in the Royal Institution." (Lecture IV.)

Friday, May 18. Sun rises 4.6; sets 7.47.

ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—Professor J. A. Ewing, on "The Structure of Metals."

SCHOOL OF PHARMACY STUDENTS' ASSOCIATION, 17, Bloomsbury Square, London, W.C.—Paper on "Explosives," by H. Deane.

Saturday, May 19. Sun rises 4.5; sets 7.47.

CRICKET.—Wadham Lodge—Allen C.C. v. Allenbury's.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the Exchange Column should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., before 5 p.m. on Thursdays.

OFFERED.

30 Bleasdales. What offers? Purchaser pays cost.—Blade, Poulton-le-Fylde.

Photographic Stock-taking List, ready middle May, cameras, lenses, mounts.—Edward Peck, East Dercham, Norfolk.

Anomalies and Curiosities of Medicine, by Gould and Pyle, 20/-, offer. Published 34/-, 8 dozen physiology microscope slides, 21/-, offer.—Dr. John Graham, Paisley.

"**Pharmaceutical Journals**" for sale, 1863 to 1871, 1883-4, 1892 to 1899, 16 years at 5/- per annum, or 3 guineas the lot, all without advertisements. Vols. to 1884 bound.—Dispenser, 5, Serle Street.

Books on Pharmacy, Botany, Qual. and Quant. Analysis; "Pharmaceutical Journal," 1874-1892, inclusive; Journal Chemical Society, 1884-1899, and recent Dental Journals, cheap, for cash.—Gatrell, Barnes, S.W.

For Sale.—A quantity of Chemical Apparatus for gravimetric analysis, water analysis and general chemical experiments; also chemicals for the same. All in first-class order. Highest references can be given.—E. A. Bunyard, Kenmore, Maidstone.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Formula suiting good, saleable. Speciality purchased.—W. Lewis, 15, Shelden Street, London, W.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Adeock, Alcock, Armstrong, Ball, Barrie, Bennett, Coleman, Cowgill, Cummings, Foster, Glass, Golding, Gostling, Hall, Hass, Kemp, Latreille, Lloyd, Mortimer, Mumbray, Picken, Scott, Spence, Wallis, Wright.

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THE

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Of Saturday Next, May 19, 1900

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The Publishers, 5, Serle Street, London, W.C.

NEWS IN BRIEF.

EDINBURGH PHARMACY ATHLETIC CLUB.—The ninth annual sports take place on Tuesday, May 22, at Powderhall, commencing at 6.45 p.m.

THE VINOLIA WAR FUND has now reached the sum of £10,000, the twelfth instalment of £1,600 being paid to the Lord Mayor's Transvaal War Fund on May 11.

MR. WILLIAM HENRY POWER, F.R.S., M.R.C.S., has been nominated to be for five years a member of the General Council of Medical Education and Registration of the United Kingdom.

DR. P. N. EMERSON will open an exhibition of his photographic work in the rooms of the Royal Photographic Society, 66, Russell Square, London, W.C., on Tuesday, May 29, at 8 p.m., when he will deliver an address.

THE DISPENSING OF PROPRIETARY ARTICLES will form the subject for discussion at a meeting of the Western Chemists' Association (of London) on Wednesday, May 23. Mr. F. A. Rogers, of Oxford Street, will open the discussion.

MESSRS. LORIMER AND CO., LIMITED, Britannia Row, Islington, N., have secured the services of Mr. T. Goode Joyce, B.S. (Lond.), A.I.C., F.C.S., as successor to the late Mr. Hendry, who was in charge of their laboratories.

ONE OF THE LONDON MAGISTRATES, Mr. Hopkins, has expressed the opinion that a person cannot sell, as a specific, a medicine compounded by himself and not under a doctor's prescription, without making himself liable to pay duty.

MR. J. PATTISON GIBSON, M.P.S., of Hexham, has been interviewed by a representative of the Newcastle-upon-Tyne *Evening Leader* with respect to the natural beauties of Northumbria, of which he has made—photographically—a special study since the year 1856.

THE ALBERT MEDAL of the Society of Arts has been presented to Sir William Crookes, F.R.S., "for his extensive and laborious researches in chemistry and in physics, researches which have in many instances developed into useful practical applications in the arts and manufactures."

THE COUNCIL OF THE ROYAL SOCIETY, at its meeting on May 10, recommended the following fifteen gentlemen for election as Fellows:—C. J. Burch, M.A., Leonard Hill, M.B., J. Horne, F.G.S., J. J. Lister, M.A., J. G. MacGregor, D.Sc., P. Manson, C.M.G., M.D., T. Muir, LL.D., A. A. Rambaut, M.A., W. J. Sell, M.A., W. Baldwin Spencer, B.A., J. Walker, D.Sc., P. Watts, and C. T. R. Wilson, M.A.

DR. ALFRED HILL, Medical Officer of Health for Birmingham, in his annual report, states that eighty-five samples of drugs were analysed, nineteen samples, or 22 per cent., being found to be adulterated. Of fifty-six samples purchased of registered chemists and druggists eight, or 14 per cent., were condemned. Of twenty-nine samples bought of unqualified persons eleven, or 38 per cent., were adulterated.

LIEBIG'S EXTRACT OF MEAT COMPANY, LIMITED.—At a board meeting, held on May 10, it was resolved to recommend at the next ordinary general meeting of the company, to be held on June 7 next, a distribution of a final dividend for the year 1899 of 15 per cent., free of income-tax, making, with the interim dividend of 5 per cent. paid on February 15 last, 20 per cent. for the year.

THE FORFARSHIRE AND DISTRICT CHEMISTS' ASSOCIATION, at its annual meeting, to be held on Wednesday, May 23 (1 p.m.), at the Star Hotel, Montrose, after the annual report and election of office-bearers, is to consider a motion by Mr. W. R. Kermath with respect to the Pharmaceutical Society's examinations; also to consider a proposal that the British Pharmaceutical Conference be invited to meet in Dundee in 1902. The annual dinner will follow at 4 o'clock. Tickets, 4s. each.

MESSRS. BRUNNER, MOND, AND CO., and Messrs. Bowman, Thompson, and Co. are stated to have completed negotiations

whereby the former company purchases the Lostock Gralam Chemical Works, which comprise bleach, soda, and other plant, owned by the latter company, which has a capital of £382,000, the last dividend paid being 7 per cent. on both preference and ordinary shares. Locally it is feared that the works will subsequently be wholly or partially closed.

THE RACKAROCK mentioned by Lord Roberts in his despatch from the Vet River as having been laid on the railway line and discovered by a West Australian scout is a mixture of potassium chlorate and nitro-benzene. It belongs to the class of explosives invented by Dr. Herman Sprengel, F.R.S., and was extensively used at the blasting of the Hell Gate in New York Harbour. Evidently it was brought into the Transvaal from America, where it is currently employed in railway work.

MR. W. R. FIELDING, M.P.S., Halifax, at an inquest held on May 10 respecting the death of Sarah Ann Wadsworth (44), stated that the deceased had applied to him for a bottle of laudanum, but as her manner excited his suspicion, he supplied her with a harmless mixture; it transpired, however, that she obtained a one-ounce bottle of laudanum from another chemist, and subsequently took an overdose. A remark by the Coroner that Mr. Fielding had acted very properly was approved by the jury, and a verdict of "accidental death" was returned.

CARBOLIC ACID AND PARAFFIN OIL, mixed in the proportion of one ounce of the acid (90 per cent.) to several ounces of oil, was, according to a correspondent in the *Lancet*, recently mistaken for lager beer by an intoxicated person at New Brunswick, the entire contents of a bottle of the mixture being consumed. Mustard and warm water was administered, which caused vomiting. There was, however, no erosion of the lips, mouth, or throat, and the man recovered without a bad symptom. The question is asked: Did the paraffin oil modify the effects of the acid.

A GRAND BAZAAR in aid of the Restoration Fund of St. George's, Bloomsbury, was honoured by the presence of H.R.H. the Princess Henry of Battenberg, who performed the opening ceremony on Tuesday, May 15, at the Portman Rooms, Baker Street. Among the names of the numerous company present who received her Royal Highness we are pleased to note that of Mr. C. Terry-Holloway, M.P.S., who was one of the two gentlemen who carried the St. George's Standards and preceded the Princess in her tour round the rooms. He had also the honour of being presented to her Royal Highness. We hope that the bazaar will prove as successful as its object is deserving.

EARLY CLOSING has not ceased to occupy the attention of Lord Avebury since his translation to the peerage. On Monday last he introduced his original Shops Bill into the House of Lords, and it has been appointed for second reading on Tuesday next. There are, thus, no less than four measures dealing with the question of shop hours regulation now awaiting the consideration of Parliament—viz., Mr. Steadman's Shop Hours Act Amendment Bill, a similar Bill standing to Mr. Provand's credit, Sir Charles Dilke's Shops Bill, and the newly-introduced House of Lords Bill. Circumstances seem to be equally unfavourable for all of them.

THE PREVENTION OF CORRUPTION BILL, which deals with that particular form of commercial canker known as "secret commissions," appears to be following identically the same course through which the Companies Bill passed during its stay within the jurisdiction of the House of Lords. Lord Russell of Killowen, who has charge of the Bill, proposes to move that it be referred to a Select Committee, and that the Committee should consist of Lords Balfour, Lawrence, Burghclere, James, Ludlow, and Avebury, and himself. The predominance of the legal element in this proposed Committee is very marked, for, apart from Lord Avebury—better known to fame by his former title of Sir John Lubbock—commerce does not seem to have direct representation. It must not be forgotten, however, that Lord Balfour was formerly Parliamentary Secretary to the Board of Trade, and that Lord Burghclere attained to considerable administrative eminence at the Board of Agriculture when he was plain Herbert Gardner. The natural outcome of the action proposed to be taken in regard to this Bill is that the species of corruption Lord Russell of Killowen has so eloquently and severely assailed in his public utterances will continue to flourish for at least another session.

TRADE NOTES.

THE 'LUPA' HUMANISER.—Mr. Wm. Toogood, Heddon Street, Regent Street, London, W., submits a specimen of a new apparatus for humanising milk, designed by Dr. Blackler. It is a simple apparatus consisting of two graduated jars, one to contain the milk, the other for measuring the proper proportion of sugar to be added. There is also a glass cover, a piece of bent glass tube, and a perforated indiarubber cork. All the parts are separable and can easily be kept clean.

GOLD PAINT MEDIUM.—It has been found very difficult in the gold paint trade to produce a varnish or medium that, when mixed with the bronze powder, will not tarnish or turn green and retain the brightness of the "metal," owing to the chemical action set up between the copper in the bronze powder and the varnish. The trade has been almost wholly dependent upon foreigners for its supply of varnish or medium until the Weston Manufacturing Company, of Clapham, introduced the untarnishable "Weston," which is manufactured only for the trade, and is claimed to have far greater binding properties than the foreign make, as well as giving great brilliancy to the metallic powder—advantages much appreciated by the putters-up or bottlers of gold paint. The "Weston" Varnish is stated to effect considerable saving to the trade, as the bronze powder and liquid medium can be sent out in one bottle instead of using two, as is generally done. Chemists interested in the gold paint trade should write to the Weston Manufacturing Company for particulars.

THE 'SANDERSON' HAND CAMERA, as far as external appearance is concerned, has a great family likeness to a large percentage of those of other makers now before the public; therefore Messrs. Geo. Houghton and Son, 88 and 89, High Holborn, W.C., have found it desirable to point out, in a booklet just issued, wherein lies the great difference of the 'Sanderson,' and to demonstrate by examples of work some of the special advantages which may not be apparent at first sight. They describe briefly, yet clearly, the principles upon which the camera is based and how it should be used, the details of its construction and parts being explained. We may say that the 'Sanderson' Hand Camera has received the highest praise from experts, who have pronounced it to be most efficient, and capable of any class of work. Those interested in photography should write for a copy of the booklet.

ICILMA PREPARATIONS.—Messrs. Barclay and Sons, Limited, 95, Farringdon Street, London, E.C., who, as announced last week, have been appointed as sole wholesale agents for the United Kingdom by the Icilma Company, Paris, submit samples of the company's preparations. Icilma, stated to be an oxygenised natural mineral water, enters into the composition of some twenty different toilet preparations, including Icilma water (plain and perfumed), antiseptic water, face cream, tooth paste, hair lotion, shaving cream and soap, Iris soap, unscented soap, Icilmine (anti-caustic Icilma), violet powder, etc. Icilma water, it is claimed, will give natural bloom and elasticity to the skin, and by its constant use will prevent and remove the ravages that years produce. The soap preparations are especially good, producing a good lather, and rendering hard water soft to the skin. They may be used without fear of any caustic effects; for very delicate skins, however, Icilmine, a pure essence of Icilma in a gelatinous form, is recommended. A pocket bottle of the antiseptic water or hygienic fluid is stated to be an extremely useful article to take when on a journey, as, should a pimple come out when it ought not, by these agents it may be dissolved—not suppressed—in a few hours without causing any ill effects. Messrs. Barclay and Sons will be pleased to supply further particulars regarding the Icilma preparations on application being made to them.

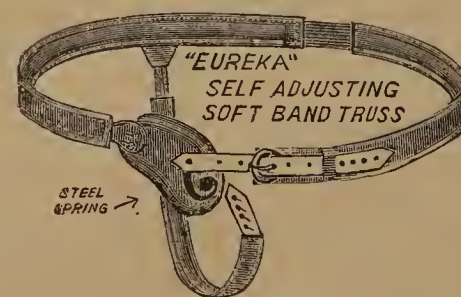
VARIOUS SPECIALTIES.—Messrs. Harker, Stagg and Morgan, 15, Laurence Pountney Lane, E.C., send particulars and samples of various specialties prepared by them. Among seasonable lines may be noticed their Effervescent Health Salt, put up in tins bearing a neatly-printed coloured label giving directions for use, etc.; a 'Twentieth Century' line of perfume (Lilanthé) in glass stoppered bottles, also a concentrated essence of 'Violette de Parme,' an exquisite, delicate, fragrant, and lasting perfume "distilled from the choicest flowers." Essence of Rennet (Horseshoe Brand) is claimed to be far stronger than most of the rennet essences usually sold, one teaspoonful being sufficient to curdle three pints of warm milk in ten to fifteen minutes. Moreover, it does not com-

municate the slightest taste or odour to the curd, and is said to be unequalled for junkets, curds and whey, cheese making, etc. The bottles are enclosed in printed cartons, with directions, at (2oz.) 3s. 6d., and (4oz.) 7s. per dozen. In pharmaceutical preparations the following may be mentioned:—Liquor Caulophyllin et Pulsatillæ Co., a combination of two well-tried remedies for uterine irregularities, forming an excellent emmenagogue in a most convenient form; Liquor Euonymin et Bismuthi Co., which possesses, in addition to the action of euonymin, the mechanical properties of bismuth; Liquor Euonymin et Cascaræ Sagradæ Co., a preparation combining in an elegant form the cholagogic action of euonymin with the laxative properties of cascara; Liquor Euonymin et Papain Co., a preparation having the same therapeutic strength and value as the Liq. Euonymin et Pepsinæ Co., but indicated in alkaline conditions of the digestive organs. The Liquor Euonymin et Pepsinæ Co. contains in a convenient and agreeable form the valuable hepatic properties of euonymin combined with pepsin in its most active state; Liquor Papain et Iridin Co. is a valuable medicine for use in cases of impaired digestion with complaints of the liver.

HYGIENIC BELTS, BANDAGES, TRUSSES, ETC.—Mr. Vincent Wood, Victoria House, Albion Place, Blackfriars Bridge, London, has introduced into the manufacture of various surgical appliances a cellular fabric having hygienic properties which are unsurpassed, inasmuch as it allows all impure exhalations of the skin to freely escape. His new Cellular (Aertex) Bandage, cut in six yard lengths of varying widths—2½ in. - 11 in. — will probably be the bandage of the future, being cheap, cool, and cleanly, or, in other words, inexpensive, light, porous, and washable. It may be mentioned that with orders for six dozen of these bandages a stock of circulars is supplied printed with retailer's name and address. The cellular fabric is used for covering the new Eureka "Herno"



steel spring truss and may be taken off and washed; it is also used in the "Zephyrine" Belt (24s. per doz.), which allows free exhalation of all perspiration of the body; also for suspensory bandages, various kinds of abdominal and supporting belts, chest and lung protectors, etc. Among Mr. Wood's recent introductions may be mentioned the "Imperial" belt (24s. per doz.), intended for use in every kind of athletics and for general support; the "Empire"

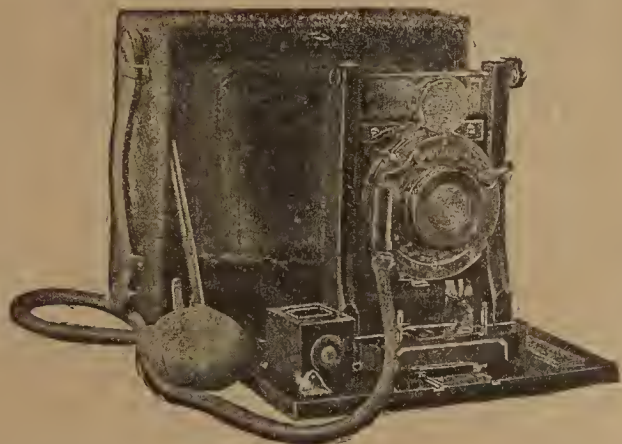


belt (30s. per doz.), for riding or walking and for supporting the back or loins; the "Tourist" belt (24s. per doz.), for the protection of valuables while travelling and for support to the loins; the "Relief" belt (21s. per doz.), ladies' improved supporting belts, corsets, etc.; also improved wrist straps for tennis, cricket, cycling, etc., at prices from 6s. 6d. to 12s. 6d. per dozen pairs. The foregoing articles are all guaranteed to be of English manufacture. Mr. Wood will be pleased to supply further particulars.

FINDLAY'S FIRST-AID AMBULANCE OUTFIT, supplied by Messrs. John J. Findlay and Co., 96, Bath Street, Glasgow, consists of antiseptic gauze, adhesive plaster, wood wool pad triangle bandage,

and safety pins, contained in a neat decorated tin box measuring $5\frac{1}{4}$ by $3\frac{1}{2}$ by 1 in. It is an extremely useful outfit for cyclists and others liable to meet with accidents in remote districts, and, moreover, is moderate in cost.

THE 'WIZARD' CAMERAS, supplied by Messrs. Seabrook, Bros., and Co., 21, Edmund Place, Aldersgate Street, E.C., have already been referred to in the Journal, mention being made of the fact that there are forty-two styles of the 'Wizard' Cameras, and that they are being introduced into this country for the first time. Attention is now directed to the Cycle 'Wizard' B, shown in the illustration. This is admittedly one of the best medium-priced cycle cameras on the market. The box, which is made throughout of highly-polished mahogany, has black seal grain covering, the nickelled fittings are



perfectly adjusted, and the bellows is of rich red leather. After the bed has been lowered the front is drawn out and is clamped to the track by a turn of the lever under the front board. The latter has the vertical as well as horizontal movements. The back of the camera holds the full-sized ground glass, which recedes when the plate-holder is inserted, and is removed entirely when a cartridge roll-holder is used. The camera is provided with the 'Wizard' extra rapid rectilinear lens, the best adapted for universal work, and is mounted in either the 'Wizard' shutter or the 'Wizard' Sr. shutter. Each camera is equipped with a reversible view-finder and two tripod sockets. The price, £3 12s. 6d., 4×5 , includes three plate-holders and a strong seal grain-carrying case for the camera and four holders, fitted with a nickel spring lock and shoulder straps.

TOILET PAPERS AND PERFUMES.—MESSRS. F. Newbery and Sons, 44, Charterhouse Street, London, E.C., have recently introduced medicated "papyleaves," in a neat carton to hang up—suitable for retailing at 1s. or 1s. 6d.—at 8s. per doz. The "papyleaves" are soft, yet do not tear easily, and suit all requirements of the toilet. Packets of 500 manilla curl papers at 2s. per doz. should prove a very saleable line to retail at 3d. each packet. In 'St. Paul's' perfumes the White Hyacinth is a very good 1s. line at 7s. per doz. It is put up in bottles having an ingenious arrangement in the stopper for distributing the perfume, and bearing a new artistic label in colours.

DARK ROOM LAMPS.—Among the numerous photographic novelties introduced this year by Messrs. Houghton and Son, 88, High Holborn, W.C., is the new dark room lamp—No. 48—shown in the illustration. It is triangular in shape, nine inches high over all, and is intended to burn colza oil, has an outside wick regulator, and is fitted with ruby glass on one side and orange glass the other, and a back which slides up. The price of this handy little lamp is 2s.—The well-known "Luna" dark room lamps have been reduced in price. These lamps—Nos. 36, 36A, and 37—constructed to burn paraffin without chimneys, the special construction of the lamp itself acting as a chimney—are now sold at 3s. 6d., 5s., and 5s. 6d. respectively. They are convenient and handsome lamps; the upper part tilts back to light, and the flame can be regulated by outside wick raiser, without uncovering the light. They are fitted with

double glass (orange and ruby) in front, and will not smoke nor heat.



COOKE EXTENSION LENSES.—Messrs. Taylor, Taylor, and Hobson, Stoughton Street Works, Leicester, send particulars of recent improvements in Cooke lenses. By removing the usual back glass of a Cooke lens and substituting one of the extension glasses, the focus of the combination can be lengthened without sacrificing its power of definition over the range of its own plate.



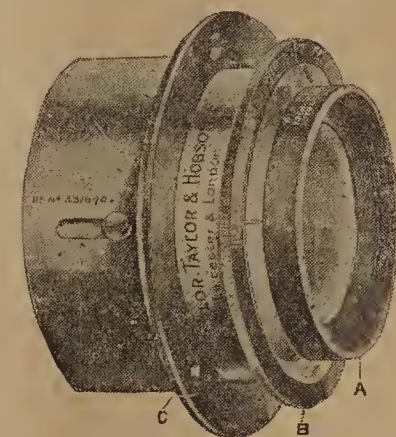
This provision for varying the lens' focus is extremely useful in hand camera and other work. The lenses are supplied in morocco leather pocket cases, and may be adapted to any of the forms of Cooke lenses already issued, but when ordering, it is necessary to send the original lens, both to have the extension lens properly adjusted, and to have its separate index scale engraved upon the iris diaphragm.

When Cooke lenses are permanently fitted to cameras, one or more extension lenses can be mounted together with the normal back glass of the lens, in openings in a wheel or sector, which may then be merely rotated to change the focus of the lens. The forms of these glasses and their separation from the front portion of the Cooke lens, conspire to render each combination comparatively insensitive as regards the adjustment of its back glass. With accurately made screws or with the above-mentioned wheel, there is therefore no risk of disturbing the adjustment of a Cooke lens by using this means of varying its focus.—The Series V. lenses, F/8 aperture, manufactured by this firm have been extended to include all sizes down to $4\frac{1}{4}$ inch focus. This lens gives perfect definition to the corners of its plate without stopping down, and bears strict comparison with the most expensive anastigmats. The illustration shows its small size, and it weighs only $2\frac{1}{2}$ ounces. The prices are $4\frac{1}{4}$ inch focus, £2 18s.; 5 inch focus, £3 3s.; $5\frac{1}{2}$ inch focus, £3 8s.; 6 inch focus, £3 12s.; $7\frac{1}{2}$ inch focus, £4 10s.



COOKE LENS
Series V.
f/8

COOKE LENS IN FOCUSING MOUNTS.—Messrs. Taylor, Taylor, and Hobson, Stoughton Street Works, Leicester, have introduced an improved focussing mount, here illustrated, intended specially for hand cameras.



It contains an iris diaphragm, which is operated by rotating the ring A, and a means of focussing by turning the ring B, which has engraved upon it the scale of distances. The outer flanged jacket C is fastened to the camera by means of ordinary wood screws, and the clamp screw and slot which are shown in this jacket, facilitate final adjustment of the lens to suit the length of the camera. The illustration is full size. The price is in each case 10s. in addition to the price for the ordinary settings. The usual patent screw flanges are not required.

SUGAR-COATED TABLOIDS.—MESSRS. Burroughs, Wellcome and Co., Snow Hill Buildings, London, E.C., intimate that in future the following tabloid products will be issued both plain and sugar-coated, instead of plain only, as formerly:—Aloes and myrrh (B.P. pill), gr. 4; Colocynth and hyoseyamus (B.P. pill), gr. 4; Colocynth Compound (B.P. pill), gr. 4; Ipecacuanha with Squill (B.P. pill), gr. 4. Cascara Sagrada (dry extract) tabloids will in future be issued of gr. 4 and gr. 5 strengths, in addition to gr. 1, 2, and 3, as formerly. Tabloids of the new strengths will be supplied in bottles containing 25 and 100 in each.

EXTRACTS FROM CONSULAR REPORTS.

THE PROPORTION OF COPPER SULPHATE imported from Great Britain into Leghorn (Italy) during 1899, according to a recent report, fell from 96 per cent. of the entire trade in 1898 to 76 per cent., the figures for 1899 being:—Imports from all sources, 3,506 tons, value £65,471; imports from Great Britain, 2,661 tons, value £49,697; as against 3,301 tons, value £61,650, and 3,183 tons, value £59,445, respectively. The falling off in British trade appears to be due to keen United States competition. At the beginning of the season the price offered from America was sometimes 3*l.* a quintal below the English price. The freight from the United Kingdom was 15*s.* a ton, from the United States £1 a ton; thus it will be seen that the American article was the cheaper of the two. Moreover, the American copper sulphate is said to have given every satisfaction to consumers. It has, however, been impossible for American dealers to continue the low prices offered at the beginning of the season, but they have at least succeeded in making their commodity thoroughly well known.

A MORE FORMIDABLE DANGER to British trade with Italy in copper sulphate in the near future, Vice-Consul Carmichael thinks, will be Italian sulphate. Up to the present local manufacturers appear as a rule to have sent to England for the greater part of the raw material; now, however, the flourishing and influential "Società Metallurgica" of Leghorn is busily erecting the necessary plant for the manufacture of copper sulphate on a large scale. Italy produces some 26,000 tons of copper annually, and it is said that the company can depend upon securing its material at home. Should such be the case a formidable competitor will enter the field. In any case the more satisfactory days of the English trade in sulphate seem to be over. If the Italian manufacturing venture prove successful, it will, in all likelihood, sweep half the British copper sulphate out of the market.

THE OLIVE OIL CROP of Tuscany in 1899 was more than half destroyed by the ravages of the olive fly, the quantity of oil obtained being insignificant, while the quality of most of it is said to be distinctly inferior. A full crop of olive oil in Tuscany, according to Vice-Consul Carmichael, may be reckoned at a money value of £10,000,000. The olive maggot—which subsequently develops into the olive fly—is stated to be capable of diminishing the yield of oil by one-half and seriously injuring the quality of the remainder. Thus it will be seen that the fly may actually cause damage in one year amounting to £5,000,000.

NO MEANS OF DESTROYING THE INSECT, it would appear, has so far been discovered, notwithstanding the urgency of the matter, nor does the State appear to have suggested any practical remedy. The attention of English scientists is directed to the matter by the British Vice-Consul, as any discovery which should exterminate the plague would, he thinks, certainly be profitable.

ENTOMOLOGISTS OF EXPERIENCE, it is suggested, should carefully study the habits of the fly, with a view to finding out the hitherto undiscovered winter habitat, in order that proper steps could be taken for its destruction. It has been hazarded that the winter habitat of the fly must be in the bark of the olive trees. If such be the case, it is thought that all that would be needed would be to paint the trees during the winter with a simple solution of lime, and thus rid the country of a very destructive enemy to agricultural prosperity. This system of painting the trees has been tried in some isolated instances; but only a special law, rigorously enforced, could ensure the effective application of such a remedy over an extensive district.

A CRISIS IN THE ORRIS ROOT INDUSTRY is reported to have arisen in Italy, owing to the action of a syndicate, supported by a powerful bank, in securing the whole of the Veronese crop and nine-tenths of that of Florence. Orris root being only obtainable round Florence and in the neighbourhood of Verona, the position is said to be somewhat serious. The small quantity of Florence root still in the growers' hands is being offered at enormous prices, while the syndicate itself is still holding its stocks, and apparently declines for the present to sell. Representatives of a large perfume manufactory of Grasse are said to have recently endeavoured to obtain a small quantity without success. Fifty tons is the outside estimate of the stock of orris root now held at Leghorn. It is thought, however, that the high prices prevailing will eventually benefit the industry by encouraging the growers to persevere in planting. Orris root

is a commodity that is subject to singular fluctuations in price. A fair average price is stated to be £50 per ton. In 1891 as much as £120 per ton was paid, and in 1898 as little as £26.

AN IMITATION OF BEESWAX, Professor Angelo Funaro has pointed out in a recent supplement to the 'Enciclopedia di Chimica,' may be produced by an admixture of seven substances, among which beeswax need not enter as an ingredient even in a small proportion. Some such mixture, according to Vice-Consul Carmichael, has recently been shipped to the United Kingdom from Leghorn as Tuscan wax. He points out that it is very easy for a dealer to be deceived by the appearance of wax, hence the only remedy is for British importers to be sure of the houses they deal with, and to be aware of believing in the possibility of too low a price.

A STRIKING INCREASE IN FOREIGN INDIGO imported into Japan has occurred during recent years, owing to the growth in the requirements of the dyeing establishments. The demand was greater than usual in 1899, on account of the short crop in Japan and the consequent rise in the price of the native article, 1,052 tons realising £236,432, as against £231,792 for 1,075 tons in 1898.

THE OPERATION OF THE JAPANESE CAMPHOR MONOPOLY caused a considerable increase in the value of the camphor export during 1899—about £60,000 greater than in the preceding year—the price of the drug being higher than in 1898. It will probably be remembered that on June 22, 1899, regulations were issued for the Government monopoly of camphor and camphor oil, and for the manufacture of camphor and camphor oil in Formosa by persons who must obtain licences from the Government. It was also decreed at the same time that those products were in future to be shipped only from the ports of Kelung and Tamsui, in Taihoku Prefecture. The regulations, which were put into force on August 5, provide that all camphor and camphor oil produced in the island shall be collected by the Government from the manufacturers, suitable compensation being paid, and forbid any person to own, deal with, or send abroad any camphor or camphor oil other than that sold by the Government. Regulations regarding manufacture were also issued in which the steps to be followed in opening and closing business were specified.

THE CAMPHOR EXPORTED FROM JAPAN in 1899 amounted to 1,642 tons, valued at £179,105, as compared with 1,448 tons, value £121,546, the previous year. The ginseng export was 239 tons, value £48,680, as against 211 tons, value £43,267; vegetable wax, 6,092,817 lbs., value £65,559, against 5,053,054, value £62,246. Of mining products, antimony was exported to the extent of 1,031 tons, value £21,082, the 1898 export being 1,327 tons, valued at £22,111; manganese, 9,320 tons, realised £15,587, as compared with £15,958, the value of 9,905 tons exported in 1898; sulphur, 16,551 tons, was valued at £58,685, the preceding year's export being 12,527 tons, value £48,695.

A NEW STANDARD OF WEIGHT has been introduced in Japan. Prior to January 1 of this year a Japanese kin or catty was in practice taken to be equivalent to 1½ English lbs. (Avoirdupois), though in reality, according to the metric system, it equals 1.322773 English lbs. Under Japanese law only scales and weights inspected and approved by the Government can be used for weighing objects, with the standard weight of kin (catty), and it was notified that persons who should continue to use the English pound for that purpose would be dealt with in accordance with the provisions of the law regarding weights and measures. As a result, all foreign firms are compelled to have scales complying with the Japanese regulations. But, according to Mr. A. H. Lay, assistant in her Majesty's Consular Service in Japan, in actual business, calculations in many cases are still based upon the old system, use of the new scales not being resorted to. Imports, it is stated, are frequently weighed on foreign scales, the method of weighing being apparently immaterial when it is determined by mutual consent. Exports, however, are weighed in Japanese scales, and before long it is expected that the use of the new scales will become universal.

CHEMICALS AND CHEMICAL AND MEDICINAL PREPARATIONS exported from Great Britain in March increased in value by £53,423 over the export for March, 1899, the totals being respectively £933,498 and £880,075. There was also an increase of £271,012 on the export for the three months ending March 31 over the corresponding period in 1899, the total value of the exports for the two periods being £2,585,539 and £2,314,527 respectively.

TURNOVER AND PROFITS.*

PROFIT ASSESSMENT.—The following examples show how the important questions of profits and percentages upon cost and sales can be effectually dealt with. The cost and profit figures may be taken as either pounds, shillings, pence, or farthings.

1. To find the percentage of profit on cost—
Say the cost is 8 and the profit 4.
 $4 \times 100 = 400 \div 8 = 50$ per cent.
2. To find the percentage of profit on sales—
Taking the same figures for cost and profit.
 $4 \times 100 = 400 \div 12(4+8) = 3\bar{3}$ per cent.
3. To find what amount to add to cost to realise a certain rate per cent. upon the cost.
Say the cost is 6 and the rate required 25 per cent.
 $6 \times 25 = 150 \div 100 = 1\cdot5$,
which may be £1 10s., 1s. 6d., or 1½d.
4. To find what amount to add to cost to produce a certain rate per cent. upon sales—
Say the cost is 6 and the rate required 25.
 $6 \times 25 = 150 \div 75(100-25) = 2$.

A HANDY TABLE FOR ASSESSING PROFITS,

By adding to the cost, as follows, the relative percentages of profit are obtained:—

One-half	50·00	per cent. on cost, and	33·00	per cent. on sales.
„ third	33·33	„	25·00	„
„ fourth	25·00	„	20·00	„
„ fifth	20·00	„	16·60	„
„ sixth	16·60	„	14·28	„
„ seventh	14·28	„	12·50	„
„ eighth	12·50	„	11·11	„
„ ninth	11·11	„	10·00	„
„ tenth	10·00	„	9·09	„
„ eleventh	9·09	„	8·33	„
„ twelfth	8·33	„	7·69	„
„ thirteenth	7·69	„	7·14	„
„ fourteenth	7·14	„	6·66	„
„ fifteenth	6·66	„	6·25	„
„ sixteenth	6·25	„	5·88	„
„ seventeenth	5·88	„	5·55	„
„ eighteenth	5·55	„	5·26	„
„ nineteenth	5·26	„	5·00	„
„ twentieth	5·00	„	4·76	„

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, MAY 16, 1900.

The recent high prices for oils generally still continue with, in some cases, further advances, though in the case of Linseed a slightly easier feeling is noticeable as regards the seed itself, though the oil has gone up again. Ginger, Honey, and Beeswax, together with Quillaya Bark, have been moving off satisfactorily. Business in Chemicals has been limited, but Caustic Soda and Sulphur have advanced, and a better tone is manifested in Sulphate of Copper.

AMMONIA SALTS.—Carbonate, 3¼d. per lb. Salammoniac, 38s. to 40s. per cwt. Sulphate, £11 7s. 6d. per ton.

BEESWAX.—Four cases of Chilian sold at auction ex-store for £7 17s. 6d. per cwt., and 15 sacks ditto at £7 10s.

BLEACHING POWDER—Is firm at £7 to £7 10s. per ton.

CANARYSEED.—50 bags of Turkish sold at 34s. 6d. per 416lbs., and since then business has been done at 35s.

COPPERAS—Is firm at 37s. to 39s. per ton.

COPPER SULPHATE—£25 to £25 2s. 6d. per ton.

GINGER.—156 bags of Sierra Leone were sold ex-quay privately.

HONEY.—22 barrels of Chilian Pile x made 31s. per cwt.

LINSEED—Is an idle market, with no sales to report with the exception of 1,500 bags of River Plate at 50s. 6d. to 56s. per 464lbs., according to quality. N. American September and Novem-

ber shipment has been offered at 44s. 6d. to 45s., and Calcutta on passage at 54s., and to arrive May shipment 53s. 3d.

OILS (FIXED) AND SPIRITS.—Castor is in good demand at firm rates. The sales are: Calcutta, 225 cases, ex quay, at 3½d. per lb.; 250 cases to arrive March-May, 3¾d.; and 100 cases duly to August, 3 13-32d. per lb. Spot price, 3¾d. French, first pressure, 8 tons, sold at 3¼d., second pressure 3½d., and Madras 3½d. per lb. Olive is quiet at £35 to £35 10s. per tun for Spanish Oils. For shipment these are £34 12s. 6d. to £34 17s. 6d. for Malaga, cost and freight, and £34 to £34 15s. for Seville, ditto. Linseed Oil is steady at 35s. 3d. to 36s. per cwt. Cotton Seed Oil is firm, but quiet, at 26s. to 26s. 6d. per cwt. Spirits of Turpentine are firmly held for 45s. 6d. per cwt., with a fair inquiry.

POTASSIUM SALTS.—Bichromate quiet, 4d. per lb.; Chlorate, 4½d. to 4¾d. Pearlash has dropped to 32s. 6d. per cwt. and Potashes to 25s. per cwt. Saltpetre is firm at 21s. per cwt.

QUILLAYA BARK.—10 tons of Chilian at £13 5s. per ton.

SODA SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is steady at 16s. to 17s. per cwt. Caustic Soda is scarce: 76 to 77 per cent., £11 5s. to £11 10s. per ton; 70 per cent., £10 5s. Soda Crystals, £3 5s. per ton. Nitrate is steady at 8s. 4½d. to 8s. 9d. per cwt.

SULPHUR.—“Recovered” is dearer, £5 to £5 2s. 6d. per ton; Roll, £6 5s. to £6 10s.; Flowers, £6 10s. to £7 10s. per ton.

LONDON, THURSDAY, MAY 17, 1900.

Business in Drugs and Chemicals has been decidedly quiet during the past week, while there are no changes of any particular importance to record. Quinine, after being firmer, has again had a relapse, owing to the view taken by speculators that the half-monthly bark shipments advised from Java are excessive. Acid Carbohc, on the other hand, has stiffened up. Opium, Morphine, and Codeine are steady; Glycerin firm, with a rising tendency. Codliver Oil continues dull and weak; Sulphonal and Phenacetin steady; Salicylates and Salol unchanged, as also are Bismuth Salts. Quicksilver and Mercurials firm; same may be said of Bromides, while Iodides remain in an unsettled state. Linseed Oil dearer. Rape Oil very firm; Acid Citric and Tartaric and Cream of Tartar steady; Borax and Acid Boracic unchanged. Refined Camphor remains firm, while Crude is the turn easier. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE—Is still weak and can still be obtained in quantity as low as 9½d. per lb.

ACID BORACIC—Steady at 26s. per cwt. for crystals and 28s. per cwt. for powder.

ACID CARBOLIC.—Crude is steady, while refined has been in fair demand at 10½d. to 10¾d. per lb. for 35-36° C. ice crystal in large bulk packing; 39-40° C. ice crystal, 11d. to 11¼d. per lb.; and 39-40° C. detached crystals (the form and quality now required by the B.P.), 1s. to 1s. 0½d. per lb. Crude is quoted, 60° F., 3s. per gallon; 75° F., 3s. 9d. Liquid, 95-98 per cent. of pale straw colour, 1s. 6d. to 1s. 8d. per gallon in 40-gallon casks; ditto. 25-30 per cent. of dark colour, 10d. to 1s. per gallon.

ACID CITRIC—Steady at 1s. 4d. to 1s. 5d. per lb., according to make and quantity for crystals in 5 cwt. casks, 1 cwt. kegs being charged higher in proportion.

ACID OXALIC—Unchanged at 3¼d. to 3½d. per lb. net, free delivered London.

ACID TARTARIC—Is quiet, but steady, at 1s. 0¾d. to 1s. 1d. per lb. for English crystals, and 1s. per lb. for foreign.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal Ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate firmer: Gray, 24 per cent., London prompt, £11 6s. 3d. Hull prompt, £11 2s. 6d. to £11 5s. Leith, prompt, £11 6s. 3d. Beckton, £11 7s. 6d., Beckton terms, prompt, £11 2s. 6d. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

*Tables compiled by Messrs. J. Bath and Co., of 3, Crooked Lane, E.C.

ANTIMONY.—Regulus is quoted £38 10s. to £40 per ton, and crude Japan (Black Sulphide) £22 15s. to £23 10s. per ton.

BISMUTH.—Still unchanged at 5s. per lb. for the commercial quality of the metal, 5s. 8d. per lb. for the subcarbonate, and 5s. 1d. per lb. for the subnitrate.

BORAX.—Crystals are quoted 17s. per cwt. and powder 18s.

BROMIDES AND BROMINE.—Are very firm at unchanged prices—viz., Potassii Bromid., 1s. 11½d. per lb.; Sodii Bromid., 2s. 3d. per lb.; Ammon. Bromid., 2s. 2½d. per lb.; Bromine, 2s. to 2s. 2d. per lb. in 60-lb. cases,

CAMPHOR.—Market for Crude is quiet and easier, business having been done in Japan, from second-hand, to arrive at below 182s. 6d. per cwt. c.i.f. English refiners are firm at 2s. 4d. per lb. for Bells and Flowers, Tablets being quoted at proportionate prices.

CASTOR OIL.—Firm. Belgian 1st pressing spot, £31 10s.; May-June, £30 10s., f.o.b.; Antwerp 2nd pressing spot, £29 10s. per ton. Hull Manufactured: Guaranteed Cold Drawn Pure Pharmaceutical, £34 per ton in barrels; 4¼d. per lb. in cases. Pure firsts, £31 10s.; seconds, £29 10s. per ton in barrels; firsts, 3¼d. per lb. in cases; seconds, 3⅞d., ex-wharf London.

CINCHONA BARK.—These auctions, the fifth of the series, were held to-day, with the large supply of 3,931 packages, against 3,065 packages at the preceding sales. There was a good demand, and about two-thirds found buyers, at and since the sale, at fully the parity of the last Dutch auction, the average unit of Quinine Bark being 1¾d. to 1¾d.; while Succirubra, containing Cinchonidine, realised an average of 2d. and upwards. Ceylon: 374 packages offered and 308 packages sold, according to analysis. Succirubra, stem chips and shavings, ordinary to good at 3d. to 4½d., renewed ditto at 4½d. to 4¼d. Officinalis, renewed chips at 5¼d., and shavings at 7d. East Indian: 2,319 bales and 77 cases offered and about 1,600 packages sold, red, stem chips and shavings fair to good at 3⅞d. to 5½d., ordinary at 2¾d. to 3¾d., branch at 3¾d. to 3¾d.; root, fair to good at 3d. to 4½d.; renewed, stem chips and shavings, fair to good at 4½d. to 6¼d., ordinary at 3¼d. to 3½d.; Officinalis, stem chips and shavings, fair to good rich at 4⅞d. to 7d., good branch at 5⅞d., silvery quill at 5⅞d.; renewed chips and shavings, good to fine rich at 6½d. to 10⅞d., fair to good at 4d. to 5½d.; Ledger, chips and shavings, good to fine at 6½d. to 8⅞d., ordinary at 2⅞d. to 3¾d., branch at 2½d. to 5¾d.; root, ordinary to good at 3d. to 6¾d.; Hybrid chips at 3d. to 5½d. Java: 150 packages offered and 128 sold; Ledger, chips and shavings, good at 6¾d. to 7¾d., branch at 4d. to 4¾d., root at 5¾d. to 6¾d., quill at 3¾d. to 3¾d. South American: 324 packages Bolivian cultivated Calisaya offered and 220 packages sold; fair to good quill at 8½d. to 11d. Soft Columbian: Of 421 packages 196 sold at 3d. Cuprea: 223 packages bought in. Red: 43 packages offered, chiefly damages, at 4¼d. to 5½d.

CLOVES.—At auction no Penang or Zanzibar were catalogued. Privately, the demand for Zanzibar continues slow, and only a small business has been done for delivery at barely steady rates. The sales comprise June-August and August-October delivery at 4d. to 3 31-32d. and sellers. January-March closing sellers at 3 27-32d.

COAL TAR DISTILLATION PRODUCTS. Toluol commercial 1s. 2d. to 1s. 3d. per gallon; pure, 2s. to 2s. 6d. Benzole firmer at 10d. per gallon for the 50 per cent. quality and 8d. per gallon for the 90 per cent. Creosote, 3d. to 5d. per gallon, according to quantity. Crude Naphtha, 30 per cent. at 120° C., 5d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 4d. per gallon; 90 per cent. at 160° C., 1s. 1d.; 90 per cent. at 190° C., 1s. 1d. per gallon. Anthracene A, 3¾d. per unit; B, 2¾d. Pitch, 37s. 6d. per ton, f.o.b. Tar: Refined, 13s. per barrel, 2½d. per gallon; crude, 12s. 6d. per barrel, 2¼d. per gallon.

COCAINE.—Makers of best brands are firm at 16s. 3d. per oz. for the Hydrochlorate in 25-oz. tins and for 200-oz. lots, while there is practically nothing offering from second-hand below makers' price. Crude is stated to be still scarce and dear.

COD LIVER OIL.—Keeps dull and weak, prices for best new non-congealing Norwegian oil being nominally 75s. to 82s. 6d. per barrel, in tin-lined barrels of 25 gallons each. As far as can be judged, the price is not unlikely to further recede.

CODEINE.—Remains very firm at 13s. 6d. per oz. for the pure, and 1s. per oz. less for the muriate, phosphate, and sulphate salts.

CREAM OF TARTAR.—Firm at 73s. per cwt. for first white crystals on spot; 75s. per cwt. for powder; and 77s. per cwt. for ditto, 95 per cent.

GINGER.—At auction 90 bags Japan sold, small and medium limed, at 24s. 6d. Cochin, in small supply, met little or no demand. Out of 384 bags and 30 cases only 45 bags sold, without reserve, small dark shrivelled pickings, at 24s.; the remainder bought in, cut small and ends, at 45s. Calicut, rough, bright, part plump, small and medium, 33s. to 35s. Jamaica, in reduced supply, met active competition for all good qualities at again dearer rates, medium being firm, but common kinds dull. Out of 477 barrels offered 271 barrels sold, fine bold plump at 87s., good bright at 71s. to 76s., low to middling 54s. 6d. to 66s., fair to good common 51s. to 56s. 6d., common 46s. to 50s.

GLYCERIN.—Continues firm with an upward tendency, both for crude and for refined, price of latter being 58s. 6d. to 60s. per cwt. for English and 62s. 6d. to 75s. per cwt., according to brand, for German best white, odourless, double-distilled, chemically pure, 1260 s.g. quality, in tins and cases (cases of 2 or 4 × 56-lb. tins).

GOLDEN SEAL ROOT (RAD. HYDRASTIS CANADENSES).—Remains scarce, and holders ask 2s. 6d. per lb. for limited quantity.

IODIDES AND IODINE.—Market continues unsettled, there being sellers *sub rosa* below the prices fixed by the combined makers, which are 10s. 6d. per lb. for Potassii Iodid., 11s. 10d. per lb. for Sodii Iodid., 13s. 10d. per lb. for Ammon. Iodid., 13s. 10d. per lb. for Iodoform crystals, powder, or precipitated, and 12s. per lb. for Iodine resublimed. The commercial quality of Iodine is also so far unchanged at 7½d. per oz. In view of the present aspect of affairs, buyers will do well to purchase strictly only from hand to mouth.

LYCOPDIUM.—Remains scarce and dear, price asked varying from 2s. 3d. to 2s. 6d. per lb., according to quantity and holder.

MENTHOL.—The favourite Kobayashi brand is now quoted 8s. 6d. per lb. in 5 case lots. It is stated that the market is likely to still further recede.

MERCURIALS.—Makers are very firm at 3s. 2d. per lb. for Calomel, and 2s. 10d. per lb. for Corrosive Sublimate, other mercurial preparations being quoted in proportion.

MORPHINE.—Very quiet at steady prices, say 5s. per oz. for the Hydrochlorate Salt in powder, and 2d. more for Hydrochlorate and Sulphate crystals.

OILS (FIXED) AND SPIRITS.—Linseed strong and advancing. On the spot, pipes, London, ordinary, £34 10s. (E.I., 5s. premium); barrels, £34 10s. to £34 15s.; Hull, spot, naked, £34. Rape very firm; ordinary brown, on the spot, barrels, £28 15s. to £29; refined, spot, £30 to £30 10s.; Ravison, naked, spot, £27. Cotton quiet; London, crude, spot, £23; refined, spot, £24 10s. to £25., according to make; Hull easier, naked, refined, spot, £23 7s. 6d.; crude, spot, £22. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut quiet for Ceylon but firmer for forward. Cochin: Ceylon, on the spot, £25, ex-warehouse; Cochin, spot, £28. Palm: Lagos, on the spot, quoted £27 10s. Whale Oil: At auction about 30 tuns St. Vincent sold, very full prices being obtained; double compass and stroke, £18 10s. to £19 15s.; single compass and stroke, £18 to £19; single compass and nick, £18 to £18 15s.; nick, £17 to £17 10s.; double stroke and dart, £16; single stroke, £15 to £15 5s. Petroleum flat; Russian, spot, 6¾d. to 6¾d.; American, spot, 7d.; water white, 8d. to 8¼d. Lubricating: Pale American, spot, 9s. to 10s. 9d.; black, 7s. to 9s.; Russian, black, 6s. 6d. to 7s.; pale, 8s. 9d. to 10s. 3d. Petroleum Spirit: American, ordinary, 9½d.; deodorised, 9¾d. Turpentine: There have been free buyers of all positions, the market closing strong as follows: American, spot, 45s. to 45s. 3d.; May, 44s. 9d. to 45s.; June, 39s. 6d. to 39s. 9d.

OPIUM.—Quiet, but steady, at nominally unchanged prices, there being practically no business of any importance passing in the article at the moment.

PHENACETIN.—Quiet, but steady; second-hand is practically sold out, and makers are firm at 5s. 3d. per lb. for crystals or powder, in 5 cwt. lots.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate: Spot London crystals, 4¾d., net; powder, 4¾d. Carbonate, 90 per cent., £19 10s. per ton, ex ship. Cyanide, 98 per cent., 1s. 2d. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate,

refined, £21 5s. per ton. Permanganate small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate: Yellow, English makes, 8d.; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

QUICKSILVER.—The importer quotes £9 10s. per bottle; second-hand not offering.

QUININE.—Makers of the favourite German brands maintain their price of 1s. 4½d. per oz. for the Sulphate for 1,000-oz. lots in 100-oz. tins; while the speculative market, after being firmer at 1s. 4d. to 1s. 4¾d., according to delivery, has had a relapse on the bark shipments from Java for first half of the month—viz., 480,000 Amsterdam lbs. (against 225,400 Amsterdam lbs. for corresponding period of last year) becoming known, and the sale of 5,000oz. B&S and/or Brunswick at 1s. 3¾d. per oz. is reported.

ROSIN.—Strained on the spot is quoted 5s. to 5s. 3d. per cwt., ex wharf, 4s. 6d. per cwt. afloat, and 4s. 7d. per cwt. for July-September and August-October shipment per sailing vessel, ex ship terms.

SALICYLATES AND SALOL.—There is no change in price to report.

SANTONIN.—There has been more inquiry this week, and anything obtainable from second-hand at below maker's price has been snapped up. Second-hand appears now to be sold out. Makers quote 11s. 3d. to 11s. 9d. per lb., according to quantity.

SHELLAC.—The shipments at Calcutta for the half month (as given below) show a comparative increase of 3,000 cwt., the total to all parts being 16,600 cwt., against 13,600 cwt. last year. The market here has been quiet and prices are barely steady, 100 cases August delivery TN having been sold at 62s. and rather sellers, and 100 cases May shipment at 59s., c. f. and i. On the spot small sales at previous rates. The shipments from Calcutta during the first half of May were as follows:—To the United Kingdom, 3,400 cwt. against 4,600 cwt.; to the United States, 8,500 cwt. against 7,500 cwt.; and to the Continent, 4,700 cwt. against 1,500 cwt. last year.

SODIUM COMPOUNDS.—Crystals: Barrels quoted 60s., bags 57s. 6d. Acetate, £14 10s. per ton, ex ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3¼d. per lb. Bromide, 2s. 2½d. per lb. Caustic: 70 per cent. white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4½d. per lb. Hyposulphate (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per tin. Nirtate, on the spot, refined, £9; ordinary, £8 10s.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate, £1 7s. 6d. per ton. Sulphide crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: At auction the small supply met little demand and all bought in, comprising 50 bags Singapore damages at 6d., 200 bags Penang at 5¾d., 101 bags fair Alleppy at 6¼d., and 47 bags bold Malabar at 6¾d. White Pepper: 15 cases fine Singapore bought in at 1s., 6 bags barely fair sold at 9¼d., 5 bags Ceylon, sold good at 9d., mixed with black at 8½d. 115 bags Penang bought in, fair at 8½d. Pimento continues neglected, and of 243 bags only 36 bags sold, at easier rates, fair at 3d. to 3½d. Nutmegs flat: 96 packages Penang offered and 7 packages sold, 65's at 2s. 3d., 104's at 11d. to 11½d.; the remainder bought in, 81's at 1s. 8d., 108's at 1s., and 194's shrivelled at 6d. Mace: 1 case Penang sold, broken red at 1s. 3½d. Bombay wild: 16 cases offered and bought in, fair bright at 5d.

SULPHATE OF COPPER—is quoted £24 10s. to £26 per ton on the spot.

SULPHONAL.—Makers are firm at 20s. 6d. per lb. for both crystals and powder, with a certain reduction for large quantity in bulk packing, smaller packing being charged higher in proportion.

THYMOL.—There are sellers from second-hand at 9s. per lb.

TURMERIC.—Only a small business has been passing in the various kinds at about previous rates, fair bright Cochin split bulbs selling at 9s. per cwt., and good to fine bright Madras finger at 31s. to 32s. 6d. per cwt.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the Exchange Column should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., before 5 p.m. on Thursdays.

OFFERED.

Barclay & Sons' Shares. What offers?—Barlow, Chemist, Barnard Castle.

Moulds.—Suppository, Pessary, Bougie, Capsule.—Warnes, 333, Gray's Inn Rd., W.C.

Diatom Slides—Spread, Selected, Tests, Exhibition Groups, etc. Approval parcels.—Gatrell, Barnes.

Books.—"Chemical Society Journals," "Pharmaceutical Journal," Chemistry, Botany, Analysis, etc.—Gatrell, Barnes.

Photographic Stock-taking List, ready middle May, cameras, lenses, mounts.—Edward Peck, East Dereham, Norfolk.

For Sale, Nest of 48 excellent Drug Drawers, glass knobs, with bevelled gold glass labels; free on rails at St. Helens; £5.—Wallbridge, Chemist, St. Helens.

4 gross 1d. tablets Zebril, 14 1s. 1½d. Allan's Child's Cordial, 10 1s. 1½d. Thierry's Balsam, 6 2s. 9d. Thierry's Ointment; first offers taken.—Nelson, Chemist, Blyth.

Anomalies and Curiosities of Medicine, by Gould and Pyle, 20/-, offer. Published 34/-. 8 dozen physiology microscope slides, 21/-, offer.—Dr. John Graham, Paisley.

Lemonade Powder, as used by large mineral water specialists; no advertised article approaches it in body or flavour: very profitable; p.o. 1s. 6d.—Edwards, 36, Pitfield St., London, N.

2 lb. Potass. Iodid., 19s.; ½ oz. Morph. Tart., 3s. 3d.; 1 oz. Morph. Acet., 5s.; 1 oz. Cocain. Hydr., 17s.; 1 lb. Iodof. Prec., 13s.; 1 lb. Crystal, 12s.; 2 lb. Bism. Nitr., 10s., Carriage Paid.—Eastman, Forest Lane, Stratford.

Water-bed (Anderson), 36in. square; water-cushion, 28 by 18; neck-cushion (Maw's), 21in., good as new; air-cushion, 12 by 18, sound condition; seen by appointment.—Ford, Oxford House, Beaconsfield Road, New Southgate, N.

Magnificent model vertical engine, tubular boiler, glass gauge, whistle, double-action slide-valve cylinder, bronzed stand, exhibition model, silver-plated, high speed, and perfect; worth 42s., accept 12s. 6d. free; photograph 1d.—Manager, Hassall's Chemical Works, Stratford, London.

For Sale, Vacuum-pan, 5 ft. diameter, fitted with stirring-gear, condenser, and all fittings; 1 mild-steeled steam-jacketed still, 4-ft. diameter, fitted inside with copper steam-coils, stirrer and pulleys, and galvanised-iron still-head.—Apply to W. J. Fraser & Co., 98, Commercial Road, London, E.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

Overstocked.—22 doz. 1s. Barrow-Evans's hair-restorer, 5s. 3d. doz.; 24 doz. 1s. 1½d. Storcroft's throat-cure, 8s. 9d. doz.; 2½ doz. 2s. 9d. Nurse Powell's pills, 18s. doz.; 6 doz. 1s. 1½d. Dr. Weir's plasters, 6s. doz.; 6 doz. 1s. 1½d. M. F. Thompson's French corn-plasters, 7s. doz.; 6 doz. 6d. Sansom's nursery-oil, 4s. doz.; 2½ doz. 1s. 1½d. Deighton's gout and rheumatic pills, 8s. 6d. doz.; 12 doz. 6d. Mack's double-starch, 3s. 6d. doz.; 24 doz. 6d. Adams's extract herbs, 2s. 9d. doz.; 6 doz. 6d. Bond's marking-ink, 1s. 11d. doz.; 3 doz. 1s. ditto, 3s. 11d. doz.; 2 doz. 9½d. Pectakos, 6s. 3d. doz.; doz. 1s. 1½d. ditto, 8s. 3d. doz.—Walker & Co., the Laboratory, Failsworth, near Manchester.

WANTED.

Gerarde's Herbal, Parkinson's Paradisus Terrestris.—Salmon, Chemist, Western Rd., Hove, Brighton.

Formula suiting good toilet line purchased.—Address, W. Lewis, 15, Shelden Street, London, W.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

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Publications Received.

GOLDEN RULES OF OPHTHALMIC PRACTICE. By GUSTAVUS HAR-
TRIDGE, F.R.C.S. No. VII. Pp. 69. Price 1s. Bristol: J.
Wright and Co., 1900. From the Publishers.

SYLLABUS OF THE LIVERPOOL SCHOOL OF PHARMACY. Pp. 40.
Liverpool: 6, Sandon Terrace, Upper Duke Street. 1900. From
the Principal.

A GLOSSARY OF BOTANIC TERMS, WITH THEIR DERIVATION AND
ACCENT. By BENJAMIN DAYDON JACKSON. Pp. xii. + 327. Price
6s. net. London: Duckworth and Co., 3, Henrietta Street, Covent
Garden, W.C. 1900. From the Publishers.

COMMERCIAL ORGANIC ANALYSIS. By ALFRED H. ALLEN, F.I.C.,
F.C.S. Third Edition, with Revisions and Additions by the Author
and Henry Leffmann, M.A., M.D. Vol. II. Part II. Hydro-
carbons, Petroleum and Coal Tar Products, Asphalt, Phenols and
Creosotes. Pp. viii. + 330. Price 14s. London: J. and A.
Churchill, 7, Great Marlborough Street, W. 1900. From the
Publishers.

A TEXT-BOOK OF MEDICAL TREATMENT, DISEASES, AND SYMP-
TOMS. By NESTER TIRARD, M.D. Lond., F.R.C.P. Pp. x. + 692.
Price 15s. London: J. and A. Churchill, 7, Great Marlborough
Street, W. 1900. From the Publishers.

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Calendar for the Week.

Sunday, May 20.	5th after Easter.	Sun rises 4.4; sets 7.
Monday, May 21.	☾ 8.31A	Sun rises 4.2; sets 7.5
Tuesday, May 22.		Sun rises 4.1; sets 7.51.
	ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 3 p.m.—Dr. A. Hill on "Brain-tissue Considered as the Apparatus of Thought." (Lecture II.)	
	ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.— "Hydroquinone and Colour Impressions," by Alfred Watkins.	
Wednesday, May 23.		Sun rises 4.0; sets 7.53.
	FORFARSHIRE AND DISTRICT CHEMISTS' ASSOCIATION, Star Hotel, Montrose, at 1 p.m.—Annual Meeting, followed by the Annual Dinner, at 4 o'clock.	
	WESTERN CHEMISTS' ASSOCIATION (OF LONDON), Westbourne Restaurant 1, Craven Road, W., at 9 p.m.—Discussion on "The Dispensing of Pro- prietary Articles, etc." introduced by F. A. Rogers.	
Thursday, May 24.		Sun rises 3.59; sets 7.55.
	LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 3 p.m.— Anniversary Elections, etc.	
Friday, May 25.		Sun rises 3.58; sets 7.56.
Saturday, May 26.		Sun rises 3.56; sets 7.58.
	CRICKET.—Elm Farm—Stevenson and Howell's C.C. v. Allen C.C.	
	ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., 10 a.m. to 4 p.m.—Last Day of Exhibition of Pictures by F. H. Evans.	

**LETTERS, NEWSPAPERS, QUERIES, and OTHER COM-
MUNICATIONS** have been received from Messrs. Austin, Bennett,
Bowdler, Broadhead, Browning, Dowdy, Eldred, Garnett, Gibson, Harris, Hill,
Hodges, Holmes, Hughes, Loosmore, Nicholson, Philp, Wand, Ward, Williams.

NEWS IN BRIEF.

SIR HENRY ROSCOE is to deliver the Friday evening discourse at the Royal Institution next week; subject "Bunsen."

PROFESSOR T. E. THORPE, LL.D., Director of the Government Chemical Laboratories, has been appointed to be C.B.

THE NOTTINGHAM CHEMISTS' ASSOCIATION will hold its annual meeting on Wednesday, May 30, at the Albert Hotel, Derby Road.

CRICKET.—A match was played at Wadham Lodge on Saturday, May 19, between "Allenburys" C.C. and "Allens" C.C., resulting in a score of 76 runs for the former and 52 for the latter team.

"SOME ASPECTS OF PHARMACY" are to be considered at the next meeting of the Public and Poor Law Dispensers' Association, to be held at St. Bride's Institute, Ludgate Circus, on May 30, when a paper will be read by Mr. R. E. Jones, of Poplar.

CARBOLIC ACID FOR COUGH MIXTURE.—The five-year-old son of James Galt, gardener, Elmbank Street, Ayr, is reported to have been accidentally poisoned by his mother on Thursday, May 17. The child was troubled with cough, and Mrs. Galt, it is stated, got out of bed in the early morning to give it cough mixture. Mistaking the bottle, she gave the child a teaspoonful of carbolic acid, from the effects of which it shortly afterwards died.

SIR W. T. THISELTON DYER, Director of the Royal Gardens, Kew, and an honorary member of the Pharmaceutical Society, has just been appointed as the botanical authority on the Board of Agriculture Departmental Committee of Inquiry on Seeds. The object of the committee is to investigate the conditions under which agricultural seeds are now sold, and to devise adequate measures, if necessary, for securing and maintaining a definite standard of purity and germinating power for such seeds. Sir J. Wilson, the Agricultural Adviser to the Board, is also a member of the committee.

EDINBURGH CHEMISTS' GOLF CLUB.—The Spring Holiday competition of this Club was held at Dunbar in pleasant golfing weather with the following results:—Secretary's prize, Mr. T. D. Burt, 105-18=87; 2nd prize, after a tie, Mr. H. D. Alexander, 98, scratch; 3rd prize, Mr. W. C. Baker, 103-5=98. The company put up at the Roxburgh Hotel, and were the guests of the Captain, Mr. Geo. Lunan, at luncheon. There was a good turn-out, and a most enjoyable day was spent. The second competition this year for the "Gibson Handicap Medal" was played last week over the Braid's course with the following results:—1st, Mr. T. D. Burt, 111-18=93; 2nd, Mr. W. B. Cowie, 116-18=98; 3rd, Mr. W. G. McNab, 100, scratch. The second round of the Hole-and-Hole competition, which has been in progress for some time, has now finished. The following is the draw for the third round:—Mr. C. F. Henry, 5, against Mr. W. B. Cowie, 6; Mr. A. F. Dawson, 3, against Mr. H. D. Alexander, 0; Mr. J. G. Anderson, 0, against Mr. T. D. Burt, 6; Mr. Wm. Lyon, 3, against Mr. W. C. Baker, 2.

MR. J. F. BROWN, M.P.S., 1, Cannon Street, Dover, was on Saturday night, May 19, the unfortunate recipient of a considerable amount of public notice in connection with the Dover celebrations of the Relief of Mafeking. According to the *Dover Telegraph*, all went well until about 10 o'clock when "the most awful lies were set going among the crowd" about Mr. Brown, briefly to the effect that he was a pro-Boer, had put the Queen's picture in his window "upside down," called for cheers for Kruger, and had committed many other "crimes." The crowd— or, judging by the subsequent police-court proceedings, the drunken portion of it—thus enraged, "went for" Mr. Brown's shop, completely smashing the window, and doing various other damage to the extent of about £100. Mr. Brown, afterwards, in an interview with a local reporter, gave an emphatic denial to the stories told about him, and stated as his opinion that the people who assaulted his shop "were simply the cat's-paws and tools of some hidden agency which had befooled them by untruthful statements."

EDINBURGH PHARMACY ATHLETIC CLUB.—The ninth annual sports took place on Tuesday, 22nd inst., at Powderhall Grounds. The weather was fine and the programme being extensive and attractive there was a large attendance of friends and the general

public. Mr. D. B. Dott and Dr. George Coull acted as judges of the confined events, and Messrs. J. P. Gibb, G. H. C. Rowland, and G. Somerville acted as handicappers. Among donors of prizes were Mr. John Bowman, Honorary President; Messrs. Duncan, Flockhart and Co.; Harkness, Beaumont and Co.; Raimes, Clark and Co., T. and H. Smith and Co., Fletcher, Fletcher and Co.; R. Gibson and Sons, S. Maw, Son, and Thomson; Vinolia Company, Limited, and Mr. J. H. Haywood. The following were prizetakers in the events confined to members of the trade:—One Mile Bicycle Handicap, W. C. Taylor, 1; A. Noble, 2. Apprentices' (300 Yards) Flat Race Handicap, J. M. Hendry, 1; D. B. Kidd, 2; R. McGregor, 3. 220 Yards Flat Race Handicap, W. T. Simpson, 1; A. Douglas, 2. Half-mile Flat Race Handicap, W. T. Simpson, 1; A. R. Smith, 2. Five-a-Side Football Competition for Anderson Challenge Cup was again won by the present holders of it, John Mackay and Company, who had three goals to two for Duncan Flockhart and Company. Mr. John Bowman, Honorary President, presided at the distribution of the prizes, which were handed to the successful competitors by Mrs. Bowman. Mr. J. P. Gibb, Honorary Secretary, was in charge of the arrangements, which were admirably carried out, and on the motion of the President, Mr. Rowland, a vote of thanks was awarded to Mr. Bowman.

THE STUDENTS OF THE WEST OF SCOTLAND COLLEGE OF PHARMACY, with the Principals, Messrs. Barrie and Maben, on May 15 visited the United Alkali Company's works (Messrs. Tennant), St. Rollox, and were shown over the establishment by one of the staff. The pyrites burners were first noticed; the pyrites burns like coal and the sulphuric dioxide produced is led to the Glover tower, where it both denitrates the nitro-sulphuric acid and concentrates it. The concentration of the acid, which is done in shallow platinum pans, was next observed, then the production of "bleach." The chlorine is liberated by the action of Caucasian or Japanese manganese ore on crude hydrochloric acid obtained in the manufacture of salt cake, and led into brick chambers, on the bottom of which slaked lime is spread. This latter absorbs the chlorine, and when the product contains 37 per cent. of available chlorine it is raked out and sent on to the market. The manganese chloride in the still-liquor is converted into dioxide by the Dunlop process. The liquor is neutralised with milk of chalk, whereby iron peroxide is separated; the clear solution is run off and heated in a converter with more chalk under a pressure of four atmospheres. In this way the manganese is precipitated as carbonate, which is removed and heated to 600° F. in trays in a current of air for forty-eight hours, at the end of which it exists as dioxide, and is then more efficient than it was at the beginning. In the crystallising tanks of the soda crystals department great interest was aroused by the huge crystals of sodium carbonate, some of which were 18in. long. A visit to the cooperage and to the laboratories brought a highly interesting tour to a close.

TRADE NOTES.

THE BERKEFELD FILTER CO., Limited, is just completing a very large contract for filters sufficient to supply every man now on active service in South Africa with perfectly filtered water. The filter, which has been specially constructed for the War Office, under the auspices of the Army Medical Department, and is officially described as "The Berkefeld Field Service Filter," is worked by means of a semi-rotary brass pump, and will supply sufficient filtered water for a unit of a hundred men.

CHINOSOL TABLOIDS.—MESSRS. BURROUGHS WELLCOME and Co. point out that the value of chinisol (potassium oxyquinolinsulphate) as a bactericide and antiseptic in surgical work has met with some recognition. For such purposes it is non-caustic, very diffusible, and it does not coagulate albumin or injure instruments. Chinisol Soloids (gr. 8.75) have been issued by the firm for some time for the convenient preparation of solutions for external application. Chinisol Tabloids (gr. 5) are now prepared for internal administration. The drug has been given in quantities of from 15 up to 30 grains daily in divided doses in the treatment of tuberculosis, especially in tuberculous diseases of the glands and bones. It is also stated to be of service in the febrile conditions which accompany leprosy ulcerations, and in small repeated doses in dysentery. Its administration as a febrifuge in typhoid fever appears to offer a field for further investigation. The new tabloids are supplied in bottles containing 25 and 100 in each.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, MAY 23, 1900.

Business has been rather quiet during the week, and with the exception of slightly higher rates in certain oils, prices are about on a level with those of the last fortnight. Good sales of Carnauba Wax have been made at high rates, whilst Chilian Beeswax and Honey have been dealt in extensively at last week's figures. In Chemicals there is a dulness at present existing. Sulphate of Ammonia is firmer and Caustic Soda is in short supply and hard to get for spot delivery.

BEESWAX.—3 bags of Chilian made at auction £7 10s. per cwt., ex store.

CARNAUBA WAX.—10 bags of grey sold at 80s. per cwt., 16 bags of yellow at 95s., and later 44 bags ditto at 105s. per cwt.

GUM.—23 bags of Brazilian Arabic went for 18s. per cwt. Arabic "sorts" are very firm and stocks are small.

LINSEED.—Is still very firm, with prices advancing and inquiry rather better. Calcutta "forward" is 54s. 6d. per 416 lbs.; River Plate 51s., and North American 45s. 6d. to 45s. 9d. 200 tons of River Plate on the spot sold for 50s. 6d. per 416 lbs.

OILS (FIXED) AND SPIRITS.—Castor Oils are firm, with a fair inquiry and average sales. Forward Calcutta 200 cases, June and July, and 100 cases April-June, sold for 37⁷/₈d. per lb., and now 3¹/₂d. is asked—spot price, 3³/₄d. per lb. 1st French 20 tons, 3³/₄d. spot, and 1st Belgian 5 tons at 3³/₄d. 2nd French, 3¹/₈d. per lb. Madras, 3¹/₄d. to 3³/₄d. per lb. Olive is firm, with an upward inclination; on the spot, Spanish Oil is £35 to £35 10s. per tun. For shipment no business is doing, as prices are above those obtaining here. Linseed has advanced further, and Liverpool makes are quoted at 36s. 6d. per cwt. Cottonseed is quiet at 26s. to 26s. 6d. Spirits of Turpentine are firm at a recent advance of 6d. per cwt., and are now in fair inquiry at 46s. Spermaceti: 21 cases of Chilian refined, ex store, sold at auction at 1s. 3d.

LONDON, THURSDAY, MAY 24, 1900.

Business in drugs and chemicals has been somewhat quiet during the past week, the rejoicings over the relief of Mafeking, together with the celebration of the Queen's Birthday, while giving loyal subjects full opportunity of showing their loyalty to her Majesty and their keen interest in the welfare of the Empire, having had rather the tendency to upset trade or to lead intending purchasers to postpone their buying for a few days. There are practically no changes in value of any importance to record, the following being the prices ruling for some articles of principal interest. Bank rate was to-day reduced to 3¹/₂ per cent. :—

ACETANILIDE.—Continues dull and weak at 9¹/₂d. to 11d. per lb., according to make, packing, and quantity.

ACID CARBOLIC.—Is quiet and, if anything, the turn easier for the refined article, crude being also rather lower, while the liquid is firm at full rates.

ACID CITRIC.—Is firm at 1s. 4¹/₂d. to 1s. 5d. per lb., according to make for crystals in 5-cwt. casks.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3¹/₂d. to 4¹/₂d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. per cwt. Sal ammoniac, firsts, 40s. per cwt.; seconds, 38s. per cwt.; ditto, crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate steady: Gray, 24 per cent., London prompt, £11 7s. 6d. to £11 10s.; Hull prompt, £11 5s.; Leith prompt, £11 7s. 6d.; Beckton, £11 10s.; Beckton terms prompt, £11 5s.

CASTOR OIL.—Belgian 1st pressing spot, £31 10s.; May-June, £30, f. o. b. Antwerp; 2nd pressing spot, £29 per ton. Hull Manufactured: Guaranteed Cold Drawn Pure Pharmaceutical, £34 per ton in barrels; 4¹/₈d. per lb. in cases. Pure firsts, £31 10s.; seconds, £29 10s. per ton in barrels; firsts, 3¹/₈d. per lb. in cases; seconds, 3⁷/₈d. ex-wharf London.

CLOVES.—At auction 18 cases Penang bought in, including fine bold picked at 8d. 6 bags Ceylon all sold, good picked at 6d. No Zanzibar offered. Privately, Zanzibar are firmer, closing 7¹/₈d. higher for distant delivery. A fair business has been done, comprising June-August delivery at 4¹/₈d., and sellers January-March at 3¹/₂d., and sellers and for arrival, Oct.-Dec., Nov.-Jan., and Dec.-Feb., at 3 25-32d. to 3¹/₂d., c.i.f., Holland.

COAL TAR DISTILLATION PRODUCTS.—Are without change, with the exception that Benzole is rather dearer at 10d. to 10¹/₂d. per gallon for the 50 per cent., and 8d. per lb. for the 90 per cent.

COCAINE.—Makers maintain their price of 1bs. 3d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins, from second-hand the brands most in favour are not offered.

COD LIVER OIL.—Continues dull and weak, price being nominally 75s. to 80s. per barrel, according to brand; for best new non-congealing Norwegian oil in tin-lined barrels of 25 gallons.

CODEINE.—Is very firm at 13s. 6d. per oz. for the pure.

GALLS.—China are offering cheaper for arrival at 68s. c. f. and i., Japan being unchanged, with sellers near at hand at 63s. c. f. and i., delivered weight.

GINGER.—Cochin in moderate supply met slow demand. Of 532 packages 179 sold, fair bright medium and small, some bold, washed rough at 32s.; dullish medium and small ditto at 30s. 6d.; and good bright cuttings at 25s. Japan: 140 bags fair Emed bought in at 25s. Jamaica in fair supply met a good demand at steady to rather dearer rates. Of 559 packages 433 found buyers, good bright, 71s. to 73s.; middling to fair, at 54s. 6d. to 61s.; common to good common, 46s. 6d. to 52s.; low to fair Rhatoon at 42s. to 45s.

GLYCERIN.—Is a very firm market at 58s. to 62s. 6d. per cwt. for English, and 63s. 6d. to 75s. per cwt. for German, according to quantity and brand, for best white, odourless, double distilled, chemically pure, 1260° S.G. quality, in tins and cases. It is thought probable that the article will still further advance.

MENTHOL.—After being decidedly weak, is rather firmer at 8s. to 8s. 6d. per lb., according to brand; while for September delivery there are sellers at somewhat below these figures.

MORPHINE.—Steady, at 5s. per oz. for the hydrochlorate powder.

OILS (FIXED) AND SPIRITS.—Linseed opened quiet, but closed steady. On the spot pipes, London, ordinary, £34 10s. (E.I. 5s. premium); barrels, £34 15s. Hull spot naked, £34. Rape firm. Ordinary brown on the spot, barrels, £29 5s.; refined spot, £30 10s. to £30 15s. Ravison strong and quotations nominal: Naked spot, £27 17s. 6d. Cotton quiet: London crude spot, £22 5s. to £22 10s.; refined spot, £24 5s. to £25, according to make. Hull naked refined spot, £23; crude spot, £21 12s. 6d. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut: Ceylon on spot, £25, ex warehouse; near, £23 5s. to £23 10s., c.i.f. Cochin spot, £23; afloat, £25, c.i.f. Palm: Lagos on the spot quoted £27. Petroleum dull: Russian spot, 6⁷/₈d. to 6¹/₂d.; American spot, 7d.; water white, 8d. to 8¹/₂d. Lubricating: Pale American spot, 9s. to 10s. 9d.; black, 7s. to 9s.; Russian black, 6s. 6d. to 7s.; pale, 8s. 9d. to 10s. 3d. Petroleum Spirit: American ordinary, 9¹/₂d.; deodorised, 9³/₄d. Turpentine opened dull and easier, but firmer at close: American spot, 44s. 3d.; May, 43s. 7¹/₂d.; June, 38s. 6d.

PHENACETIN.—Makers are firm at 5s. 3d. per lb. for both crystals and powder in 5-cwt. lots.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11¹/₂d. per lb. Chlorate, spot, London, crystals, 4⁵/₈d. net; powder, 4⁵/₈d. Carbonate, 90 per cent., £19 10s. per ton, ex ship. Cyanide, 93 per cent., 1s. 2d. per lb. Hydrate (caustic potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English makes, 8d.; Beckton, 7¹/₂d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

QUININE.—Has been dull and prices are barely steady, the sales comprising only a few thousand ozs. B&S and/or Brunswick October delivery at 1s. 3³/₄d. Makers of these brands maintain their price of 1s. 4¹/₂d. per oz. for the Sulphate in 100-oz. tins and for 1,000-oz. lots.

SHELLAC.—There is a steady demand for Second Orange on the spot, and a moderate business has been done at full to dearer rates. For arrival May shipment a sale has been made at 57s. 6d., being cheaper. April-June steamer, there are sellers at 57s. 6d., c. f. and i. For August delivery no business is reported, closing rather buyers at 61s. Supplies at auction were again moderate. TN descriptions of Orange met a good demand at about 1s. advance on last sales' prices, fair being quoted 61s., but fine Second Orange was slow of sale and mostly bought in. Common Rangoon Garnet sold at unchanged rates, Button being neglected and chiefly bought in. A total of 523 cases offered and 217 cases sold. Second Orange: Of 326 cases 190 cases sold.

worked, good palish, at 66s.; good bright at 64s.; pale block at 59s.; unworked, fine bright cakey to blocky, at 67s.; fair red cakey at 59s.; flat livery at 58s. Garnet: 22 cases offered and sold, Rangoon fair thin ruby matted at 58s.; common weak block at 55s. Button: 175 cases offered and bought in.

SULPHONAL.—Second-hand is practically sold out. Makers quote 20s. 6d. per lb. for both crystals and powder.

THURSDAY'S UG SALES.

To-days drug auctions comprised 14 catalogues and a very considerable number of lots, many of which had to be bought in. There are no changes of any special importance to report, the following being the particulars:—

ASPHALTUM.—59 cases Syrian were bought in at 33s. per cwt.

ALOES.—Of 29 cases Cape only 4 cases sold at 28s. to 28s. 6d. per cwt., remainder being taken out at 33s. 24 kegs Soccotrine were bought in at 80s. per cwt. 280 boxes Curaçoa part sold at 15s. 6d. down to 13s. 6d. per cwt.

ARECA NUTS.—43 bags wormy part sold at 17s. per cwt., balance being taken out at 20s.

BITTER ORANGE BLOSSOM.—13 cases dried Italian were bought in at 1s. 6d. per lb.

CANELLA ALBA.—9 bales sold at 40s. per cwt., and 1 case 2 C.S.D. at 36s.

BALSAM COPAIBAE.—9 cases catalogued had partly been sold prior to sale; balance bought in at 1s. 8d. per lb.

BUCHU LEAVES.—5 bales longs of not very desirable quality were taken out at 5½d. per lb., and 4 bales rounds at 7d. Other 13 bales fair ditto at 9d. per lb.

BALSAM PERU.—4 cases part sold at 6s. per lb., balance being taken out at 6s. 3d.

CALUMBA ROOT.—70 bags fair bold washed taken out at 60s. per cwt.; other 25 bags also bought in at 35s. to 60s.; other 68 bags were also all taken out at 25s. per cwt. for medium to fair sorts. 11 bales (part of other 81 bags) sold at 23s. per cwt. for same quality.

CANTHARIDES.—2 casks Russian were bought in at 2s. 3d. per lb.

CASCARA SAGRADA.—14 bags sold at 24s. to 26s. per cwt.

CHILLIES.—25 cases fair Zanzibar bought in at 48s. 6d. per cwt.

CINCHONA BARK.—68 bales Calisaya part sold at 6d. per lb. 7 bales Succirubra were bought in at 3½d. per lb.

CHIRETTA.—10 bales were bought in at 5d. per lb.

COCA LEAVES.—3 cases fair Truxillo were bought in, a bid of 1s. 2½d. per lb. being declined.

COLOCYNTH.—10 cases Spanish were taken out, 3 cases fair unpeeled Persian sold at 4d. per lb.

CORIANDER SEEDS.—30 bags were taken out at 11s. per cwt.

CROTON SEEDS.—31 bags were all bought in at 40s. to 50s. per cwt., according to quality.

CUMMIN SEED.—21 bags bought in at 37s. per cwt.

DILL SEED.—20 bags were taken out at 9s. per cwt.

DRAGON'S BLOOD.—8 cases part sold at £14 per cwt. for good bright, and at £11 2s. 6d. for damp seedy.

DRIED TURTLE.—2 cases were taken out at 4s. 6d. per lb.

FENUGREEK SEEDS.—15 bags were bought in at 6s. 6d. to 7s. per cwt.

GALLS.—10 bags sold at 86s. to 90s. for the sound and 77s. per cwt. for 1 C.S.D.

GUM ARABIC.—2 cases picked were taken out at £5 10s., good drop at £7 per cwt., fair Turkey sorts selling at 75s. per cwt. 10 cases fair Kurrachee Gum bought in at 31s.

GAMBOGE.—4 cases all bought in at £8 to £6 10s. per cwt. for fair to dull pipe. Other 36 cases chiefly bought in, 6 cases dull selling at £6 5s. to £6 17s. 6d.

GUAZA (HERBA CANNABIS INDICA).—79 bales were bought in at 1s. 9d. per lb., and 35 bales siftings at 1s. 3d. per lb.

GUM ASAFETIDA.—99 cases were chiefly bought in at 35s. to 40s. per cwt., low inferior selling, without reserve, at 9s. 6d. to 13s. per cwt.

GUM BENZOIN.—21 cases bought in at £8 per cwt. for fair seconds Sumatra. Other 36 cases were also all taken out. Other 68 cases Sumatra part sold at £7 5s. to £8 10s. per cwt. for medium seconds. 28 cases Siam all bought in at £8 to £15 10s. per cwt. 56 cases fair Palembang sold at 51s. 6d. to 53s. 6d. per cwt.

GUM ELEMI.—6 cases sold at 155s. per cwt.

GUM GALBANUM.—13 packages blocky were taken out at 9d. to 1s. 1d. per lb.

GUM GUAIAECUM.—7 packages were all bought in at 2s. 2d. per lb. for good glassy block down to 1s. 4d. per lb.

GUM KINO.—1 case African taken out at 1s. 6d. per lb. 6 cases Cochin sold very cheaply at 1s. per lb.

GUM MASTIC.—16 cases all taken out at nominally 1s. 6d. per lb. for yellow.

GUM MYRRH.—7 bales medium sorts were taken out at 55s. per cwt.; 21 packages ditto part sold at 47s. 6d. for siftings, good quality being taken out at 80s.

GUM TRAGACANTH.—4 cases were bought in at £14 15s. to £15 per cwt.

HONEY.—32 cases Californian were taken out at 45s. per cwt., other 20 cases at 42s., and 14 cases Honolulu at 30s. per cwt. 6 packages white Jamaica sold at 28s. for good down to 23s. 6d. per cwt. for less desirable quality.

INSECT POWDER.—9 kegs, offered without reserve, sold at 5d. to 6d. per lb.

IPECACUANHA.—2 bales Carthagenæ were bought in at 9s. per lb.; other 7 bales at 10s. 29 bales Rio part sold at 12s. 1d. to 12s. 4d. per lb.; balance taken out at 12s. 6d.; other 15 bales part sold at about same figure.

JALAP.—For 10 bags of fair quality there was no bid.

KAMALA.—8 cases were taken out at 6d. per lb.

KOLA NUTS.—5 bags of fair quality were bought in at 6d. per lb.

LEMON JUICE.—9 pipes and 8 hogsheads new juice, catalogued as containing 8oz. citric acid per gallon, offered without reserve, sold at 1s. 1½d. per gallon.

LIQUORICE ROOT.—36 bags were taken out at 12s. 6d. per cwt.

MUSK.—3 tins Tonquin part sold at 35s. per oz. 1 caddy bought in at 75s., 7 bottles and 1 tin grain musk at 25s. per oz. 1 tin very low quality sold at 10s. 6d. per oz.

ORRIS ROOT.—1 cask medium Verona sold, without reserve, at 29s. 6d. per cwt.; other 25 bags ditto at 29s. to 29s. 6d.; while Florentine was bought in at 52s. per cwt.

ORANGE PEEL.—2 cases thin cut sold cheaply at 6d. per lb.; 2 cases dark ditto at 4d.; other lots of good thin cut were taken out at 7d. to 8d. per lb.

PATCHOULY LEAVES.—6 cases bought in at 5d. per lb.

RHATANIA ROOT.—32 bales taken out at 4¾d. per lb.

SAFFRON.—33 tins were taken out at 25s. to 30s. per lb.

SARSAPARILLA.—12 serons Honduras bought in at 1s. 6d. to 1s. 8d. per lb. Other 6 serons part sold at 1s. 3d. per lb. for 1 CCD. 11 bales Jamaica bought in at 1s. 9d. per lb. for 1 CCD and 1s. 8d. per lb. for 2 CCD. 14 bales Lima part sold at 1s. 1d. per lb. 4 serons Honduras bought in at 1s. 6d. per lb.

SCAMMONY ROOTS.—20 bags all sold at 31s. per cwt.

SOY.—25 casks China bought in at 1s. 1d. per gallon.

SQUILLS.—8 bags sold at 1½d. per lb.

SUNFLOWER SEED.—8 bags bought in at 12s. per cwt.

TURMERIC.—Cochin split bulbs sold at 11s. per cwt.

EXCHANGE COLUMN.

OFFERED.

Barclay & Sons' Shares. What offers?—Barlow, Chemist, Barnard Castle.

Moulds.—Suppository, Pessary, Bougie, Capsule. — Warnes, 333, Gray's Inn Rd., W.C.

Photographic Stock-taking List, ready middle May, cameras, lenses, mounts.—Edward Peck, East Dereham, Norfolk.

For Sale, counter scales; 4 rows mahogany shop-drawers, gilt labels, glass knobs, pill machine, and tincture press.—Apply, Mrs. C. Hobson, Jun., Market Place, Beverley.

English Lavender Water, etherised; excellence of quality unrivalled. Sales due to its aroma, containing nine ingredients, including otto. Recipe 5s.—Alldridge, 11, Esher St., Westminster.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Hooker's British Flora and Hayward's Botanists' Book. —"Compositæ," 5, Serle St., W.C.

Formula suiting good toilet line purchased. — Address, W. Lewis, 15, Sheldon Street, London, W.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Calendar for the Week.

Sunday, May 27.	Sunday after Ascension.	Sun rises 3.55; sets 7.59.
Monday, May 28.	☉ 2.50A	Sun rises 3.54; sets 8.0.
Tuesday, May 29.		Sun rises 3.53; sets 8.1.
ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.—Exhibition opened by Dr. P. Emerson.		
Wednesday, May 30.		Sun rises 3.52; sets 8.2.
NOTTINGHAM AND NOTTS CHEMISTS' ASSOCIATION, Albert Hotel, Derby Road, at 8.45 p.m.—Annual Meeting.		
PUBLIC AND POOR LAW DISPENSERS' ASSOCIATION, St. Bride's Institute, Ludgate Circus, E.C., at 8 p.m.—"Some Aspects of Pharmacy," by R. E. Jones.		
Thursday, May 31.		Sun rises 3.51; sets 8.3.
Friday, June 1.		Sun rises 3.51; sets 8.5.
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—Sir Henry Roscoe on "Bunsen."		
Saturday, June 2.		Sun rises 3.50; sets 8.6.
CRICKET.—Victoria Park—Allen C.C. v. Rose Templars.		

PHARMACEUTICAL SOCIETY.

OFFICIAL NOTICES.

Pharmaceutical Scholarships.

THE JACOB BELL MEMORIAL SCHOLARSHIPS.

Two scholarships will be offered for competition on July 10, 1900. Each scholar will receive £30, in addition to free laboratory instruction and admission to the lectures in the School of Pharmacy for the Session 1900-1901. He will also receive books of the value of £2 10s., given by the late Thomas Hyde Hills.

MANCHESTER PHARMACEUTICAL ASSOCIATION SCHOLARSHIP.

A scholarship of about £26 will be offered for competition on July 10, 1900.

REGULATIONS.

All entries for both the above competitions must be in the hands of the Secretary *on or before June 1*, accompanied by the certificates, etc., required by the regulations under which the scholarship may be competed for and held. Copies of those regulations can be had on applying to the Registrar, 17, Bloomsbury Square, W.C.

Herbarium Prize.

A silver medal is annually offered to subscribing "students" of the Society who are under the age of twenty-one years, for the best Herbarium, containing not more than 150 specimens, collected in any part of the United Kingdom, the Channel Islands, or the Isle of Man, between January 1, in one year, and July 1, in the year following. Should there be more than one collection possessing such an amount of merit as to entitle the collector to reward, a second prize, consisting of a bronze medal and a certificate of honour, will be given, at the discretion of the Council.

LAST DAY OF ENTRY.

Collections for this year's competition must be received by the Registrar of the Society not later than Saturday, June 30.

Publications Received.

DIE ROHSTOFFE DES PFLANZENREICHES. Von Dr. JULIUS WIESNER. 3 Lieferung (Bogen 20-30), mit Textfigur 72-88. Price 5m. Leipzig: Wilhelm Englemann. From the Publisher.

CONTRIBUTIONS TO A KNOWLEDGE OF THE FLORA OF AUSTRALIA. No II. By R. T. BAKER, F.L.S., Curator, Technological Museum, Sydney. Reprinted from the *Proceedings of the Linnæan Society of New South Wales*. Part III. August 30, 1899. From the Author.

KELLY'S DIRECTORY OF CHEMISTS AND DRUGGISTS, including Manufacturing Chemists, Wholesale Druggists, Drysalts, Patent Medicine Vendors, and other trades connected therewith. 1900. Ninth Edition. Pp. 671. Price 20s. London: Kelly's Directories, Limited, 182, High Holborn, W.C. From the Publishers.

CUCUMBER EMULSION

under one name or another is still the favourite preparation for the toilet it is best prepared by using

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½-lb. jars (= 3 lb. Emulsion), 2/3; 1-lb., 4/3; 7-lb., 25/-, post free.

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ONE of the leading and best known Firms of Pharmaceutical Chemists in Germany would receive the GENERAL AGENCY for the sale of Foreign real Specialities, and would also introduce or manufacture chemical-pharmaceutical novelties.—Please address, I. W. 8248, care of Rudolf Mosse, Berlin, S.W.

LONDON GAZETTE NOTICES.

RECEIVING ORDERS IN BANKRUPTCY.

Joseph Chapelow, druggist, 14, Claypath, Durham.

F. Hall, dentist, 97, Edgware Road, Middlesex.

Thomas Dutton, Doctor of Medicine, 13, Holland Park Avenue, Kensington.

PARTNERSHIPS DISSOLVED.

Charles John Denny and Herbert Edward Rayner, surgeons, of Blackwater, Hants, and Camberley, Surrey.

Adolf William Isenthal and Charles Phillip Francis Michael Potzler, electrical engineers, merchants, and manufacturers, 85, Mortimer Street, London, carrying on business as Isenthal, Potzler, and Co. Debts will be received and paid by A. W. Isenthal, who will continue the business.

Notices to Correspondents.

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Abram, Archbold, Ashkanazy, Balchin, Banham, Barrie, Bartlett, Beach, Billinton, Cameron, Clarke, Cuff, Dunlop, Eberlin, Fairley, Forster, Garnett, Griffin, Harrison, Hill, Hodges, Hooper, Jones, Lecney, Lloyd, Marsden, Mortimer, Murray, Nicholson, Philp, Worrall.

NEWS IN BRIEF.

MR. T. C. CORNWELL, M.P.S., Piccadilly Buildings, Hanley, (Staffs.), has fitted up a dark-room for the use of amateur photographers.

MR. J. SAUNDERS, M.P.S., has purchased the business established in 1837, and carried on for the last twenty-one years by Mr. J. Hibberd, at Old Town, Bexhill.

A FIRE, which caused much damage, broke out late on Thursday night, May 24, in the basement of premises occupied by Messrs. Durbin Bros., chemists, at 131, High Street, Putney, S.W.

MR. J. H. SHERWOOD, M.P.S., Withington, Manchester, has purchased the business carried on by Mr. Round, chemist and druggist, 10, London Street, Southport, for the past thirty years.

THE EXECUTORS OF THE LATE ALFRED FENNINGS, of West Cowes, have obtained the sanction of Mr. Justice Cozens-Hardy to carry on the various proprietary medicine businesses. His Lordship also directed certain inquiries to be made with respect to the will of the deceased.

MR. RICHARD BREMIDGE, Registrar under the Pharmacy Act, 1868, writing to the *Lynn Advertiser*, points out that the name of Alfred William Maxey—who was described as a "chemist" in a recent report of an inquest which appeared in that paper—does not appear on the official Register of Chemists and Druggists.

SHEFFIELD COLLEGE OF PHARMACY.—The students, accompanied by the principal, went for a day's botanical excursion to Rock Abbey, belonging to the Earl of Scarborough, when over fifty different flowers were collected and described. An excellent tea was had at Maltby, and the drive home was much enjoyed.

THE DEGREE OF BACHELOR OF MUSIC was conferred on Mr. Geo. R. H. Clark, a member of the Snow Hill Staff of Messrs. Burroughs Wellcome and Co., at a Congregation holden at Oxford, on Friday, June 1. Mr. Clark, who is also a Fellow of the Royal College of Organists, passed the Minor examination of the Pharmaceutical Society in 1892.

MR. A. E. MARSH, M.P.S., of 180, New Bond Street, W., while crossing Regent Street on Saturday afternoon, May 26, was knocked down by a passing cab. He was apparently uninjured, but in scrambling to his feet, another cab coming in an opposite direction struck him on the head. He was taken to Charing Cross Hospital suffering from concussion of the brain.

MR. A. B. GAIRN, Edinburgh, has gained the medal in chemistry, stage I., of the Heriot-Watt College (Professor Gibson) for the session just concluded. He obtained 94 per cent. in theoretical and practical chemistry, the next student having 87 per cent. Along with the medal, he received the "McLaren Robertson" prize of £3 3s. in money. Mr. Gairn is a student-associate of the Pharmaceutical Society, and an apprentice with Mr. Lunan.

HIS HONOUR JUDGE EDGE, Q.C., in giving judgment for the plaintiff with costs, at Clerkenwell County Court, on May 18, stated that had the plaintiff—a clerk engaged on a yearly salary and paid monthly—sued for three months' instead of only one month's money in lieu of notice, he could have awarded him the full amount. If an idea existed that a person engaged on a yearly salary and paid monthly could be dismissed at a week's notice, he could dispel it.

CRICKET.—A match was played at Willesden on Saturday, May 26, between "Johnsen Jörgensen" C.C. and "Allenburys" C.C., the former team scoring forty-eight runs and the latter 103.—Last week, in recording the result of the match played on May 19 between "Allenburys" C.C. and "Allen" C.C., we omitted to mention that owing to the courtesy of Mr. Malcolm Allen, captain of "Allen" C.C., the game was played out, although past time for drawing stumps; otherwise it would have been a drawn match.

THE QUESTION OF BORIC ACID IN MARGARINE came before the Liverpool stipendiary magistrate on Wednesday, May 30, a grocer being summoned for selling margarine adulterated with boric acid

equal to 51 grains per lb. The magistrate, after hearing evidence for and against the use of boric acid as a preservative, said the issue was far too serious to be decided in favour of boric acid in the limited area of a police-court. They knew that preservatives were used to palm off on the market an article which otherwise could not be sold. A penalty of £20 and five guineas costs would be imposed. Notice of appeal was given.

THE PHARMACEUTICAL COUNCIL, according to the *Blackburn Telegraph*, has escaped the sword of the destroyer. "In other words, Mr. R. Lord Gifford has just failed to secure election to this highly respectable, somewhat obtuse, and altogether unprogressive body. Mr. Gifford was the champion of a sweeping and wholesale reform, in which company pharmacy was to disappear as in a consuming fire. He has made himself famous throughout the country by his slashing attacks on the old fogeys who were too sluggish to approve of his Cromwellian policy. Unfortunately for him, the old fogeys have won this time. But of him, as of a greater, we may say that 'a time will come.'"

THE SUPPLY OF BRANDY to certain of the Metropolitan Asylums Board's institutions came under consideration at a recent meeting of the Board, when Professor Smith said that the Board should see to it that agencies of a curative nature in the way of drugs were pure and up to the standard of the British Pharmacopœia. Brandy was in every sense a drug, and according to the British Pharmacopœia it was to be a spirituous liquid distilled from wine and matured by age. The brandy they were asked to purchase for the patients could not be of that description, from the fact of the price being 11s. 6d. per gallon. A pure brandy could not be bought for less than 15s. a gallon.

TRADE NOTES.

MESSRS. BURROUGHS WELLCOME AND Co, Snow Hill Buildings, E.C., announce that during the months of June, July, August, and September, their London offices, warehouses, etc., will be closed at 1 o'clock on Saturdays.

PYRO CRYSTALS.—Mr. J. E. Lockyer, 37, Evelyn Street, Deptford, S.E., intimates that he is now in a position to supply pyrogallic acid crystals of the highest purity in a new and exceedingly practical form only occupying $\frac{1}{16}$ th the space of ordinary pyro. It is employed, however, in the same manner as the usual form. A one oz. sample bottle will be sent post free for 1s. 1d., and special terms for quantity on application.

UROTROPINE TABLOIDS.—Messrs. Burroughs Wellcome and Co. direct attention to Urotropine Tabloids which they are now issuing of a strength of five grains. Some attention has been directed to the use of Urotropine (Hexamethylene-tetramine) as a diuretic, a solvent of uric acid and urates, and genito-urinary antiseptic. It is also claimed to have been of much service in cystitis after other drugs have produced little or no effect. Urotropine Tabloids, grain five, are issued in bottles containing twenty-five in each.

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

M. A. Judd (widow) and J. Price, trading as Judd and Co., chemists, Leamington.

John William Emmet and Andrew Murdoch, physicians and surgeons, Bexhill-on-Sea.

John Yeadon, William Salisbury, and Marion Booth Dickinson, trading as the Accrington Surgical Appliances Company. Debts will be received and paid by J. Yeadon and M. B. Dickinson, who will continue to carry on the business under the same style as before.

David Hume and William Spinks Webb, medical practitioners and surgeons, 139, Hanbury Street, E., and 45, White Lion Street, E. Debts will be received and paid by W. S. Webb.

RECEIVING ORDERS IN BANKRUPTCY.

Albert Edward Parsons, soda water manufacturer, Chesterfield Villa, Dorchester.

Harry Angel, mineral water manufacturer, Sunderland Street, Exeter.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, MAY 30, 1900.

Prices still continue steady, notwithstanding the slowness of business generally, and as regards oils the recent full rates reached are steadily maintained with every evidence of further rises. Good sales of West African Ginger have taken place, both Monrovia and Sierra Leone having changed hands extensively at fair rates.

AMMONIUM SALTS.—Carbonate, $3\frac{3}{4}$ d. to 4d. per lb. Sal Ammoniac, 38s. to 40s. per cwt. Sulphate is firmer, £11 12s. 6d. to £11 15s. per ton.

CANARY SEED—Is quiet and in slow demand at 34s. to 34s. 6d. per 464 lbs.

COPPERAS—Is still very firm at 37s. to 39s. per ton.

COPPER SULPHATE—Is dearer, £25 10s. per ton.

GINGER.—33 bags of Monrovia sold after auction at 22s. per cwt. ex quay, 34 bags of Sierra Leone in transit made 22s. 6d., whilst 178 bags of Sierra Leone sold ex quay on private terms.

HONEY.—11 barrels of low quality Peruvian brought 21s. 6d. per cwt.

LINSEED—Still continues high in price, but buyers are few, and prices are likely to come down to buyers' views shortly. Prices which are nominal are Calcutta, 57s. per 416 lbs. on passage, forward, 55s. 6d., May shipment; River Plate, forward, 53s., April-May shipment; North American, 46s. 3d., September and November shipment.

OILS (FIXED) AND SPIRITS.—Castor Oil is very firm, and prices continue full for spot lots. Calcutta, $3\frac{3}{4}$ d. per lb.; 1st French, $3\frac{3}{4}$ d.; 2nd French, $3\frac{1}{4}$ d. per lb.; Madras, $3\frac{1}{4}$ d. to $3\frac{3}{4}$ d. Olive: Spot business is confined to Spanish oils at £35 10s. per tun, and Portuguese at £33. The harvest prospects being far from favourable, a rise of 30s. to 40s. per ton is probable, as the cost here to importers is higher than the rates ruling at present. Linseed oils of Liverpool make, packed in export casks, are quoted at 36s. to 36s. 6d. per cwt., with a fair demand experienced. Cottonseed oil of Liverpool pressure rules quiet at 25s. 6d. to 26s. per cwt. Spirits of Turpentine are in moderate demand at the easier rate of 45s. 6d. per cwt.

POTASH SALTS.—Bichromate 4d. per lb. Chlorate is firm at $4\frac{1}{2}$ d. to $4\frac{3}{4}$ d. per lb. Cream of tartar is only in retail demand at 74s. to 80s. per cwt. Pearlashes are 32s. 6d. per cwt., and potashes are in moderate request at 25s. 6d. per cwt. Prussiate is firm at 8d. per lb.

SODA SALTS.—Bicarbonate £6 5s. to £6 15s. per ton. Borax is steady at 16s. to 17s. per cwt. Caustic soda is still scarce, 76 to 77 per cent. at £11 5s. to £11 10s., 70 per cent. £10 5s. per ton, crystals £3 5s. per ton. Nitrate 8s. $4\frac{1}{2}$ d. to 8s. 9d. per cwt.

LONDON, THURSDAY, MAY 31, 1900.

Business in Drugs and Chemicals has, if anything, been rather brisker during past week. There are, however, no changes of any special importance to record. Quinine continues in the dumps. Iodides are still shaky, otherwise prices remain firm, as a rule, this being partly the result of the fact that second-hand stocks of many articles bought before late advances in value are now practically exhausted; first-hand being, therefore, now better in a position to enforce the full advance, of which the dealers had previously had the advantage. This applies, for instance, to Santonine, Salicine, Phenacetin, Sulphonol, etc. A corner appears to be in course of being created in Jalap, which has already advanced in value, and price appears likely to further advance. It is to be hoped that the good news from the seat of war in South Africa may

be fully confirmed, and that we may then see renewed activity in the Drug and Chemical trade. The following are the prices ruling for some articles of chief interest:—

ACETANILIDE—Continues dull and weak at $9\frac{1}{2}$ d. to 11d. per lb. according to make, quantity, and packing.

ACID BORACIC—Without change, at 26s. per cwt. for crystals, and 28s. per cwt. for powder.

ACID CARBOLIC—Remains firm at 10d. to $10\frac{1}{2}$ d. per lb. for 35-36° C. ice crystals, in bulk packing; $10\frac{3}{4}$ d. to $11\frac{1}{4}$ d. for 39-40° C. ice crystals; and 1s. to 1s. $0\frac{1}{2}$ d. per lb. for the B. I. quality, viz., 39-40° C. detached crystals; crude, 60° F., 2s. 7d. per gallon; 75° F., 3s. 4d. per gallon; liquid, 95 to 98 per cent. of pale straw colour, 1s. 6d. to 1s. 8d. per gallon, in 40 gallon casks; ditto, 25 to 30 per cent. of dark colour, 25s. to 27s. 6d. per barrel of 40 gallons.

ACID CITRIC—Is decidedly firmer at 1s. $4\frac{1}{2}$ d. to 1s. 5d. per lb., according to brand for crystals in 5cwt. casks. Makers still decline to book orders for forward delivery.

ACID OXALIC—Steady at 3d. to $3\frac{1}{4}$ d. per lb., according to quantity, nett, delivered free London.

ACID TARTARIC.—English is quoted 1s. $0\frac{3}{4}$ d. to 1s. 1d. per lb. on the spot; foreign, 1s. per lb.

AMMONIA COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, $3\frac{1}{2}$ d. to $4\frac{1}{2}$ d., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33 to 36s. Sal Ammoniac, £37 and £39 per ton for firsts and seconds respectively; crushed for batteries 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate dull: Gray, 24 per cent., London prompt, £11 7s. 6d.; Hull prompt, £11 3s. 9d. to £11 5s.; Leith prompt, £11 6s. 3d. to £11 7s. 6d.; Beckton nominally, £11 10s.; Beckton terms prompt, £11 5s. Sulpho-cyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus is quoted £38 to £39 per ton, and Crude Japan (Black Sulphide) £22 15s. to £23 10s. per ton.

ASHES.—Pots, 28s.; Pearls, 33s.

BISMUTH—Unchanged at 5s. per lb. for the commercial quality of the metal, 5s. 8d. per lb. for the subcarbonate, and 5s. 1d. per lb. for the subnitrate.

BORAX—Unchanged at 17s. per cwt. for crystals, and 18s. per cwt. for powder.

BLEACHING POWDER (CHLORIDE OF LIME).—English is still quoted £7 per ton.

BROMIDES AND BROMINE.—Are very firm at 1s. $11\frac{1}{2}$ d. per lb. for potassii bromid, 2s. 3d. per lb. for sodii bromid, and 2s. $2\frac{1}{2}$ d. per lb. for ammon. bromid. Bromine is also unchanged at 2s. to 2s. 2d. per lb., according to quantity, packed in cases of 60lbs.

CAMPHOR.—Market for crude remains steady. Refined is also unaltered at firm prices, say, 2s. 4d. per lb., for English Bells and Flowers.

CASTOR OIL.—Belgian first pressing spot £31 10s., May-June £30 f.o.b. Antwerp, second pressing spot £29 per ton. Hull manufactured: Guaranteed Cold Drawn Pure Pharmaceutical £34 per ton in barrels, $4\frac{1}{8}$ d. per lb. in cases. Pure firsts £31 10s., seconds £29 10s. per ton in barrels, firsts $3\frac{1}{8}$ d. per lb. in cases, seconds $3\frac{7}{8}$ d. ex wharf London.

CLOVES.—The market for Zanzibar continues dull. The small business done includes June-Aug. delivery at $3\frac{1}{2}$ d., and Aug.-Oct. at same figure, with sellers for Jan.-March at 3 25-32d.

COCAINE HYDROCHLORATE.—One maker is very loud in proclaiming the superiority of his make, boldly asserting that it is an absolutely pure preparation, and ranks first in the Cocaine market. Some buyers, however, do not share this *ipse dixit* opinion, and readily pay more money for another make, which, relying on its intrinsic merits, does not appear to require so much pushing and loud advertisement, showing thus the truth of the old adage that "good wine needs no bush." Makers are firm at 16s. 6d. per oz. for 200 oz. lots in 25 oz. tins; while it is reported that decidedly higher prices have lately been paid for the crude article.

COAL TAR DISTILLATION PRODUCTS.—Toluol, 1s. 2d. to 1s. 3d. per gallon for the commercial quality. Benzole quiet at 10d. to $10\frac{1}{2}$ d. per gallon for 50 per cent., and 8d. per gallon for the 90 per cent. Creosote, 3d. to $4\frac{1}{2}$ d. per gallon, according to quantity. Crude Naphtha: 30 per cent. at 120° C., $4\frac{1}{2}$ d. per

gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 4d. per gallon; 90 per cent. at 160° C., 1s. 1d.; 90 per cent. at 190° C., 1s. 1d. per gallon. Anthracene: A, 3½d. per unit; B, 2¾d. Pitch, 37s. 6d. per ton, f.o.b. Tar: crude or refined, 13s. per barrel; 2½d. per gallon.

COD LIVER OIL—Continues dull and weak at nominally 72s. 6d. to 77s. 6d. per barrel, according to brand, for best new non-congealing Norwegian oil, in tin-lined barrels of 25 gallons.

CODEINE—Very firm at 13s. 6d. per oz. for the pure, and 12s. 6d. per oz. for the Muriate, Phosphate, and Sulphate Salts.

CREAM OF TARTAR—Firm at 75s. to 76s. per cwt. for first white Crystals on the spot, and 77s. per cwt. for powder; ditto 95 per cent., 78s.

CUTCH—Dull of sale at previous quotations.

GALLS—Quiet. China offer on the spot at 75s., with buyers at 70s., the arrival price remaining 68s. c. f. and i. Japan spot sellers at 65s., and near steamer at 63s. c. f. and i. delivered weight.

GAMBIER—Remains quiet, and for arrival no business is reported, closing rather buyers May-July steamer at 15s. 3d. On the spot whole bales quoted sellers at 16s. 3d., but few sales are reported.

GLYCERIN—Continues very firm, both for crude and for refined, a further advance being confidently anticipated in price of the former, which would almost certainly lead to dearer prices for the refined article. Present quotations are 60s. to 65s. per cwt. for English, and 65s. to 75s. per cwt. for German, according to brand, for best white odourless, double-distilled, chemically pure, 1,260 S.G. quality, in tins and cases.

IODIDES AND IODINE.—Position remains unchanged, but buyers will do well to continue to cover their requirements strictly from hand to mouth only. The combined makers so far maintain their prices, which are:—Potassii Iodid., 10s. 6d. per lb.; Sodii Iodid., 11s. 10d. per lb.; Ammon. Iodid., 13s. 10d. per lb.; Iodine re-sublimed, 12s. per lb.; Iodoform crystals, powder, or precipitated, 13s. 10d. per lb. Commercial Iodine is also so far unchanged at 7½d. per oz.

JALAP.—It is reported that a corner in this article is being worked in America, quotations from there being now 6¾d. per lb., c.i.f., while here holders ask various prices, from 7½d. to 9d. per lb., according to seller, for good sound heavy tubers; it would appear probable that we may see a further advance in price of this article.

LYCOPODIUM.—Is very scarce here. Most holders appear to be sold out, and very full prices, up to 2s. 6d. per lb., are asked.

MENTHOL—Is, if anything, rather firmer. The favourite Kobayashi brand can, however, still be bought at 8s. 6d. per lb.

MERCURIALS—Are unchanged, makers being very firm, at 3s. 2d. per lb. for calomel and 2s. 10d. per lb. for corrosive sublimate.

OILS (FIXED) AND SPIRITS.—Linseed: On the spot pipes London ordinary, £33 10s. (E.I. 5s. premium); barrels, £33 10s. Hull, spot, naked, £33 5s. Rape quiet. Ordinary brown, on the spot, barrels £29 10s. Refined spot, £31. Ravison, naked, spot, £29. Cotton dull. London crude, spot, £21 15s. to £22. Refined spot, £23 15s. to £24, according to make. Hull, naked, refined, spot, £21 15s. Crude, spot, £20 10s. Olive, Mogador, £35. Spanish, £36 10s. Levant, £35. Coconut, Ceylon, on the spot, £25 ex. warehouse; near, £23 5s. c.i.f. Cochin, spot, £28; afloat, £24 15s. c.i.f. Palm, Lagos, on the spot, quoted £26 10s. Petroleum: Flat Russian, spot, 6¾d. to 6½d. American, spot, 6¾d. to 7d. Water White, 8d. to 8½d. Lubricating: Pale American, spot, 9s. to 10s. 9d.; Black, 7s. to 9s.; Russian Black, 6s. 6d. to 7s.; Pale, 8s. 9d. to 10s. 3d. Petroleum Spirit: American ordinary, 9½d.; Deodorised, 9¾d. Turpentine: American, spot, 43s. 9d.; June, 38s. 9d.

OPIUM.—There has not been much business passing in the article during past few days, and prices are steady, high figures being still asked for really fine Persian.

MORPHINE—Steady, but without change in price, the Hydrochlorate powder being quoted 5s per oz., and the crystal salt 5s. 2d. per oz.

PARAFFIN WAX.—Crude is quoted 3¼d. to 3½d. per lb., and refined at 4d. to 4¾d. per lb.

PHENACETIN.—Makers are firm at 5s. 3d. per lb. for Crystals or Powder in 5-cwt. lots, second-hand still offering in limited quantity rather below above figure.

PITCH.—8s. 6d. to 9s.

PLUMBAGO.—At auction 242 barrels offered and bought in, comprising ordinary chips at 16s., good to fine chippy dust at 20s. to 25s., and ordinary flying dust at 7s. 3d. 17 barrels damaged sold, without reserve, for account of whom it may concern, from 8s. to 25s.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot, London, crystals, 4½d.; powder, 4¾d. per lb. Carbonate, 90 per cent., £19 10s. per ton, ex ship. Cyanide, 98 per cent., 1s. 2d. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Iodide, 10s. 6d. per lb. Muriate, 80 per cent., £9 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English makes, 8d.; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d., according to quantity. Sulphate, 90 per cent.; £9 15s. per ton.

QUICKSILVER.—The importer quotes £9 10s. per bottle, while there appears to be nothing obtainable from second-hand at any thing below this figure.

QUININE.—The market for best German brands is weak, and business unimportant. The only sale reported is 5,000 oz. B&S and/or Brunswick, August delivery, at 1s. 3½d. Market closes rather firmer at 1s. 3½d. per oz. for later delivery. Makers of above-named brands maintain their quotation of 1s. 4½d. per oz. for 1,000 oz. lots in 100-oz. tins.

ROSIN.—Strained on spot is quoted 5s. per cwt. ex wharf; afloat, 4s. 7d. per cwt., ex ship terms for July-September shipment per sailing vessel.

SAL AMMONIAC—Is quoted £37 to £39 per ton.

SALICYLATES AND SALOL—Are firm at unchanged prices.

SANTONINE.—Stocks in second-hand appear now to be completely exhausted, and buyers have now to pay makers' full price—say 11s. 3d. to 11s. 9d. per lb., according to quantity, for crystals, while for powder a still higher price is asked.

SHELLAC.—There is a quiet but steady trade passing on the spot at full rates. The future market maintains a firm tone, but no business is reported to-day. Yesterday the sales included 200 cases TN Orange April-May and September-November steamer at 58s. c. f. and i., and 200 cases August delivery at 61s.

SODIUM COMPOUNDS.—Crystals, barrels quoted 60s.; bags, 57s. 6d. Acetate, £14 10s. per ton, ex ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3¼d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent. white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4½d. per lb. Hyposulphate (Antichlor.), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9; ordinary, £8 10s.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate, £1 7s. 6d. per ton. Sulphide, crystals, £6 10s. Sulphite, £5 15s. per ton.

SULPHATE OF COPPER—Is quoted £24 10s. to £25 10s. per cwt. on the spot.

SULPHONAL.—Second-hand stocks now appear to be cleared, while makers are firm at 20s. 6d. per lb. for both crystals and powder, with a certain reduction for quantity and bulk packing.

TAR.—Stockholm, 26s.; Archangel, lower at 17s. 6d.

THYMOL.—One maker still quotes 9s. 3d. to 9s. 6d. per lb., other makers holding out for more money.

TURMERIC—Continues in slow demand, with only unimportant sales. Madras, good to fine bright finger, quoted 32s. to 34s. Cochin split bulbs, small sales at 8s. 3d. to 8s. 6d.

VANILLA.—At auction the large supply offered—viz., 602 tins—met with a good demand, and 488 tins sold. Sound beans brought very full prices, but a large proportion consisted of out of condition parcels, which realised barely steady rates. Seychelles: Of 433 tins 386 sold, fair to good colour, 8 to 8½ inch, at 22s. to 23s. 6d.; 7 to 8 inch at 19s. to 21s. 6d.; 6 to 7½ inch at 17s. to 20s. 6d.; 3½ to 5½ inch at 16s. to 17s. 6d.; bad flavour and mouldy, 3½ to 7½ inch, at 11s. 6d. to 17s.; various, 7s. 6d. to 8s. 6d. Bourbon: 31 tins offered and sold, fair flavour, 7 to 7½ inch, at 19s. to 20s.; 5 to 7 inch at 17s. 6d. to 19s. 6d.; various, mouldy, etc., 8s. to 11s. Mauritius: Of 60 tins 45 sold, fair colour, 6 inch, at 18s.; brown and common, 2½ inch to 7 inch, at 12s. 6d. Madagascar: 10 tins offered and sold, 5½ to 6½ inch at 16s. Australian: Of 60 tins sold, mouldy, etc., 6s. 6d. to 10s.; various, 5s. Tahiti: Of 23 tins 5 sold, mouldy, etc., 3s. to 5s. 6d.

Calendar for the Week.

Sunday, June 3.	Whit Sunday.	Sun rises 3.49; sets 8.7.
Monday, June 4.		Sun rises 3.48; sets 8.8.
Tuesday, June 5.	☽ 6.59m.	Sun rises 3.47; sets 8.9.
Wednesday, June 6.		Sun rises 3.47; sets 8.9.
Thursday, June 7.		Sun rises 3.47; sets 8.10.
CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m.—Papers will be read on "Diphenyl- and dialphyl-ethylenediamines, their nitro-derivatives, nitrates, and mercurchlorides," by W. S. Mills; "Condensation of ethyl acetylenedicarboxylate with bases and β -ketonic esters," by S. Ruhemann and H. E. Stapleton; "The constitution of pilocarpine," by H. A. D. Jowett; "The nitrogen chlorides derivable from <i>m</i> -chloroacetanilide and their transformations," by F. D. Chattaway, K. J. P. Orton, and W. H. Hurtdley; "Derivatives of cyanocamphor and homocamphoronic acid," by A. Lapworth.		
LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 8 p.m.—Papers will be read on "A viviparous syllid worm," by E. S. Goodrich; "The genera <i>Phæoneuron</i> , Gilg., and <i>Dicellandra</i> , Hook. f." by A. Stapf; "The structure and affinities of <i>Echiurus uncinatus</i> ," by Miss Embleton.		
Friday, June 8.		Sun rises 3.46; sets 8.11.
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 9 p.m.—"The effect of physical agents on bacterial life," by Dr. Allan Macfadyen.		
Saturday, June 9.		Sun rises 3.46; sets 8.12.
CRICKET.—Victoria Park—Allen C.C. v. Hovenden's C.C.		

Marriage.

PILLING—SMITH.—On April 10, at St. Mary's, Illingworth, near Halifax, by the Rev. George Oldacres, M.A., John William (Will), third son of the late George Pilling, of Savile Park, Halifax, to Emily, third daughter of Charles Smith, of Ryburne Villa, Sowerby Bridge, Yorkshire.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the Exchange Column should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., before 5 p.m. on Thursdays.

OFFERED.

2 oz. Morph. Hydroch., 10/6; 2 lb. Potass. Iodid., 19/-.—Eastman, Forest Lane, Stratford.

Pill-machine, 3-grain; iron counter-scales, to weigh 7 lbs.—Fuller, Chemist, Norwich.

Photographic Stock-taking List, ready middle May, cameras, lenses, mounts.—Edward Peck, East Dereham, Norfolk.

"**Pharmaceutical Journal**," vols. 1897, 1898, 1899. Complete; unbound. What offers?—Watt, 17, Richmond Terrace, Aberdeen.

Microscope.—One eye-piece, $\frac{1}{4}$ and 1 in. objectives, condenser, mahogany cabinet. Thoroughly reliable instrument. £3.—Watt, 17, Richmond Terrace, Aberdeen.

Spectacles and Pince-Nez; bargain; stock-in-trade; giving up the business; over 100 pebbles, 150 pair various, 50 tinted, 100 folders; prices from 1s. 6d. to 10s. 6d., retail.—Full list on application to Blanchard, 78, Duke St., Barrow-in-Furness.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Recipe suiting toilet speciality purchased.—Particulars to W. Lewis, 15, Sheldon St., London, W.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

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Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

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

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

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Atfield, Barrie, Chambers, Cornwell, Daniel, Dennis, Dwelly, Fielding, Gifford, Graves, Hill, Hutton, Lewis, Palmer, Picken, Planchon, Roberts, Sargeant, Saunders, Sherwood, Thwait, Turner, Watson, Williams, Young.

NEWS IN BRIEF.

MR. FREDERICK CHARLES ASHFORD, M.P.S., has opened a business at St. Leonard's Road, Far Cotton, Northampton.

MESSRS. TAYLOR AND BRAWN, chemists, Bedford, have opened a photographic dark room for use by amateur photographers.

THE SWIMMING SECTION of the Edinburgh Pharmacy Athletic Club decided the first of a series of swimming handicaps on Monday, June 4. The finish was a very close one, the race being won by inches only. The result was:—1st, A. G. Paterson; 2nd, L. S. Lamb; 3rd, D. B. Kidd. The next race takes place on July 2, when a large number of competitors is looked for.

EARLY CLOSING.—The following chemists and druggists of Ashford (Kent) are reported to have agreed to close their places of business at 2 p.m. each Wednesday from June 6:—Mr. F. Gutteridge, High Street; Mr. J. Ingall, High Street; Mr. F. W. Stedman, High Street; Mr. J. J. Taylor, Messrs. Walker and Harris, Bank Street; and Mr. C. T. White, High Street.

THE ANNUAL MEETING OF THE SHAREHOLDERS of Brunner, Mond, and Company, Limited, was held at Liverpool on May 30. The report stated that the balance to the credit of profit and loss on the past year's working was £387,722 10s. 5d. A dividend at the rate of 35 per cent. was recommended. The report was adopted, and the retiring directors were re-elected.

THE EDINBURGH DISTRICT CHEMISTS' TRADE ASSOCIATION has made arrangements for an excursion to Aberfoyle on Wednesday, June 13, leaving Waverley Station by a special corridor train at 9 a.m., the route to be by the Forth Bridge, Alloa, Stirling, and Buchlyvie. We are requested to state that anyone connected with pharmacy who may be sojourning in the neighbourhood is welcome to join the party.

MR. LEOPOLD D'ESTREVILLE LENFESTEY, M.P.S.—nominated by the University of London—was gazetted on May 5 as a second lieutenant in the Royal Regiment of Artillery, and will join the "B" Battery of the Royal Horse Artillery on June 10. Readers of the Journal will probably remember a paper on "Starch and Its Formation," by Mr. D'E. Lenfestey, read before the Birkbeck Science Society, which was published in the *Pharmaceutical Journal* for July 15, 1899.

LEEDS COLLEGE OF PHARMACY.—On Monday, June 4, the students of this College travelled to the Lake District on a botanical excursion. Special carriages took the party to Windermere, where a substantial lunch awaited them. After lunch the students were transferred, by means of a small fleet, to various points on the banks of the lake, where an exceedingly large number of specimens were obtained. A most enjoyable day was terminated by the journey home at six o'clock.

MESSRS. SPENCE, chemists and stationers, Linlithgow, have just purchased the premises at 65, 67, and 69, High Street (Cross), where for over a century a chemist's, stationer's, and printing business has been carried on. The premises, according to the *Linlithgowshire Gazette*, have not merely a local, but a general interest, as being those in which the original 'History of Linlithgow' was compiled and published; as, also, the place where chloroform was first brought under the notice of the late Professor Sir James Y. Simpson.

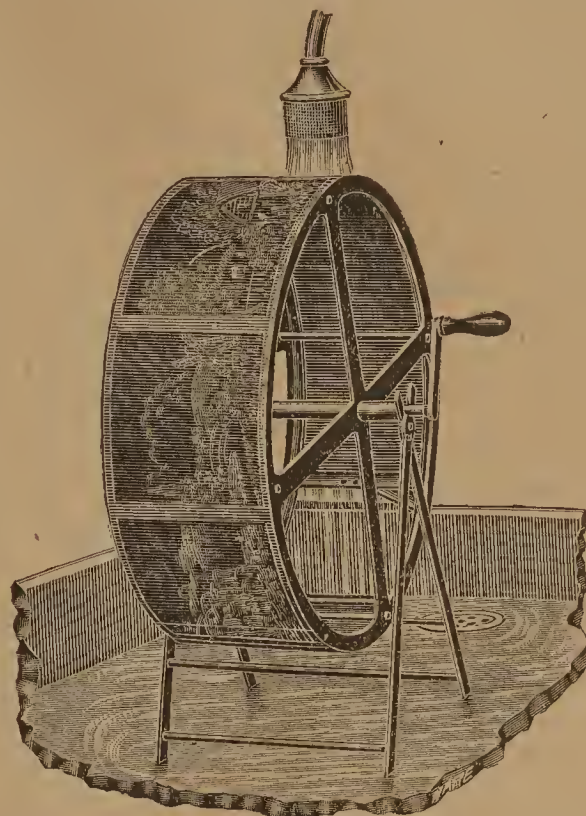
TRADE NOTES.

CODEINE TABLOIDS.—Messrs. Burroughs Wellcome and Co. are now offering tabloids containing codeine, gr. $\frac{1}{4}$ or gr. $\frac{1}{2}$.

THE BUSINESS OF VINEGAR BREWERS and British wine makers, established in 1830 and carried on by Messrs. Hill, Evans and Co., Worcester, is about to be incorporated under the Companies Acts, 1862 to 1898, as Hills, Evans and Co., Limited, with a share capital of £150,000, divided into 80,000 5 per cent. cumulative preference shares and 70,000 ordinary shares of £1 each; and $4\frac{1}{2}$ per cent. First Mortgage Debenture stock, £80,000, issued in multiples of £10 stock. The list of subscriptions will be opened on Tuesday, June 12, and closed on Thursday, June 14, for town and country,

subscriptions at par being invited for the debenture stock and preference shares. The vendors take the whole of the ordinary shares in part payment of the purchase consideration, and will also subscribe for and have allotted to them or their nominees £20,000 debenture stock and 20,000 preference shares. The registered office is, The Vinegar Works, Lowesmoor, Worcester; temporary London office, 33, Eastcheap, E.C.

THE 'VOLVO' DEVELOPING APPARATUS.—Messrs. George Houghton and Son, 88 and 89, High Holborn, W.C., send particulars of the 'Volvo' developing apparatus, consisting of a wheel, stand for same, and two specially shaped dishes—i.e., the whole of the outfit necessary for developing, fixing, washing and drying. It is generally considered that the annoying tendency to curl up is the main objection that many amateurs have to developing their own films. By the use of this apparatus that tendency is entirely overcome, and all handling dispensed with except when connecting the two ends of the film to the apparatus; and the sensitised



surface, after being placed on the wheel, is never touched (except by fluids) till it is developed, fixed, washed and dried ready for the printing frame. Thus treated, rollable films are stated to have as great an advantage over glass plates in point of development as the latter otherwise have over films. The films are under better control than when held by the fingers; they may be inspected at any stage of development, and if half-a-dozen or more exposures be proceeded with at one time, any one may be restrained or accelerated without affecting the others. It is claimed that by using this apparatus anyone may obtain results not merely as good but better than by the old method. By removing the handle, shown in the illustration, and placing the wheel horizontally, it forms a very convenient drying rack. The price of the apparatus complete is 14s. 6d., or for a larger size 16s. 6d.

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

John Howard and William Wilkins, trading as E. Marsh and Co., mineral water manufacturers and bottlers, Gate Street, Burnt Tree, Tipton. Debts will be received and paid by J. Howard, who will in future carry on the business.

Charles Ogden and William Ernest Jameson, surgeons, 150, Drake Street, Rochdale. Debts will be received and paid by W. E. Jameson, who will in future carry on the practice.

RECEIVING ORDER IN BANKRUPTCY.

James Ross, medical practitioner, 252, County Road, Walton, Liverpool.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, JUNE 6, 1900.

The high rates for Linseed Oil and Cottonseed Oil, as well as for Spirits of Turpentine, have given way, and reductions have taken place to the extent of 1s. to 2s. per cwt. As a set-off to this, the price of Olive Oils of Spanish origin is destined to undergo a considerable increase at no distant date, as rates in Spain have already been advanced 20s. per tun. With these exceptions there are few alterations to report, business having been done at steady rates, though the amount has not been more than average. Chemical transactions have only been limited in extent, and prices are only changed as regards Ammonium Sulphate and Sal Ammoniac, which are lower.

AMMONIUM SALTS.—Carbonate, 3½d. to 4d. per lb. Sal Ammoniac, 37s. to 39s. per cwt. Sulphate, £11 7s. 6d. to £11 10s. per ton.

BLEACHING POWDER—Is flat at £6 10s. to £7 per ton.

CANARY SEED—Does not attract much attention, and sales are confined to 100 bags of Turkish, ex quay, which were disposed of on private terms. Prices ruling are 33s. to 34s. per 464 lb.

COPPER SULPHATE—Is a shade easier, £24 17s. 6d. to £25 per ton.

HONEY.—Californian of fine quality has been sold at 44s. per cwt.

LINSEED.—Shippers have been asking higher prices, consequently business is nil. Calcutta is 52s. for May-June shipment, per 416 lb., and North American is 45s. 6d., per 424 lb., for September and November shipments.

OILS (FIXED) AND SPIRITS.—Castor Oils on the spot are in moderate demand, most quotations demanded being for forward lots. Prices run as follows:—Calcutta, 3½d. per lb.; 1st French, 3¾d.; 2nd French and Belgian, 3½d.; and Madras at 3¼d. to 3¾d. per lb. Olive Oils are in brisk inquiry, in expectation of an advance in price in Spanish oils. Linseed Oils of Liverpool pressure are selling fairly well at the reduced rate of 35s. 6d. to 36s. per cwt. in export casks. Cottonseed Oil, Liverpool refined, finds a fair market at 24s. to 24s. 6d. per cwt. in export barrels. Spirits of Turpentine are steadier at the easier rate of 44s. per cwt.

POTASSIUM SALTS.—Bichromate is firm at 4d. per lb. Chlorate, 4½d. to 4¾d. per lb. Cream of Tartar is steady at 74s. to 80s. per cwt. Pearlashes, 32s. 6d. per cwt. Potashes, 25s. 6d. per cwt. Prussiate is firm at 8d. per lb.

SODIUM SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax, 16s. to 17s. per cwt. Caustic Soda is still exceedingly firm, 76 to 77 per cent., £11 5s. per ton; 70 per cent., £10 5s. per ton. Soda Crystals, £3 5s. per ton. Nitrate is easier on the spot at 8s. 3d. to 8s. 7½d. per cwt.

LONDON, THURSDAY, JUNE 7, 1900.

As might have been expected, business in Drugs and Chemicals has been extremely quiet during the past week. First, the Whitsuntide holidays have naturally interfered with trade, and, secondly, the rejoicings over the success of our army in South Africa has not tended to make business more active. It is anticipated in many quarters that now that there is prospect of the Rand mines being shortly again at work, we shall see a very important revival in trade generally, not excepting chemicals and drugs. The only move of the week has been a slight improvement in the speculative market for Sulphate of Quinine, consequent on an advance in prices obtained at to-day's Cinchona Bark

auctions in Amsterdam. Opium and Glycerin are also very firm. Iodides continue unsettled. The following are particulars as to the position of some articles of principal interest.

ACETANILIDE—Remains weak and dull at 9½d. to 11d. per lb., according to quantity, make, and packing.

ACID BORACIC.—Crystals are quoted 26s. per cwt., and powder 28s. per cwt.

ACID CARBOLIC—Has been in rather more inquiry lately, and prices are rather firmer at about figures given last week, crude and liquid being also somewhat harder in price.

ACID CHRYSOPHANIC—Is rather firmer for really good quality, one maker, who was offering cheaply, and whose products, according to his own account, rank first in the market, having had his Acid Chrysophanic rejected on account of bad colour, buyers will do well to be on their guard to see that they get the right article.

ACID CITRIC—Is the turn dearer at 1s. 4½d. to 1s. 5d. per lb., according to quantity and make, for crystals, in 5 cwt. casks, makers still declining to sell forward.

ACID GALLIC—Remains very firm at 2s. 5d. to 2s. 6d. per lb., an advance of nearly 40 per cent. on price at which the article was being offered a few months ago. The advance in price of galls is chiefly responsible for the rise in price of gallic acid.

ACID OXALIC—Unchanged at 3¼d. to 3½d. per lb. nett, delivered free London.

ACID TANNIC.—The rise in price of galls has also had a serious effect on value of this article, the B.P. quality being quoted 2s. 3d. to 2s. 5d. per lb., as against 1s. 7d. to 1s. 8d., the price ruling not so very long ago.

ACID TARTARIC.—So far, the anticipated improvement in value of this article has not taken place, and prices are still unchanged at 1s. 0¾d. to 1s. 1d. per lb. for English, and 1s. per lb. for foreign.

AMMONIUM COMPOUNDS.—Bromide 2s. 3d. per lb. Carbonate 3½d. to 4½d., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. Sal Ammoniac £37 and £39 per ton for firsts and seconds respectively; crushed for batteries 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate dull; grey, 24 per cent., London, prompt, £11 5s.; Hull, prompt, £11 3s. 9d. to £11 5s.; Leith, prompt, £11 5s. to £11 6s. 3d.; Beckton nominally £11 10s.; Beckton terms, prompt, £11 2s. 6d. Sulpho-cyanide, 1s. 1d. to 1s. 2d. per lb.

BISMUTH SALTS—Are without change

BLEACHING POWDER (CHLORIDE OF LIME)—Unchanged at £7 per ton for English.

BROMIDES—Remain very firm at unchanged prices.

BORAX—Unchanged at 17s. per cwt. for crystals and 18s. per cwt. for powder.

CAMPHOR.—Market both for crude and refined is quiet but steady at unchanged prices.

CINCHONA BARK.—At to-day's Bark sales in Amsterdam the quantity offered was comparatively quite moderate, and a firm tone prevailed, prices realised being reported to run about 3 per cent. in advance of those which ruled at previous auction, which has had the effect of stiffening the speculative price of sulphate of quinine.

CASTOR OIL—Is unchanged, there having been practically nothing doing in the article during past few days.

CLOVES.—The usual weekly auctions continue suspended, and will be resumed on the 13th inst. Privately, the market for Zanzibar is firm with rather more business doing, comprising August-October delivery at 3¾d., but mostly Jan.-March at 3¾d.

COAL TAR DISTILLATION PRODUCTS.—There are no special changes to report. Toluol, commercial, is quoted 1s. 1d. to 1s. 3d. per gallon, and the pure 2s. to 2s. 6d. Creosote, 2½d. to 4d. per gallon. Toluol, 50 per cent., 9½d.; 90 per cent., 8d. per gallon. Crude Naphtha, 30 per cent., at 120° C., 3½d. per gallon; Solvent Naphtha, 95 per cent., at 160° C., 1s. 4d. per gallon; 90 per cent., at 160° C., 1s. 1d. per gallon; 90 per cent., at 190° C., 1s. 1d. per gallon. Anthracene A, 3¾d.; B, 2¾d. per unit. Pitch, 37s. 6d. per ton, f.o.b. Tar, crude and refined, 13s. per barrel, 2½d. per gallon.

COCAINE.—Makers are very firm at 16s. 3d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins. Price of the crude is also fully maintained.

COD LIVER OIL.—Continues neglected, price being, however, nominally unchanged at about the figures lately quoted.

CODEINE.—The pure is very firm at 13s. 6d. per oz. while for the Salts makers reduced prices somewhat in order to meet outside competition in these latter.

COPPER SULPHATE.—Is quoted £24 10s. to £25 10s. per ton on the spot.

CREAM OF TARTAR.—Is very firm at 76s. to 77s. per cwt. for first white crystals on the spot, 78s. per cwt. for powder, and 79s. per cwt. for ditto 95 per cent.

ESERINE (PHYSOSTIGMINE).—Makers quote the Sulphate and Salicylate 2s. 6d. per gramme and the pure 3s. 6d. per gramme.

GALLS.—Are quiet at nominally unchanged prices, there being at the moment no business passing.

GAMBIER.—The market for arrival is firmer, there being rather buyers of May-July steamer shipment at 15s. 6d. per cwt., but so far no business is reported.

GENTIAN ROOT.—Is tending upwards. Good dry root is, however, still obtainable at 17s. per cwt. on the spot.

GLYCERIN.—Both crude and refined remain very firm indeed, especially the former, which has reached a figure which makes profitable working impossible to the refiners. Refined is nominally unchanged at about prices hitherto ruling, or rather is, if anything, slightly dearer.

IODIDES.—Matters remain in *statu quo*. The combined makers maintain their prices, but underselling on part of outside makers continues, and people are asking themselves what will happen next.

JALAP.—Price continues to harden, and it would be difficult to buy good sound heavy tubers below 7½d. to 8d. per lb., and it would probably be difficult to secure much even at these advanced figures.

MENTHOL.—Good dry white crystals are obtainable on the spot at 8s. 3d. to 8s. 6d. per lb., according to quantity and brand.

MERCURIALS.—There is no change to report, prices remaining very firm.

MORPHINE.—Steady, in sympathy with the raw drug, makers still quoting 5s. per oz. for the Hydrochlorate Powder, and 2d. per oz. more for the Crystal Salt.

OILS (FIXED) AND SPIRITS.—Linseed firm. On the spot pipes London ordinary, £34 (E.I. 5s. premium); barrels, £34 to £34 5s. Hull, spot, naked, £33 12s. 6d. Rape quiet. Ordinary brown, on the spot, barrels, £29 10s. Refined, spot, £31. Ravison, naked, spot, £29. Cotton flat. London crude, spot, £21 10s. Refined, spot, £23 10s. to £23 15s., according to make. Hull, naked, refined, spot, £21 12s. 6d. Crude, spot, £20 5s. Olive, Mogador, £35. Spanish, £36 10s. Levant, £35. Coconut, Ceylon, on the spot, £25, ex. warehouse; near, £23 5s. c.i.f. Cochin, spot, £28; afloat, £24 15s. c.i.f. Palm: Lagos, on the spot, quoted £26. Petroleum dull. Russian, spot, 6½d. to 6¾d. American, spot, 6¼d. to 6¾d. Water White, 7½d. to 8d. Petroleum Spirit: American ordinary, 9½d.; Deodorised, 9¾d. Turpentine dull. American, spot, 41s. 9d. to 42s. June, 37s. 6d. to 38s.

OPIUM.—Is very firm in Smyrna, as well as in London, at, if anything, slightly higher values. Here the supply of suitable quality for manufacturing purposes is practically exhausted. Fine Persian is also scarcely obtainable. Although the new crop of Opium promises well, it is anticipated that supplies generally will run very short before the new crop becomes available.

PHENACETINE.—Makers are firm at 5s. 3d. per lb. for 5-cwt. lots for both crystals and powder, second-hand still offering in limited quantity at rather below this price.

PILOCARPINE.—The makers quote 41s. 9d. per oz. for the Hydrochlorate and Nitrate Salts in 8-oz. lots.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 1½d. per lb. Chlorate, spot, London, crystals, 4½d. per lb. net; powder, 4¾d. net. Carbonate, 90 per cent., £19 10s. per ton, ex. ship. Cyanide, 93 per cent., 1s. 2d. per lb. Hydrate (Caustic Potash), 90 per

cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals, quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English makes, 8d. Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

POTASSIUM CYANIDE.—Market has stiffened up considerably on prospect of the Rand mines recommencing working, and it would not be surprising if a rush for the article set in, tending to cause price to still further advance.

QUICKSILVER.—The importer quotes £9 10s. per bottle, while second-hand is not offering.

QUININE.—Makers have made no change in their price for Sulphate, which remains at 1s. 4½d. per oz. for 1,000-oz. lots in 100-oz. tins for the favourite B&S and Brunswick brands; while the speculative market, which was dull, has hardened on the reported results of the bark sales in Amsterdam, price in the open market of above brands being now 1s. 3¾d. to 1s. 4¼d. per oz., according to delivery.

ROSIN.—Steady at 4s. 9d. to 5s. per cwt., ex wharf, for strained on the spot, and 4s. 7d. per cwt. c.i.f. for July-September shipment per sailing vessel.

SAL AMMONIAC.—Steady at late reduction to £37 to £39 per ton.

SALICINE.—Is steady at 20s. to 21s. per lb., according to quantity.

SALICYLATES AND SALOL.—There is no change in price to report.

SANTONINE.—Is firm at 11s. 3d. per lb. for 2 cwt. lots, nothing being obtainable from second-hand at a lower figure.

SHELLAC.—The market remains quiet. On the spot a small trade is passing at steady prices, including TN Orange on a basis of 60s. cash for fair. For August delivery 100 cases TN have been sold at 61s. 6d., being rather firmer; but for arrival there is nothing to report.

SODIUM COMPOUNDS.—Crystals: Barrels, quoted 60s.; bags, 57s. 6d. Acetate, £14 10s. per ton, ex. ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3¼d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent., white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4¾d. per lb. Hyposulphate (Antichlor.), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £9; ordinary, £8 10s.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate, £1 7s. 6d. per ton. Sulphide, crystals, £6 10s. Sulphite, £5 15s. per ton.

SULPHONAL.—Second-hand is sold out, and makers are obtaining their full price of 20s. 6d. per lb. for both crystals and powder.

THYMOL.—One maker still quotes 9s. 3d. to 9s. 3d. per lb.; while other makers hold out for tangibly higher prices.

GRAINS AND OUNCES TO GRAMMES, AND GRAINS PER FLUID OUNCE TO GRAMMES PER 100 MILLILITRES.

	Grains to Grammes (Gm.)	Ounces to Grammes (Gm.)	Grains to the Ounce — Grammes to 100 ML.
1 ..	0.06479	28.350	0.228
2 ..	0.12958	56.699	0.456
3 ..	0.19437	85.049	0.684
4 ..	0.25916	113.398	0.912
5 ..	0.32395	141.748	0.140
6 ..	0.38874	170.097	1.368
7 ..	0.45353	198.447	1.597
8 ..	0.51832	226.796	1.825
9 ..	0.58311	255.146	2.053

EXPLANATION OF TABLE.—The first column represents the number of grains or ounces. Thus: 4 grains = 0.25916 Gm., 4 ounces = 113.398 Gm. The fourth column shows how many grammes to 100 millilitres (ML) are equivalent to a given number of grains to 1 fluid ounce, thus: 4 grains to 1 fl. oz. = 0.912 Gm. to 100 ML.

Calendar for the Week.

Sunday, June 10.	Trinity Sunday.	Sun rises 3.45; sets 8.13.
Monday, June 11.		Sun rises 3.45; sets 8.14.
	ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 5 p.m.—General monthly meeting.	
Tuesday, June 12.		Sun rises 3.4 sets 8.18
Wednesday, June 13.	○ 3.38M.	Sun rises 3.45; sets 8.15
	PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 11 a.m.—Meeting of the Council.	
	BRITISH PHARMACEUTICAL CONFERENCE, 16, Bloomsbury Square, London, W.C., at 3 p.m.—Meeting of the Executive Committee.	
	EDINBURGH DISTRICT CHEMISTS' TRADE ASSOCIATION.—Excursion to Aberfoyle, starting from Waverley Station at 9 a.m.	
Thursday, June 14.		Sun rises 3.44; sets 8.16.
Friday, June 15.		Sun rises 3.44; sets 8.16.
Saturday, June 16.		Sun rises 3.44; sets 8.17
	CRICKET.—Brockley—Allen C.C. v. Davy Hills C.C.	

EXCHANGE COLUMN.

OFFERED.

Diatom Slides.—Spread, selected, tests, exhibition groups, etc. Approval parcels.—Gatrell, Barnes.

Photographic Stock-taking List, ready middle May, cameras, lenses, mounts.—Edward Peck, East Dereham, Norfolk.

Surplus.—4 to 6 lbs. each several triple French essences, 6s. 3d. lb.; violet odours, 7s. lb.; carriage paid; lists and samples sent.—Goodliffe, Bishop's Waltham, Hants.

24 Williams', 24 Carter's, £3 7s. 6d.; 2 oz. Morph. Hydr., 10s.; 1 lb. Iodof. Prec., 12s.; 1 lb. Crystal, 11s.; 2 lb. Bismuth Nit., 10s.; 1½ lb. Bism. S. Carb., 7s. 6d.; 2 lb. Potass. Iodid., 18s.; carriage paid, cash with order.—Eastman, Chemist, Stratford.

Shelving and fittings for shop 23 ft. by 15 ft. and 8 ft. 6 in. high: cornice all round shop, including counter, 17 ft. 6 in. long, with 46 drawers, &c., panelled front, 54 drawers in 4 rows, with glass knobs, suitable shelving with glass doors, and cupboards under, &c.; all complete and in good order; cost about £70, will be sold for £25.—Porteous, Coldstream-on-Tweed, N.B.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Pill-machine, 3-grain; iron counter-scales, to weigh 7 lbs.—Fuller, Chemist, Norwich.

Hair Speciality Formula for growth, &c., purchased.—W. Lewis, 15, Shelden Street, London, W.

Frog-in-throat, Tetlow's Swandown. Lowest price and quantity.—Eastman, Chemist, Stratford.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Marriage.

PARK—STEPHENS.—On June 2, at Emmanuel Church, Plymouth, by the Rev. George Berry, M.A., Charles J. Park, Pharmaceutical chemist, and member of the Pharmaceutical Council, youngest son of the late George Park, Fleet Engineer R.N., to Maud, eldest daughter of Mr. T. R. Stephens, Moor View Terrace, Mutley.

GOLDEN WEDDING.

HANBURY—JANSON.—On June 6, 1850, at Stoke Newington, Cornelius, second son of Cornelius Hanbury, of Stoke Newington and Bonchurch, Isle of Wight, and Elizabeth, his wife, youngest daughter of John Sanderson, to Sarah Jane, only daughter of Frederic Janson and Sarah, his wife, youngest daughter of John Tindall, of Knapton Hall, Yorkshire. [Chairman of Allen and Hanburys, Limited, London.]

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Arnold, Ashford, Austen, Bank, Bartlett, Bennett, Brawn, Hart, Henry, Hill, Jones, Lacey, Lenfesty, Long, Radcliffe, Rice, Sargeant, Smith, Sutcliffe, Taylor, Thwaites, Turney, Wilkinson, Wyatt.

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under one name or another is still the favourite preparation for the toilet. It is best prepared by using

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which produces a uniformly good article, and saves trouble, time, and temper. Other methods give variable results, and will be avoided by chemists who wish to obtain and maintain a sale for this preparation.

½-lb. jars (= 3 lb. Emulsion), 2/3; 1-lb., 4/3; 7-lb., 25/-, post free.

Full directions and attractive labels and handbills in crimson and black free with each jar, also formulæ for Milk of Roses, etc., etc.

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Notices to Correspondents.

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

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

NEWS IN BRIEF.

MR. W. A. KNIGHT, "Pereira Medallist," has accepted the Lectureship on organic chemistry and dispensing at the Westminster College of Chemistry and Pharmacy, commencing in September next.

PHARMACEUTICAL SOCIETY OF IRELAND.—All applications for the following examinations must be lodged (with the other necessary papers) with the Registrar by eleven o'clock a.m. on the following dates:—For the Preliminary Examination, on Tuesday, June 19; Pharmaceutical Assistants, Monday, June 25; Registered Druggists, Tuesday, June 26; Pharmaceutical License, Wednesday, June 27.

ALDERMAN A. SIMPSON, M.P.S., Mayor of Stalybridge, referring to an outbreak of smallpox in the neighbourhood, at a recent meeting of the Town Council suggested that pressure should be brought upon the proper authorities to include smallpox in the quarantine law, and he was appointed, together with the Town Clerk and the Medical Officer, as a deputation to wait upon the Local Government Board with that object in view.

CRICKET.—A match was played on June 2 at Nunhead, between the Metropolitan College of Pharmacy and London College, resulting in a win for the "Metros." the scoring being:—"Metros.," first innings 54, second innings 43; London College, first innings 10, second innings 28. The return match was played at Wormholt Farm, Shepherd's Bush, on Saturday, June 9, with the following result:—"Metros.," first innings 53, second innings 53; London College, first innings 18, second innings, four wickets for 24.

PAST GRAND MASTER A. SIDNEY CAMPKIN, J.P., of Cambridge, was again elected by a large majority at the recent A.M.C. at Portsmouth. He was also elected for the office of Trustee of the Order to the vacancy caused by the death of P.G.M. S. Diprose, of London, by 280 over P.G. R. C. Graham, of Burton-on-Trent, 234, and also elected by a large plurality as a representative to the Friendly Societies Conference, to which ten were appointed, among whom were the Grand Master, Deputy Grand Master, Corresponding Secretary, and Parliamentary Agent of the Order.

THE GRAND MASTER'S ADDRESS at the annual delegation of the British Order of Ancient Free Gardeners, held at Aberdeen on Tuesday, June 12, was delivered by a member of the Pharmaceutical Society, Mr. J. F. Tocher, of Peterhead, who presided over the proceedings. In the course of his address, he dealt with the question of medical aid, including the supply of medicines, advocating that the medical officer of each lodge should be paid at a certain fixed rate per visit, so that the salary would then depend upon the amount and duration of the sickness and upon the actual work performed by the physician; he also advocated that friendly societies should seek to employ the medical profession for medical attendance only, and to employ the chemist and druggist to dispense their medicines, it being his firm conviction that more true benefits would accrue to lodges by following that course than by the system generally adopted of the medical officer acting both as physician and dispenser.

THE NEW SENIOR WRANGLER, Mr. Joseph Edmund Wright, is the son of Mr. Joseph Wright, M.P.S., 174, Park Road, Liverpool. In January, 1892, he went to the Liverpool Institute, having won a Council of Education Scholarship from Windsor Street Wesleyan School, and in 1894 he crossed over from the commercial to the high school with an Institute Exhibition, subsequently distinguishing himself in the Oxford local examinations and in gaining Lord Derby's prize of £10. In the science and art examinations his successes whilst at the Institute were also conspicuous, numerous honours and prizes being awarded to him, among which was a mathematical scholarship of the value of £75 per annum at Trinity College, Cambridge, whither he went in October, 1897. In the spring of 1898 he gained a major scholarship, tenable for five years, coming out as first in order of merit. Since then he has occupied the proud position of being first in his year, and the high honour just achieved is regarded as being but the natural sequel to so consistently brilliant a career.

ABERDEEN PHARMACEUTICAL ASSOCIATION.—The quarterly meeting of this Association was held in Gordon's College on Wednesday, June 6, Mr. C. Simpson, President, in the chair. There was a

large attendance of members. The Secretary informed the meeting of the arrangements that had been made for the annual outing, which is to be held on June 27. The party will leave Aberdeen by an early train for Aboyne, where breakfast will be partaken; then carriages will convey the party by Tarland, Tillypronie, and over the Birkhill to Strathdon, returning in the evening to Aboyne for dinner, and reaching Aberdeen with the last train. From the Birkhill a magnificent view can be obtained both of the valley of the Dee and also of the Don. Any chemists on holiday in the North wishing to join can communicate with the hon. sec., Mr. John Cruickshank, 42, George Street, Aberdeen. The following were appointed delegates to the Conference and the Federation, viz.:—For the Conference: Messrs. Johnston, Paterson, Simpson, Giles, and John Cruickshank. For the Federation: Messrs. Giles, Simpson, and J. Cruickshank.

TRADE NOTES.

SOLUBLE ESSENCES.—Messrs. E. Sachsse and Co., Luther-Strasse 11, Leipzig, direct attention to the fact that they are manufacturers on a large scale of terpeness oil of lemon and all soluble essences for aerated waters, etc.

MR. E. A. HOLLOWAY, M.P.S., has retired from his position as chairman and managing director of Holloway's Wine Co., Limited, having disposed of his interest therein. His new offices are adjoining in 3, Oxford Mansions, New Oxford Street, W.C., where letters and inquiries from friends will always find him.

THE 'OPTIMUS' UBIQUE CAMERA is the subject of a pamphlet issued by Messrs. Perken, Son, and Co., Limited, 99, Hatton Garden, London, E.C. It gives full instructions for the use of the Ubique camera, and may be obtained free by post on application to the publishers.

PROTECTION OF SELLING PRICES.—In view of the increased charges attending production, and having regard to the generally satisfactory results that have attended their association with the P.A.T.A. movement, the "Sanitas" Co., Limited, have decided that on and after July 1 next their "Sanitas" preparations and appliances shall be retailed as follows: 1s. articles at not less than 11½d. each, and others at *pro rata* prices, and they have consequently adjusted their terms of supply to the trade and wholesale dealers thus:—1s. articles will be charged to the trade at 9s. 6d. per dozen net, and to the wholesale dealers at 9s. per dozen; carriage and other regulations as before. Other articles *pro rata*, according to their prices. Buyers of £5 parcels (net) will be supplied at the lower rates. The new terms will yield a profit on small parcels of 21 per cent., and on £5 orders of over 27½ per cent.

Publications Received.

TRAITE DES ALTERATIONS ET FALSIFICATIONS DES SUBSTANCES ALIMENTAIRES. By A. VILLIERS and EUG. COLLIN. Pp. iii. + 1,173, with 633 figures. Price 20fr. Paris: Octave Doin, 8, Place de L'Odéon. 1900. From the Publisher.

FIRST STAGE HYGIENE. For the Elementary Stage of the Science and Art Department. By ROBERT A. LYSTER, B.Sc., London. Pp. vi. + 199. Price 2s. London: University Tutorial Press, 13, Booksellers' Row, Strand, W.C. 1900. From the Publishers.

CONSUMPTION AND CHRONIC DISEASES. A Hygienic Cure at Patient's Home of Incipient and Advanced Cases. A Popular Exposition of the "Open-Air Treatment," with latest developments and improvements. By EMMET DENSMORE, M.D. Pp. v. + 198. Price 3s. 6d. London: Swan, Sonnenschein, and Co., Paternoster Square, E.C., 1900. From the Publishers.

LONDON GAZETTE NOTICES.

RECEIVING ORDERS IN BANKRUPTCY.

John Rees, chemist and druggist, 21, Cowbridge Road, Cardiff.

Harry John Ison, chemist and druggist, 16, Spoplat, Shrewsbury.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, JUNE 13, 1900.

Considerable alterations in price have taken place in Linseed Oil, Cottonseed Oil, and Spirits of Turpentine, which are all lower. Sodium Nitrate has also gone down, but Cream of Tartar is dearer. Good sales of Honey, Ginger, and Beeswax have been effected at fully recent prices, and Gum Arabic "sorts" have changed hands to some small extent at fair to improving rates. Business in chemicals has been in a very quiet state, owing to the holidays, but there are few changes, and prices are satisfactory.

AMMONIUM SALTS.—Carbonate, 3½d. to 4d. per lb. Sal Ammoniac, 37s. to 39s. per cwt. Sulphate is dull, £11 7s. 6d. to £11 10s. per ton.

BEESWAX.—American has been sold at £7 10s. per cwt.

CANARY SEED.—Small sales of Turkish have been made at 33s. per 464 lbs., and the price remains somewhat nominal at 33s. to 33s. 6d.

COPPERAS.—Is very firm at 39s. per ton for Lancashire, and 37s. for Welsh.

COPPER SULPHATE.—Remains very quiet at £26 per ton.

GINGER.—107 bags of Sierra Leonè sold, ex quay, at 23s. per cwt., and 93 bags, also ex quay, went on private terms.

GUM.—Small lots of Arabic sorts have been moving off at 75s. to 80s. per cwt.

HONEY.—10 barrels of Pile 2 Chilian fetched 24s. per cwt., and 40 cases of fine Californian cleared rapidly at 45s.

LINSEED.—Calcutta, for forward delivery, June-July shipment, has risen to 55s. 3d. per 416 lbs.; North American, October and November, to 47s. 3d. per 424 lbs.; and 1,000 bags of River Plate sold on sample at 51s. 6d. per 416 lbs.; otherwise the market is quite idle.

OILS (FIXED) AND SPIRITS.—Castor Oils are very steady for spot lots, with somewhat more inquiry. Calcutta, spot, 3¾d. per lb.; forward, good business done on private terms; 1st French, 3¾d. per lb.; 2nd French and Belgian, 3½d.; 2nd Sulphur French, 3d. per lb. Olive Oils are in better inquiry, with reluctance to sell on the part of holders. Spanish, spot, £35 10s. to £36 per tun. For shipment, Levant Oil has advanced to £36 15s. per tun c.i.f. Linseed Oils are a shade easier, and Liverpool makes are now quoted at 35s. 9d. to 36s. 6d. per cwt., packed for export. Cottonseed Oils are firm at the easier rate of 23s. 6d. to 24s. per cwt., packed. Spirits of Turpentine have dropped down to 41s. 6d. per cwt. on the spot, and 38s. per cwt. forward, June delivery, and 35s. July to December delivery.

POTASSIUM SALTS.—Bichromate, 4d. per lb. Chlorates, 4½d. to 4¾d. per lb. Cream of Tartar is firm, with an advance likely, at 76s. to 81s. per cwt. Pearlash, 32s. 6d. per cwt. Potashes in fair inquiry at 32s. 6d. per cwt. Prussiate firm, 8d. per lb.

SODIUM SALTS.—Bicarbonate, £6 5s. to £6 15s. Borax, 16s. to 17s. per cwt. Caustic, 76 to 77 per cent., £11 5s. to £11 10s. per ton; 70 per cent., £10 5s. Soda Crystals, £3 5s. per ton. Nitrate is lower, 8s. 1½d. to 8s. 4½d. per cwt., according to quantity.

LONDON, THURSDAY, JUNE 14, 1900.

Business in drugs and chemicals has so far hardly become active since the holidays; a fair number of transactions have, however, taken place, while, taken as a whole, prices remain fairly firm all round. The prospect—or, at least, possibility—of serious trouble in China (and perhaps also in Japan) has so far had a hardening tendency on produce imported from the Far East; while the resumption of business in South Africa, as evidenced by a renewal of orders for drugs and chemicals from that part of the world cannot fail to have a certain effect upon prices. Quinine has again been weak, but has hardened a little at the close. Weak-kneed speculators for the rise are probably chiefly responsible for existing state of affairs in this article. Glycerin continues very firm. Cod liver oil is still dull. No change has so far taken place in prices

of Iodides. Acid Citric very firm, an advance in value expected. The rise in price of Jalap is maintained. The following are the prices actually ruling for some articles of chief interest:—

ACETANILIDE.—Continues dull and weak at 9½d. to 11d. per lb., according to quantity, etc.

ACID BORACIC.—Is steady at 26s. per cwt. for crystals, and 28s. per cwt. for powder.

ACID CARBOLIC.—Firm and in short supply for prompt delivery, quotations being nominally 35°—36°. Ice Crystal in 2½-cwt. drums and overcasks, 10½d. to 11d. per lb., according to quantity and make; 39°—40° Ice Crystal, 11½d. to 11½d. ditto; Detached Crystals, which is now the form required by the B.P., 1s. 0¼d. to 1s. 0¾d. per lb. Crude, 60° F., 2s. 9d.; 75° F., 3s. 6d. per gallon. Liquid, 95—98 per cent. of pale straw colour, 1s. 6d. to 1s. 8d. per gallon; ditto 25—30 per cent. of dark colour, 10d. to 1s. the gallon, packed in 40-gallon casks.

ACID CITRIC.—Very firm at 1s. 4½d. to 1s. 5d. per lb., according to quantity and make for crystals in 5 cwt. casks. The article is generally expected to be dearer, especially in view of the actual position of lemon juice.

ACID OXALIC.—Is still quoted 3¼d. to 3½d. per lb., according to quantity, nett, free delivered, London.

ACID TARTARIC.—Quiet but very steady at 1s. 0¾d. to 1s. 1d. per lb. for English, and 1s. per lb. for foreign.

AMMONIUM COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. Sal Ammoniac, £37 to £39 per ton for firsts and seconds respectively; crushed for batteries 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate flat. Gray, 24 per cent., London prompt, £11 2s. 6d. Hull prompt, £11 to £11 1s. 3d.; Leith prompt, £11 2s. 6d. to £11 3s. 9d.; Beckton, nominal; Beckton, terms prompt, £11. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

ATROPINE.—Makers are firm at 15s. 6d. per oz. for the Sulphate B.P., and 17s. 10d. per oz. for the pure Alkaloid.

BELLADONNA ROOT.—Is quoted 42s. 6d. per lb on the spot for good dry root.

BISMUTH.—The salts are unchanged at 5s. 8d. per lb. for the subcarbonate, and 5s. 1d. per lb. for the subnitrate, the commercial quality of the metal being also unchanged at 5s. per lb.

BORAX.—Quiet, but steady at late advance to 17s. per cwt. for crystals, and 18s. per cwt. for powder.

BROMIDES AND BROMINE.—Continue very firm at unchanged quotations—viz., 1s. 11½d. per lb. for Potassii Bromid., 2s. 2½d. per lb. for Sodii. Bromid., and 2s. 3d. per lb. for Ammon. Bromid. Bromine is also unchanged at 2s. to 2s. 2d. per lb., according to quantity, in cases of 60 lbs.

CAMPHOR.—Continues firm for both crude and refined, and especially for the latter, English makers still quoting 2s. 4d. per lb. for Bells and Flowers.

CASTOR OIL.—Quiet. Belgian first pressing spot, £31 10s.; July-December, £29 10s., f.o.b. Antwerp; second pressing spot, £28 10s. per ton. Hull manufactured: Guaranteed cold drawn pure pharmaceutical, £34 per ton in barrels, 4½d. per lb. in cases; pure firsts, £31 10s.; seconds, £29 per ton in barrels; firsts, 3½d. per lb. in cases; seconds, 3¾d., ex wharf London.

CINCHONA BARK.—At the late auctions in Amsterdam small supplies of Java were offered, the total amounting to 4,800 packages, against 6,855 packages at the preceding sales. Active competition prevailed, and practically all sold at an advance, the average unit obtained being 10.35 cents, against 10.10 cents last sale. The Quinine contents of the sale were 18,000 kilos, of which only 400 kilos were unsold. The exports of Java bark for May were 816,000 Amsterdam lb., against 943,000 Amsterdam lb. last year, and 672,000 Amsterdam lb. in 1898. The total for the five months is 3,117,000 Amsterdam lb., against 3,959,500 Amsterdam lb. last year, and 3,897,000 Amsterdam lb. in 1898.

CLOVES.—Slow of sale, and the supply of 8 cases of Penang in auction were all bought in, fair picked at 7d. to 8d.; also fifteen cases Amboyna, fair picked at 7d. One case of fair picked Ceylon sold at 6d. No Zanzibar were offered. Privately the market for Zanzibar continues quiet, and prices are barely steady, closing with sellers June-August delivery at 3 27-32d., August-October at 3¾d. No business whatever is reported.

COAL TAR DISTILLATION PRODUCTS.—Toluol Commercial, 1s. 2d. to 1s. 4d. per gallon; pure, 2s. to 2s. 6d. Creosote, 5d. to 5d. per gallon, according to quantity and packing. Crude Naphtha, 30 per cent. at 120° C., 3¾d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 4d. per gallon; ditto 90 per cent. at 160°

C., 1s. 1½d. per gallon; ditto 90 per cent. at 190° C., 1s. 1½d. per gallon. Anthracene: A, 3¾d. per unit; B, 2¾d. Pitch, 37s. 6d. per ton f.o.b. Tar, refined and/or crude, 13s. per barrel, 2½d. per gallon.

COCAINE.—Makers continue firm at 16s. 3d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins, none of the brands most in favour being obtainable from second hand at anything below this figure.

COD LIVER OIL.—The market remains very quiet, price for best new non-congealing Norwegian Oil, in tin-lined barrels, varying from 72s. to 77s. 6d. per barrel, according to brand, in tin-lined barrels of 25 gallons each.

CODEINE.—Remains very firm at 13s. 6d. per oz. for the pure, a somewhat lower price, according to quantity, being quoted for the Muriate, Phosphate, and Sulphate Salts.

COPPER SULPHATE.—Is still quoted £24 10s. to £25 10s. per ton, according to make, etc.

CREAM OF TARTAR.—First white Crystals on spot, 77s.; Powder, 79s.; and 95 per cent. 80s.

CUTCH.—Neglected, and 150 boxes in auction were bought in, good softish block at 30s.

GAMBIER.—At auction 200 bales block offered and bought in at 16s. 6d., meeting with no offers, also 76 bags pale cubes rather broken at 29s. Privately the market remains quiet, and no sales are reported, May-July steamer quoted buyers at 15s. 6d.

GENTIAN ROOT.—Is being offered very cheaply from the other side, an offer of 13s. 6d. per cwt., f.o.b., would probably lead to business; on the spot, however, a tangibly higher price is asked.

GINGER.—At auction Cochin was in good supply, but neglected, and of 942 bags and 119 cases offered only 11 bags sold in small lots, washed rough, medium and bold dullish at 31s., medium and small ditto at 29s., small and tips at 27s., and good bright brown tips at 30s.; the remainder bought in, including good bold cut and scraped at 90s. to 95s. medium and small roughly cut and scraped at 55s., limed small and ends at 40s., Calicut rough at 32s. to 35s., and washed rough at 32s. to 33s. Jamaica, which was in unusually large supply, met a rather dragging demand, but a good quantity found buyers; good and fine qualities were proportionately small and brought steady rates, common and medium kinds, of which the bulk consisted, selling irregularly at 2s. to 3s. decline, while Rhatoon was neglected and chiefly bought in, but where sold a drop of 3s. to 4s. was established. Of 2,256 barrels 16 half-barrels and 6 tierces offered about 1,200 barrels sold, fine bold bright at 81s. to 86s., good bright at 68s. to 71s., middling to fair at 60s. to 66s. 6d., low middling at 53s. to 59s., common to good common at 45s. to 52s., low to fair Rhatoon at 37s. to 43s. Japan: 34 bags new crop offered and bought in, leanish small at 28s. African: 10 bags offered and sold, without reserve, small rough at 28s.

GLYCERIN.—Continues very firm, crude, especially, still showing an advancing tendency, while for the refined article 62s. to 63s. per cwt. is asked for English and 64s. to 77s. 6d. per cwt., according to brand, for best white, odourless, double distilled, chemically pure, 1,260 s.g. quality, in tins and cases (2 or 4 × 56 lb. tins in a case).

IODIDES.—There is no change to report. The combined makers still quote Potassii iodid. 10s. 6d. per lb.; Sodii iodid., 11s. 10d. per lb.; Ammon. iodid., 13s. 10d. per lb.; Iodoform cryst., pulv. or precip., 13s. 10d. per lb.; and Iodine resublimed, 12s. per lb. Commercial Iodine is also still quoted 7½d per oz. Whether these prices can be maintained still remains a burning question.

JALAP.—Late advance is fully maintained, and only limited quantity is obtainable at 7½d. per lb. for good sound heavy tubers.

MORPHINE.—Market is very steady at 5s. per oz. for the Hydrochlorate powder and 2d. per oz. more for the crystal salt.

OIL OF LEMON.—Market remains very firm at late advance, which now amounts to nearly 1s. per lb. over prices ruling only a few months since. Quotations vary from 4s. 3d. to 5s. 3d. per lb., according to quantity and brand.

OILS (FIXED) AND SPIRITS.—Linseed decidedly firmer. On the spot, pipes, London, ordinary, £33 10s. to £33 15s. (E.I. 5s. premium); barrels, £33 15s. Hull, spot, naked, £33 5s. Rape dull. Ordinary brown, on the spot, barrels, £28 5s., accepted. Refined, £29 15s. Ravison nominal; naked, spot, none. Cotton steady, quiet. London crude, spot, £21 5s. to £21 10s. Refined, spot, £23 10s. to £24, according to make. Hull, naked, refined, spot, £21 7s. 6d. Olive, Mogador, £35. Spanish, £36 10s. Levant, £35. Coconut dull. Ceylon, on the spot, £24 15s.; near, £23 5s. c.i.f. Cochin, spot, nominally £27 10s. to £28. Palm, Lagos, on the spot, quoted £25 10s. Petroleum dull. Russian, spot, is 6½d. to 6¼d. American, spot, 6½d. to 6¼d. Water

White, 7½d. to 7¼d. Lubricating, Pale American, spot, 9s. to 10s. 9d. Black, 7s. to 9s. Russian, Black, 6s. 6d. to 7s.; Pale, 8s. 9d. to 10s. 3d. Petroleum Spirit: American, ordinary, 9¼d. Deodorised, 9½d. Turpentine firmer after the drop. American, spot, opened 38s.; closed, 38s. 6d. June, 36s. 3d.

OPIUM.—We have very little news this week of the new crop, which is, however, generally expected to be good. Meanwhile stocks available remain small, quotations being therefore somewhat nominal at 9s. 3d. to 10s. 3d. per lb., according to quality, for manufacturing and druggists' kinds, and 10s. 9d. to 12s. per lb. for soft shipping. For really fine Persian as much as 14s. per lb. is asked, but very little being obtainable, even at this high figure.

PHENACETIN.—Is unchanged at 5s. 3d. per lb. for crystals or powder from the makers, second-hand offering at a slightly lower figure, but in limited quantity only.

PILOCARPINE.—Makers are firm at 41s. 9d. per oz. for the Muriate and Nitrate Salts in 8-oz. lots.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot, London, crystals, 4½d. per lb. net; powder, 4¾d. Carbonate, 90 per cent., £19 10s. per ton, ex ship. Cyanide, 98 per cent., 1s. 2d. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Nitrate, refined, £21 5s. per ton. Permanganate: Small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow: English makes, 8d.; Beckton, 7¾d.; red, 1s. 1d. to 1s. 2d., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

POTASSIUM CYANIDE.—Demand continues active, and makers are very firm in their ideas, price asked now being 1s. 1d. to 1s. 2d. per lb. for the 98 per cent., according to quantity and delivery.

QUICKSILVER.—Is firm at £9 10s. per bottle from the importer, second-hand still not offering.

QUININE.—Continues very quiet at a further slight decline, and only a small business has occurred, comprising B&S and/or Brunswick on the spot at 1s. 2¾d., and October delivery at 1s. 3¾d.

SALICYLATES AND SALOL.—Remain unchanged in price, but can hardly show the makers much profit in view of present high price of carbolic acid.

SODIUM COMPOUNDS.—Crystals: Barrels quoted 60s., bags 57s. 6d. Acetate, £14 10s. per ton, ex ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3¼d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent. white, £10 15s. to £11, 60 per cent., £1 less. Chlorate, 4¾d. per lb. Hyposulphate (Antichlor.), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate on the spot, refined, £8 15s.; ordinary, £8 5s.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate, £1 7s. 6d. per ton. Sulphide Crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Black Pepper: At auction there was a slow demand. 78 bags good Alleppy bought in at 6½d., and 51 bags bold Tellicherry at 6¼d. 249 bags Malabar sold, good bold, at 6½d.; good heavy shot at 6d. 463 bags Penang bought in at 6d. White Pepper quiet; 15 cases Singapore bought in, fine bold at 1s. 22 bags Ceylon offered and sold, good at 9d. Pepper dust: 32 bags Penang offered and sold at 2d. to 2½d. Chillies remain quiet, and 17 bags good bright African were bought in at 55s. Capsicums in moderate demand; 2 bales Natal sold, good bright at 92s. to 95s. Of 167 packages Bombay 31 bales sold, good bright cherries, 31s. 6d. 15 robbins yellow Nepaul character, off-stalk, bought in at 28s. Pimento neglected, and 447 bags bought in at 3½d. to 3¾d. Broken Cassia: 400 bales offered and sold, good, 38s. to 39s. 6d. Cinnamon neglected; 133 bales Ceylon offered, and only 6 bales sold, fair Quill, at 9½d. Nutmegs dull of sale. Penang sold very slowly. West Indian, in good supply, sold at rather easier rates. Mace quiet; 6 cases Penang sold at 2s. 2d. to 2s. 4d. 7 boxes Singapore bought in at 1s. 8d. West Indian: 28 packages sold from 1s. 10d. to 1s. 3d.

SULPHONAL.—There is practically nothing obtainable from second-hand below makers' price of 20s. 6d. per lb. for both crystals and powder.

TURMERIC.—In auction was freely offered and met little demand. Of 502 bags Madras, only 35 bags sold, fair bright whole bulb at 24s. 6d., subject; the remainder bought in, fair to good bright finger at 32s. 6d. to 35s., dull rough at 30s.; 41 cases Ground bought in at 32s. 6d. 919 bags Cochin split bulbs offered and bought in at 8s. 6d. to 9s. 6d., and 335 bags Cochin finger at 28s. for good bright bulby. China: 60 bags bright bulby finger bought in.

Calendar for the Week.

Sunday, June 17.	First after Trinity.	Sun rises 3.44; sets 8.18.
Monday, June 18.		Sun rises 3.44; sets 8.18.
	ROYAL GEOGRAPHICAL SOCIETY, University of London, Burlington Gardens, W., at 8.30 p.m.—"The Country between Lake Rudolf and the Nile Valley," by Captain M. S. Wellby.	
Tuesday, June 19.		Sun rises 3.44; sets 8.18.
Wednesday, June 20.	☾ 0.57M.	Sun rises 3.44; sets 8.18.
Thursday, June 21.		Sun rises 3.44; sets 8.19.
	CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8 p.m. Ballot for the election of Fellows. Papers on "The Chemistry of Chlorophyll," by L. Marchlewski and C. A. Schunck; "Researches on Morphine, I.," by S. B. Schryver and F. H. Lees; "A new series of Pentamethylene Derivatives, I.," by W. H. Perkin, Jun., J. F. Thorpe, and C. W. Walker; "Experiments on the Synthesis of Camphoric Acid, III.," and "The action of Sodium and Methyl-Iodide on Ethyl-dimethyl-butanetricarboxylate," by W. H. Perkin, Jun., and J. F. Thorpe; "On the Oxime of Mesoxamide and some allied compounds," by (Miss) M. A. Whiteley; "The Oxyphenoxy- and Phenyleneoxy-Acetic Acids," by W. Carter and W. T. Lawrence; "The condensation of ethyl α -bromo-isobutyrate with ethyl malonates and ethyl cyanacetates: α -methyl- α' -isobutylglutaric acid," and "Methylisoanilsuccinic acid, II.," by W. T. Lawrence.	
	LINNEAN SOCIETY OF LONDON, Burlington House, Piccadilly, W., at 8 p.m.—Papers on "Some Scandinavian Crustacea," by Dr. A. G. Ohlin; "The Subterranean Amphipoda of the British Islands," by Chas. Chilton; "Certain Glands of Australian Earthworms," by Miss Sweet; "Notes on Najas," by Dr. A. B. Rendle.	
Friday, June 22.		Sun rises 3.44; sets 8.19.
Saturday, June 23.		Sun rises 3.45; sets 8.19.
	CRICKET.—Finsbury Park.—Allen C.C. v. Bedford Institute.	

Marriage.

WESTLAKE—AINSWORTH.—At Derby, on Thursday, June 7, George Frederick Westlake, M.P.S., Cancer Hospital, London, to Winifred Beatrice Ainsworth, of Derby.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the Exchange Column should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., before 5 p.m. on Thursdays.

OFFERED.

2 oz. Morph. Hydroch., 10s.; **1 oz. Cocain. Hydroch.,** 17s. 6d.—Eastman, Forest Lane, Stratford.

Diatom Slides.—Spread, selected, tests, exhibition groups, etc. Approval parcels.—Gatrell, Barnes.

Photographic Stock-taking List, ready middle May, cameras, lenses, mounts.—Edward Peck, East Dereham, Norfolk.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Hair Speciality Recipe for growth, &c., purchased.—W. Lewis, 15, Shelden Street, London, W.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

Information Wanted.—A Gentleman desires to know where he can obtain the late Dr. William Clayton's Bilious Mixture and his other remedies. Dr. Clayton practised in Hammersmith about ten years since, and his formulæ were possibly purchased by a chemist or patent medicine vendor.—Address, Patient, "Pharm. Journal" Office, 5, Serle St., W.C.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Abram, Alcock, Bath, Beach, Bennett, Branch, Browne, Campkin, Cocking, Cole, Crinon, Cruickshank, Davies, Davis, Ferrall, Gairn, Gammie, Hill, Hooper, Holloway, Howorth, Hudson, Jepson, Kempston, Kraemer, Loosmore, McKay, Matthews, Mitchell, Moor, Parry, Perkin, Sachsse, Simpson, Smith, Squire, Sutcliffe, urney, Twinberro, Wardale Wellcome, Wills, Wyatt.

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8d., 1/-, and 2/6 Bottles.

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SULPHUR FUMIGATING CANDLES (Kingzett's Patents), 6d., 9d., and 1s. each.

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* AND 636—642, W. 55 STREET, NEW YORK. *

DISSOLVED HAEMOGLOBIN CAPSULOIDS.

V. STEIN'S ANALYTISK-KEMISTRE LABORATORIUM, KOBENHAVEN, K. 28 Nov. 1899. By analysis of a sample of Capsuloids sent the 14th of October, 1899, from the office of the Capsuloid Co., I found that the iron contained in them was absolutely the same form of natural iron which is found in the blood I found 21 grams of pure iron in each 100 grams.

(Signed) V. STEIN, Chief Analyst, Royal Danish Agricultural College. CAPSULOIDS are made of the best gelatine and filled with pure dissolved Haemoglobin extracted from fresh blood. The above analysis, made by one of the best Continental analysts, proves conclusively the purity and excellence of this preparation. Capsuloids are soft, flexible, pear-shaped, and easily swallowed. For children, they may be dissolved in hot milk, gruel, &c. The dose is one or two daily for infants, one or two three times daily for adults. They are unsurpassed in the treatment of anæmia, chlorosis, oligæmia, and all the conditions due to blood exhaustion, also in convalescence after La Grippe, or any exhausting disease or injury. The advantages of having this medicine, scientifically prepared, easy to take, without taste or odour, are very great, and as it agrees with the weakest stomachs it cannot be too strongly recommended to the medical profession. Capsuloids are put up in boxes of 100, for Physicians' use only, and sold at 5/- per box post free. They may be obtained through all chemists or direct from the manufacturers,

THE CAPSULOID CO., 31, SNOW HILL, LONDON, E.C.

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Notices to Correspondents.

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

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

NEWS IN BRIEF.

MR. E. DENNIS, M.P.S., has purchased the business carried on by Mr. W. Griffith at 113, Admitt Road, Northampton.

MR. H. ROBINS, M.P.S., Market Place, Wantage, has fitted up a photographic dark-room for the use of customers.

MIDLAND PHARMACEUTICAL ASSOCIATION.—At a council meeting held on June 14, Mr. John Barclay, B.Sc., F.C.S., was unanimously elected President for the ensuing year.

THE CHEMISTS OF THE WALLASEY DISTRICT—comprising Seacombe, Egremont, Liscard, New Brighton, and Wallasey—have decided to close their establishments from one to seven o'clock each Thursday.

MR. ROGER PAYNE (Caius College, Cambridge), pharmaceutical chemist, who was one of the successful candidates at the Natural Sciences Tripos Examination last year, has been successful this year in passing the Law Tripos Examination.

THE PUBLIC AND POOR-LAW DISPENSERS' ASSOCIATION will hold the last meeting of the session at eight p.m. on Wednesday, June 27, at St. Bride's Institute, Ludgate Circus, E.C. The first meeting of the next session will be held during October.

DR. P. H. EMERSON'S EXHIBITION OF PHOTOGRAPHS at the Royal Photographic Society's rooms, 66, Russell Square, W.C., will close on Saturday, June 30. The exhibition can be viewed on presentation of visiting card, from ten to four, Wednesdays ten to eight.

CHEMISTS ON HOLIDAY IN THE NORTH who would like to join the annual outing of the Aberdeen Pharmaceutical Association to Aboyne and Strathdon on Wednesday next, June 27, should communicate with the Hon. Secretary, Mr. John Cruickshank, 42, George Street, Aberdeen.

THE SOCIETY OF ARTS has awarded the Albert Medal for the present year to Mr. Henry Wilde, F.R.S., "for the discovery and practical demonstration of the indefinite increase of the magnetic and electric forces from quantities indefinitely small." This principle is the one on which the invention of the modern dynamo machine is based, and is employed in all modern dynamos.

IN CHARGING THE GRAND JURY at the Worcester Midsummer Quarter Sessions on Monday, June 18, the Chairman (Mr. J. Willis Bund) referred to a charge against Susan Sadler of attempting to commit suicide, and said that a child of nine was served with laudanum. They heard a good deal of the wickedness of serving children under sixteen with drink; how much more wicked was it to sell poison to a child of nine!

THE EMPLOYEES OF MESSRS. T. AND H. SMITH AND Co., wholesale chemists, Edinburgh, held their annual stocktaking holiday at Callender on Saturday, June 16. Over eighty sat down to dinner, presided over by Mr. Thomas Connell Smith. After dinner Braclinn Falls and the lovely scenery depicted in Sir Walter Scott's "Lady of the Lake" were visited. The public hall had been specially engaged, where songs, recitations, and games were enjoyed, and the party spent a pleasant day notwithstanding unfavourable weather.

THE ANNUAL OUTING of the Plymouth and District Association will take place on Wednesday, July 11, to Totnes and Berry Pomeroy, the party leaving Plymouth (Millbay) at 2.30 p.m. The train will call at all intermediate stations, arriving at Totnes at 3.31. At 3.45 carriages will leave Totnes station for Berry Pomeroy Castle and grounds, returning to the Castle Hotel, Totnes, at six o'clock for high tea. The excursion is arranged in conjunction with the Exeter Chemists' Association. Chemists and their friends residing in the district are invited to join the party. Tickets, price 6s., including railway fare from Plymouth, carriage drive and tea, may be obtained of the Hon. Sec., Mr. G. Breeze, 41, Union Street, Plymouth, not later than Saturday, July 7. Tickets for drive and high tea only 3s. 6d. each.

THE SPECTACLEMAKERS' COMPANY.—The following is a list of those candidates who have passed the fifth examination of the Worshipful Company of Spectaclemakers, entitling them to regis-

tration by that body:—F. Anderson, Elgin; H. B. De Brent, Beckenham; W. J. Bunt, London; R. A. Chadwick, Streatham; A. Charsley, London; J. R. Clarke, Newcastle; W. D. Eglinton, Lewisham; A. E. Esdaile, Liverpool; F. Fearnley, Leeds; J. J. Forbes, Stirling; S. H. Holroyd, Hull; E. W. Hovenden, Dulwich; H. A. Hughes, London; H. G. Husbands, Bristol; A. F. Iye, Worthing; J. W. Jones, Cricceth; R. P. Layfield, Liverpool; G. W. Lloyd, Sheffield; D. McFarlane, Manchester; C. Palmer, Gloucester; R. J. Scott, Waltham; W. Shelton, Stockport; G. Vogt, Kendal; J. B. Williams, Putney; W. Wood, Melbourne; A. V. Woodward, Derby. The number of opticians who are certified under the examination scheme of the company is thus brought up to 296. The following candidates have passed in visual optics, and will receive the diploma when they shall have passed in the further subjects:—S. B. Adams, London; E. J. Bosch, Sydney; J. Fleming, London; E. Winterhalter, Maidstone.

TRADE NOTES.

OPIMUM EXTRACT ENULES.—Messrs. Burroughs Wellcome and Co., Snow Hill Buildings, London, E.C., have recently made an addition to their list of "Enule" brand rectal suppositories, in the form of opium suppositories gr. 1, issued in boxes containing twelve in each.

THE FIRST BATCH OF LETTERS OF ALLOTMENT AND REGRET for the issue of 4½ per cent. First Mortgage Debenture stock and 5 per cent. Cumulative Preference shares in Hill, Evans, and Company, Limited, was posted on June 19, and the final batch on June 20. The preference shares were applied for about three times over and the debenture stock more than twice over.

CONDY'S CRYSTALS.—In the Supreme Court of Victoria recently, before Chief Justice Madden, Messrs. Condy and Mitchell, Limited, obtained an injunction against Mr. W. A. Taylor, chemist, Melbourne, whereby he and his servants and agents are perpetually restrained from selling, offering for sale, or causing to be sold as Condy's crystals any crystals not being of the plaintiffs' manufacture.

THE RONUK COMPANY, in consequence of largely increased business, asks the indulgence of customers in the unavoidable delay in executing orders, which are carried out in strict rotation as received. The National Gallery, Tate Gallery, Hertford House, and the leading hospitals have adopted this sanitary polish for their floors, and the directors of the company are taking steps to supply the increased demand.

ELECTRIC BATTERIES, ETC.—Messrs. Niblett, Sutherland, and Marcuson, 61, Chandos Street, Strand, London, W.C., send particulars of improved battery accessories, including a new form of variable resistance, price £1 10s., and a charging board, price £1 1s.; an improved battery for X ray work and medical purposes, with a special pipette for filling in the solution in batteries that are sent away dry, price, including pipette, £5 12s. 6d.; improved storage batteries for carriage lighting, also charging board and lamps, price of 4-cell battery, with two terminals, £4; charging board, any voltage, £1 1s.; special inside carriage lamp, £1 1s.; and a new portable testing battery, price complete—100 volts—£5 5s. Further particulars can be obtained on application to the address mentioned.

Marriage.

TOTTLE—ROBSON.—On June 12, at St. John's, Walton, by the Rev. J. J. Tomson, B.D., Samuel Harpham Tottle, M.P.S., third son of the late Lancelot Tottle, sen., of Hull, to Ada Mary, second daughter of the late Edward Robson, of Greenheys, Manchester.

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

Edward Miles and Frederick Charles Constant, dentists, 15, Queen Street, Cheapside, E.C. Debts will be received and paid by F. C. Constant.

Howard Best and Charles Henry Nock, trading as I. A. Best and Son, surgical mechanists, 19, Summer Lane, Birmingham. Debts will be received and paid by C. H. Nock, who will continue to carry on the business under his own name.

MARKET REPORT.

LIVERPOOL, WEDNESDAY, JUNE 20, 1900.

The amount of business done, both in drugs and chemicals, has been moderate during the week, and as regards fluctuations in price these have been confined chiefly to easier prices for Cottonseed Oil and Spirits of Turpentine and advances in Linseed and Linseed Oil. There has not been any great variety of goods handled, but Castor Oils have been selling better, and small amounts of Beeswax and Carnauba Wax have found buyers at good prices.

AMMONIUM SALTS—Are unchanged, except Sulphate, which sells at £11 5s. per ton.

BLEACHING POWDER—Is quiet at £6 10s. to £7 per ton.

CARNAUBA WAX—Good grey has been selling in small amount at 7s. 6d. per cwt.

COPPER SULPHATE—Has gone down to £24 17s. 6d. and £25 per ton.

GUM ARABIC—Small sales of "sorts" have been effected at 63s. per cwt.

OILS (FIXED) AND SPIRITS—Castor Oils have been selling better, and inquiry has improved, 100 cases, to arrive, May-June shipment, from Calcutta, made 3½d. per lb., spot price, 3¼d. First French, 10 tuns, to arrive, July-August, sold at £28 5s. per tun, f.o.b. Marseilles, spot price 3¼d. to 3½d., with sales at the latter rate; second French and Belgian, spot, 3½d. per lb. Olive is steady, with best Spanish at £35 10s. to £36 per tun. Seville has sold at £35 10s. in small amount. Linseed is firm at 36s. to 36s. 6d. per cwt. for Liverpool oil, with little offering. Cottonseed has dropped to 23s. 3d. and 23s. 9d. per cwt. Spirits of Turpentine, by successive falls, have gone to 39s. per cwt. for spot lots, with 36s. for cargoes near at hand and 34s. 6d. for deliveries in six months.

LONDON, THURSDAY, JUNE 21, 1900.

Business in Drugs and Chemicals has been somewhat quiet during past few days, the near approach of the end of the half-year, combined with the trouble in the Far East, having had the tendency to prevent more orders being passed than was absolutely necessary. At the same time the undertone remains firm. Quinine has been better, as far as the speculative market is concerned, owing partly to the moderate shipments advised from Java for first half of June, and partly to the good results obtained at Tuesday's bark sales in London, particulars of which are given below. Bromides, Quicksilver, Mercurials continue firm. Iodides so far unchanged. Glycerin very firm. Salicylates and Salol unaltered in price. Acid Citric, Acid Tartaric, and Cream of Tartar steady. Same may also be said of Opium, Morphine, and Codeine, as also of Acid Carboic, which continues in good demand. Camphor firm, both for crude and also for refined.

AMMONIUM COMPOUNDS—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small crystals, 33s. to 36s. Sal Ammoniac, £37 to £39 per ton for firsts and seconds respectively; crushed for batteries, 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate dull: Gray, 24 per cent.; London prompt, £11 to £11 1s. 3d.; Hull prompt, £10 17s. 6d. to £10 18s. 9d.; Leith prompt, £11. Beckton nominally, £11 7s. 6d.; Beckton terms prompt, £11. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

CINCHONA BARK—At these auctions, the sixth of the series, increased supplies were catalogued, the total of all descriptions amounting to 4,640 packages, as compared with 3,931 packages at the previous sales. There was again active competition, and the larger proportion was disposed of at fully 5 per cent. advance on the last London sales, and rather better than the previous Dutch auctions, the average unit obtained for Quinine Bark being 1½d. to 2d., while Cinchonidine descriptions realised a higher average. Ceylon: 291 bales and 88 bags offered and 358 packages sold, according to analysis, Succirubra, stem chips and shavings, good at 4½d. to 5½d.; ordinary to fair, at 2¾d. to 4d.; fine renewed ditto, at 7½d.; branch and chips, at 3¼d.; ledger, ordinary stem chips, at 1¾d.; renewed ditto, at 2¾d.; hybrid, chips and shavings, at 3¾d. to 4¾d. East Indian: Of 3,296 bales 30 bags and 96 cases offered 2,937 packages sold. Red, stem chips and shavings, fair to good, at 3¾d. to 5½d.; ordinary at 1¾d. to 3½d., renewed ditto ordinary to fair at 2¾d. to 4d., fair quill at 5¼d., broken at 4½d. to 5½d., root at 3½d. to 4d.; officinalis, stem chips and shavings, fair to good rich at 4¾d. to 8¼d., ordinary at 2¾d. to 3¾d., good branch at 4½d. to 4¾d.; quill,

natural at 8½d. to 9½d., renewed at 10½d.; renewed chips and shavings, good to fine rich at 8¾d. to 1s. 0½d., ordinary to fair at 3¾d. to 6¾d.; ledger, chips and shavings, good to fine at 8¾d. to 10½d., fair at 4d. to 6½d.; ledger, branch at 7d. to 7½d.; hybrid, chips at 4¾d. Java: 244 bags and 10 cases offered and 184 bags sold, ledger stem chips, good to fine at 8½d. to 1s. 0¾d., branch at 7d., root 5¼d. to 5¾d. South American: 199 bales Bolivian Cultivated Calisaya offered and sold, ordinary to good quill at 5½d. to 11¼d., flat at 8¾d. to 8½d.; soft Columbian, 102 bales bought in at 5d. to 5½d., and 184 bales Cuprea at 2½d. to 3½d.; 9 packages red also bought in.

CLOVES—Privately Zanzibar have been more active, sales comprising June-August and August-October delivery at 3¾d. to 3 25-32d., and January-March at 3½d. to 3 21-32d., closing at the best. None offered in auction.

GINGER—Only 80 cases Cochin were offered, and were bought in; bold, some medium roughly cut and scraped at 75s., medium and small ditto at 50s., and small at 45s. Jamaica, in fair supply, found slow demand; of 707 barrels, only 44 sold, fair to good bright at 66s. 6d. to 71s. 6d., good common to middling at 54s. to 60s., common at 43s.

OILS (FIXED) AND SPIRITS—Linseed firm and advancing. On the spot pipes, London, ordinary, £34 15s. to £34 17s. 6d. (E. I., 5s. premium); barrels, £34 17s. 6d.; Hull spot naked, £34 10s. Rape steadier: Ordinary brown on the spot, barrels, £28 10s.; refined spot, £30. Ravison nominal; naked spot none. Cotton firmer: London crude spot, £21 5s. to £21 10s.; refined spot, £23 10s. to £24, according to make. Hull firmer: Naked refined spot, £21 15s.; crude spot, £20 5s. Olive: Mogador, £35; Spanish, £36 10s.; Levant, £35. Coconut: Ceylon on the spot, £24 15s.; near, £23 5s. Cochin spot, £27 10s. Palm: Lagos on the spot, £25. Petroleum flat: Russian spot, 6½d. to 6¼d.; American spot, 6½d. to 6¾d.; water white, 7½d. to 7¾d. Lubricating: Pale American spot, 9s. to 10s.; black, 7s. to 8s. 6d.; Russian black, 6s. to 6s. 6d.; pale, 8s. 9d. to 10s. Petroleum-Spirit: American ordinary, 9¼d.; deodorised, 9½d. Turpentine holders are firm: American spot, 37s.; June, 36s.; July, 33s. 6d.

POTASSIUM COMPOUNDS—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate, spot, London, crystals, 4½d. per lb. net; powder, 4¾d. per lb. Carbonate, 90 per cent., £19 10s. per ton, ex-ship. Cyanide, 98 per cent., 1s. 2d. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Nitrate, refined, £21 5s. per ton. Permanganate, small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate, yellow, English makes, 8d.; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

SODIUM COMPOUNDS—Crystals, barrels, quoted 60s., bags 57s. 6d. Acetate, £14 10s. per ton, ex-ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3¼d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent., white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4¾d. per lb. Hyposulphate (Antichlor.), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate, on the spot, refined, £8 15s.; ordinary, £8 5s.; 98 per cent., £26 per ton. Phosphate, £10 10s. Prussiate, 5¼d. per lb. Stannate, 40 per cent., £3 10s. Sulphate, £1 7s. 6d. per ton. Sulphide Crystals, £6 10s. Sulphite, £5 15s. per ton.

THURSDAY'S DRUG SALES.

LONDON, THURSDAY, JUNE 21, 1900.

To-day's drug auctions comprised no less than 20, mostly long, catalogues, and many of the lots failed to find buyers. Some articles, however, sold well, for instance, Jamaica honey, the following being the particulars as far as has been possible to give same up to time of going to press:—

ALOES—1 case fair Zanzibar sold at 65s. per cwt. Other 64 cases East African taken out at 60s. 24 kegs Socotrine were bought in at 75s. 20 cases East Indian sold at 25s. to 34s. per cwt. 28 boxes Curacoa at 14s. 6d. to 18s. 6d. 20 cases Cape all bought in at 27s. 6d. to 28s. per cwt., other 29 cases selling at 27s. 6d. down to 26s. 6d.

AMBERGRIS—2 tins sold at 35s. and 85s. per oz. respectively.

ANISEEDS—20 bags fair Spanish were taken out at 25s. per cwt.

ANNATTO PASTE—20 cases bought in at 1s. per lb.

ANNATTO SEEDS—13 bags were taken out at 3½d. per lb. and 2 cases at 4d.

ANTIMONY.—40 cases crude Japan taken out at £22 10s. per ton.

ARECA NUTS.—59 bags wormy bought in at 14s. to 20s. per cwt.

ASPHALTUM.—58 cases Syrian were bought in at 32s. 6d. per cwt.

BALSAM COPAIBAE.—Of 10 cases part had been sold previously, balance taken out at 1s. 6d. per lb. Other 4 cases sold at 1s. 3½d.

BALSAM TOLU.—4 cases were taken out at 1s. 5d. per lb.

BIRD LIME.—15 cases Japan, of rather dark colour, were bought in at 1s. 3d. per lb.

BUCHU LEAVES.—Of 45 bales only part sold, very medium round at 5¼d. per lb. Stalky yellowish longs at 4¾d. per lb.

CAMPHOR OIL.—500 cases white Japan were all bought in, nominally at 50s. per cwt.

CANELLA ALBA.—10 bales were taken out at 45s. per cwt.

CANTHARIDES.—2 casks Russian were bought in at 2s. 3d. per lb.

CARDAMOMS.—27 cases medium Ceylon Mysore practically all sold at 2s. 5d. down to 1s. 2d. per lb. Other 61 cases at 2s. 8d. per lb. for fair bold, other 62 packages realising about same figure. Other 151 cases sold up to 2s. 8d., some very fine bold being bought in at 3s. 6d. per lb. 2 cases wild fetched 2s. 10d. per lb. 15 cases Mangalore sold at 2s. 1d. per lb. 7 cases seeds part sold at 1s. 10d. per lb. Other 5 cases at 1s. 9d. Other 11 bags Mangalore seed at 1s. 8d. to 1s. 11d. per lb.

CASCARILLA BARK.—37 bales were all bought in at 45s. to 57s. 6d. per cwt.

CASSIA FISTULA.—23 bags sold at 20s. per cwt.

CHILLIES.—23 bales Zanzibar bought in at 47s. 6d. per cwt.

CHIRETTA.—20 bales were bought in at 5d. per lb.

CINCHONA BARK.—6 serons sold at 6d. per lb. for the sound and 5½d. for the damaged. 37 bales Calisaya bought in at 6d. per lb.

COCCULUS INDICUS.—122 bags were bought in at 8s. 6d. per cwt.; other 30 bags at 9s.

COLOCYNTH.—7 cases broken Spanish were bought in at 7½d. per lb.

COLOMBO ROOT.—196 bags, sorts, sold readily at 16s. to 17s. per cwt.

CROTON SEEDS.—27 packages rather dull sold at 30s. per cwt. 31 bags good bright were taken out at 45s. to 50s.

CUMMIN SEED.—68 bags new crop Morocco and 15 bags Malta were bought in at 30s. and 32s. per cwt. respectively.

CUTTLEFISH BONE.—30 cases good bold all sold at 7¼d. per lb.

DILL SEEDS.—20 bags were taken out at 8s. per cwt.

DRAGONS' BLOOD.—9 cases were all bought in at £9 10s. per cwt. for good bright, slightly seedy, £8 10s. for damp seedy, and £9 10s. for damp saucers; other 7 cases also bought in at £10 10s. for fair seedy block, and £14 to £15 per cwt. for fair to good bright. 10 cases reeds sold at £6 7s. 6d. to £6 17s. 6d. per cwt.

ERGOT OF RYE.—6 bags Russian were taken out at 2s. 6d. per lb.

ESSENTIAL OILS.—10 cases Citronelle were bought in at 1s. 6d. per lb. Other 3 drums part sold at 10¾d. per lb., subject to holders' approval. 1 case distilled West Indian Oil of Limes bought in at 3s. per lb. 6 packages W.I. Bay Oil at 6s. 6d. per lb. 9 cases Kanaga at 1s. 6d. per oz. 4 half copper Bergamot offered without reserve fetched 5s. per lb. 3 drums commercial Eucalyptus (Collins Malle brand) also offered without reserve realised 1s. 3d. per lb. Other 28 cases were taken out at 1s. 10d. per lb. 5 cases Cassia (Larry's analysis 78 per cent. Cinnamic Aldehyde) realised 3s. per lb. Other 5 cases bought in at 3s. 9d. 4 cases Nutmeg at 2½d. per oz.

GALLS.—3 bags Blue sold at 81s. and 1 bag at 93s. per cwt.

GAMBOGE.—20 cases of good quality failed to find a buyer, and were taken out at £8 5s. per cwt.

GUAZA (HERBA CANNABIS INDICA).—95 bales tops and 42 bales siftings were all bought in, the former nominally at 1s. 2d. per lb., 4 bales rather stalky selling without reserve at 9¾d. per lb. Other 25 Robbins, siftings, held for 10d.

GUM ARABIC.—23 cases East Indian sold at 42s. per cwt. for pale, 32s. 6d. for dark, 16s. to 17s. 6d. per cwt. for siftings. Good pale grains part sold at £6 15s. per cwt. Fair Turkey sorts bought in at 83s. 8 casks white Mogador at 50s. to 55s. per cwt.

GUM ASAFETIDA.—46 cases were all bought in at 17s. 6d. to 55s. per cwt., according to quality. Other 230 packages, part sold at 72s. 6d. down to 56s. per cwt. for the better lots, balance being bought in. Other 63 cases all bought in at various prices according to quality.

GUM BENZOIN.—16 cases fair to good seconds Sumatra were

bought in at £8 15s. per cwt., medium seconds selling £6 15s. per cwt. 35 cases Palembang bought in at 30s. to 50s., according to quality. Other 53 cases ditto at 55s. 28 cases Siam also all bought in at £15 per cwt. for good fair down to £7 10s., and 60s. for low common seedy block. Other 15 cases Siam sold at £16 10s. for fair.

GUM GALBANUM.—13 packages bought in at 1s. 1d. per lb. for dark blocky.

GUM GUAIAACUM.—3 cases of good Gum were bought in at 1s. 2d. per lb. 4 barrels low rubbish offered, without reserve, part sold at 1¾d. per lb.; other 10 packages sold up to 2s. for good loose drop, and 1s. 6d. per lb. for good glassy block.

GUM MYRRH.—3 cases good picked taken out at £5 10s. per cwt.

GUM TRAGACANTH.—5 cases sold at £11 to £15 per cwt. Other 3 cases offered without reserve at £5 17s. down to 32s. 6d. per cwt.

HONEY.—129 packages Jamaica sold readily up to 30s. per cwt. for good white, and at 24s. 6d. for brown. Other 98 packages ditto practically all sold at about same figures. 17 cases Californian were taken out at 40s. per cwt. 124 packages Chilean at 24s. per cwt.

IPECACUANHA.—15 bales Rio part sold at 12s. to 12s. 1d. per lb. 17 bags Carthagenia practically all sold at 7s. 6d. per lb.

LEMON JUICE.—20 pipes were taken out at 1s. 1d. per gallon.

LIME JUICE.—33 packages West Indian were taken out at 1s. 4d. to 1s. 9d. per gallon.

LIQUORICE JUICE.—13 cases Italian mark Barone Amarelli in 2 oz. sticks were taken out at 62s. 6d. per cwt.

MENTHOL.—20 cases Japan fair dry white crystals part sold at 7s. 9d. per lb.

MUSK.—1 bottle grain was taken out at 20s. per oz.

MUSK SKINS.—2 tins realised 2s. 6d. per oz.

NUTMEG PASTE.—2 cases taken out at 2½d. per oz.

NUX VOMICA.—10 bags bought in at 10s. 6d. per cwt.

OPIUM.—4 cases Turkey were bought in at 6s. to 6s. 6d. per lb.

ORANGE PEEL.—10 cases thin cut were bought in at 6¾d. to 7d. per lb. for fair quality, and 3½d. to 4d. per lb. for dark.

ORRIS ROOT.—12 bags medium Florentine were taken out at 45s. per cwt.

OTTO OF ROSES.—5 vases bought in at 11s. to 15s. per oz.

RHATANIA ROOT.—26 bales bought in at 4½d. per lb.

RHUBARB.—7 cases round Canton were all taken out at 1s. per lb., and 7 cases flat ditto at same figure, 7 cases high dried selling at 9d. to 9½d. per lb., 1 case, without reserve, at 6¼d. Fair flat Shensi bought in at 1s. 8d. to 1s. 9d. per lb.; round ditto at 2s.

ROSE OIL.—6 pots bought in at 3d. per oz., the settlings selling at 1d.

SARSAPARILLA.—5 Serons Honduras were taken out at 1s. 8d. per lb., 3 bales Lima selling at 1s. 1d. 8 bales Jamaica realised 1s. 3d. per lb. for the sound, 1 bag fetching 1s. 4d.

SCAMMONY.—10 packages bought in, 15s. per lb. being price named.

SENNA.—69 packages Tinnevely of low quality, part sold at 2d. for sound and 1¼d. to 1½d. per lb. for damaged, balance being taken out at 2d. to 2½d. per lb. Other 34 bales, part sold at 5d. per lb. for fair, down to 1½d. Other 163 bales sold at 5d. to 6½d. for the better lots, but mostly at 1½d. to 1¾d. for low inferior quality. 72 packages good Alexandria all bought in at 8½d. to 8¾d. for good leaf, down to 3½d. per lb. for inferior. 6 bales Alexandria Pods were bought in at 8d. per lb.

SOY.—For 90 casks China only 1s. 1d. per gallon was bid, limit being 1s. 2d.

SQUILLS.—16 bags fair sold cheaply at 2d. per lb.

STAR ANISEEDS.—5 cases China bought in at 90s. per cwt.

STAR ANISEED OIL.—2 cases were bought in at 6s. 6d. per lb.

STICKLAC.—15 cases sold at 34s. per cwt.

TAMARINDS.—37 barrels West Indian sold readily at 11s. 6d. to 12s. per cwt.

TONQUIN BEANS.—5 cases fair Paras part sold at 2s. per lb.

TURMERIC.—47 bags Madras sold at 23s. to 26s. per cwt., and at 17s. to 20s. for inferior. 130 bags Cochin split bulbs were bought in at 8s. 6d. per cwt., and 20 bags China at 26s.

VANILLOES.—1 tin Ceylon of good quality sold at 14s. per lb.

WAX.—Fair Zanzibar sold at £6 15s. per cwt. Medium East Indian taken out at £5 12s. 6d. to £6 per cwt. Fair Mozambique sold at £6 17s. 6d., Jamaica at £7 5s. to £7 12s. 6d. Fair to good Madagascar bought in at £6 10s. to £6 17s. 6d. per cwt. Of 50 cases pale yellow Japan, part sold previously, rest bought in at 33s. per cwt.

Calendar for the Week.

Sunday, June 24.	Second after Trinity.	Sun rises 3.45; sets 8.19.
Monday, June 25.		Sun rises 3.45; sets 8.19.
	ROYAL GEOGRAPHICAL SOCIETY, 1, Savile Row, London, W., at 8.30 p.m.— "Results of Sir George Newnes' Antarctic Expedition," by C. E. Borchgrevink.	
Tuesday, June 26.		Sun rises 3.46; sets 8.19.
	ROYAL PHOTOGRAPHIC SOCIETY, 66, Russell Square, London, W.C., at 8 p.m.— "The Selection of Lenses with Regard to Photographic Perspective, by J. H. Agar Baugh; "How to Ascertain the Conjugates of a Lens without Calculation," by the Rev. F. C. Lambert.	
Wednesday, June 27.	☉ 1.27M.	Sun rises 3.47; sets 8.19.
	ABERDEEN PHARMACEUTICAL ASSOCIATION.—Annual Outing, party leaving Aberdeen by early train for Aboyne, thence proceeding to Strathdon. PUBLIC AND POOR LAW DISPENSERS' ASSOCIATION, St. Bride's Institute, Ludgate Circus, E.C., at 8 p.m.—Last meeting of the session; short papers and other business.	
Thursday, June 28.		Sun rises 3.47; sets 8.19.
Friday, June 29.		Sun rises 3.47; sets 8.19.
Saturday, June 30.		Sun rises 3.48; sets 8.19.
	CRICKET.—Stamford Hill.—Allen C.C. v. May Roberts C.C.	

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the Exchange Column should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., before 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule. — Warnes, 333, Gray's Inn Road, W.C.

1 oz. Morph. Hydroch., 5s.; 1 oz. Cocain. Hydroch., 17s. —Eastman, Forest Lane, Stratford.

Specie Jar (as Maw, Fig. 2) with square mahogany stand, height 2 ft.—Moore, Chemist, Langley, Worcestershire.

Photographic Stock-taking List, now ready, cameras, lenses, mounts.—Edward Peck, East Dereham, Norfolk.

3 ft. Plate Glass Window Stand, two 5 inch, two 4 inch Polished Shelves, equal to new. What offers?—Moore, Chemist, Langley, Worcestershire.

Safe, 20 × 26 × 17½, Hamilton's (makers to Mint), eccentric lever lock, cash drawer, double keys, £4. Letterpress, iron, screw, full size, mounted (two mahogany drawers), with legs, 16s. 6d., both equal new.—Warnes, 333, Gray's Inn Road, W.C.

Second-Hand Jars and Bottles for Sale.—6 2lb blue jars, gold labels, 14 20 oz. blue syrup bottles, 12 2 gall. dark glass bottles, gold labelled, 31 32 N.M. stop. bot., 16 6 to 10 oz. N.M. stop., 9 various sizes N. and W.M. stop., Italian marble mortar, capacity 7 pints, 9½ by 12½ outside diameter, 9½ inch inside diameter, 2 pestles, perfect condition. What offers, all or part?—Address, Bargains, "Pharm. Journal" Office, 5, Serle St., W.C.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Camwal ordinary and preference. State number and price required.—M., 42, Lee Park, Lee, Kent.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

CUCUMBER EMULSION

under one name or another is still the favourite preparation for the toilet. It is best prepared by using

ROUSE'S CUCUMBER PASTE

which produces a uniformly good article, and saves trouble, time, and temper. Other methods give variable results, and will be avoided by chemists who wish to obtain and maintain a sale for this preparation.

½-lb. jars (= 3 lb. Emulsion), 2/3; 1-lb., 4/3; 7-lb., 25/-, post free.

Full directions and attractive labels and handbills in crimson and black free with each jar, also formulæ for Milk of Roses, etc., etc.

N.B.—Cucumbers actually enter into the manufacture of Rouse's Cucumber Paste.

ROUSE BROS., 61, Charlotte St., LONDON, W.

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Every Description always on hand.

DISSOLVED HAEMOGLOBIN CAPSULOIDS.

V. STEIN'S ANALYTISK-KEMISTRE LABORATORIUM, KØBENHAVEN, K. 28 Nov. 1899. By analysis of a sample of Capsuloids sent the 14th of October, 1899, from the office of the Capsuloid Co., I found that the iron contained in them was absolutely the same form of natural iron which is found in the blood I found .21 grams of pure iron in each 100 grams.

(Signed) V. STEIN, Chief Analyst, Royal Danish Agricultural College. CAPSULOIDS are made of the best gelatine and filled with pure dissolved Haemoglobin extracted from fresh blood. The above analysis, made by one of the best Continental analysts, proves conclusively the purity and excellence of this preparation. Capsuloids are soft, flexible, pear-shaped, and easily swallowed. For children, they may be dissolved in hot milk, gruel, &c. The dose is one or two daily for infants, one or two three times daily for adults. They are unsurpassed in the treatment of anæmia, chlorosis, oligæmia, and all the conditions due to blood exhaustion, also in convalescence after La Grippe, or any exhausting disease or injury. The advantages of having this medicine, scientifically prepared, easy to take, without taste or odour, are very great, and as it agrees with the weakest stomachs it cannot be too strongly recommended to the medical profession. Capsuloids are put up in boxes of 100, for Physicians' use only, and sold at 5/- per box post free. They may be obtained through all chemists or direct from the manufacturers,

THE CAPSULOID CO., 31, SNOW HILL, LONDON, E.C.

Notices to Correspondents.

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

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

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

DRAWINGS FOR ILLUSTRATIONS should be executed twice the desired size, clean sharp lines being drawn with a pen and liquid Chinese ink. Shading by washes is inadmissible. Photographs can be utilised in certain cases.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Ashford, Bartlett, Brunt, Darwin, Dennis, Forster, Gibbs, Harrison, Hill, Hortin, Howorth, Jepson, Johnson, Kerr, Lewis, Marshall, Morrison, Mumbray, Naylor, Oddie, Payne, Robb, Swales, Williams, Wyatt.

NEWS IN BRIEF.

Mr. F. W. JACKSON, M.P.S., Trafalgar Pharmacy, Ashton-under-Lyne, has had his pharmacy tastefully refitted.

PROFESSOR OLIVER LODGE, of University College, Liverpool, has been appointed Principal of the University of Birmingham.

THE NILSON MEMORIAL LECTURE will be delivered by Professor Otto Pettersson, of Stockholm, before the Chemical Society, on Thursday, July 5, at 8.30 p.m.

THE ANNUAL FETE of the employees of Messrs. Burroughs Wellcome and Co. will take place at the Wellcome Club and Institute, Dartford, Kent, on Saturday, July 14.

AN IMPORTANT CONFERENCE of veterinary surgeons will be held in Dublin during the second week in August. Delegates will be present from all parts of Great Britain.

MESSRS. C. J. HEWLETT AND SON, 40-42, Charlotte Street, E.C., announce that their establishment will be closed on June 30, on the occasion of the annual excursion of the staff.

MR. A. J. DOYLE, M.P.S.I., Belfast, has kindly given a lantern display at Newry, illustrative of the war in South Africa. The proceeds were handed over to the fund for the relief of widows and orphans of deceased soldiers.

MR. R. W. WALDEN, of Eaton Square, S.W., member of the Pharmaceutical Society, was elected a member of the Metropolitan Asylums Board on Wednesday last, representing St. George, Hanover Square, and Westminster districts.

MR. G. F. FORSTER, of the Royal Chest Hospital, read an interesting paper on "Hospital Pharmacopœias," at a meeting of the Public and Poor Law Dispensers' Association, held on Wednesday, June 27. A report of the paper will be published in the Journal next week.

MR. MARSHALL KEITH WATT, M.P.S., of Aberdeen, on Friday, June 22, was presented with a field glass by a few of his colleagues and friends, on the occasion of his leaving to take up a position at Singapore. Mr. Watt was a member of the Aberdeen Junior Chemists' Association.

MR. WILLIAM SMITH has just gained the title of Associate of Science, Durham University, with distinction in chemistry. Mr. Smith served his apprenticeship with Mr. F. R. Dudderidge, Ph.C., Newcastle-on-Tyne, since when he has been a student at the Durham College of Science.

EDINBURGH CHEMISTS' GOLF CLUB.—The third competition this season for the Gibson Handicap Medal was played last week over the Braids course, with the following results:—First, Captain Lunan, 101-10=91; second and third, Mr. W. C. Baker, 99-3=96, and Mr. Wm. Lyon, 106-10=96, a tie.

A MAN FOUND in St. Stephen's Road, Upton Park, in an unconscious condition, with a black eye and a large contusion on the back of the head, and who subsequently died in the West Ham Hospital from concussion of the brain, is reported to have been identified as James Lyons, a chemist's assistant, late of East Ham.

THE EXETER EMPLOYEES OF MESSRS. JAMES TOWNSEND AND SON, chemists' printers, of Exeter and London, held their annual wayzgoose on Saturday, June 23. Southampton was the rendezvous selected, a company of 160 leaving Queen Street station at 6 a.m., returning from Southampton, after a very enjoyable outing, at 8 p.m., all apparently well satisfied with the good fare provided by the firm.

THE CHEMISTS' EXHIBITION, held at Manchester last week, was the sixth of the series, and the first held out of London. In all there were about eighty exhibitors, and St. James's Hall, Manchester, presented the appearance of an immense druggist's shop. There were entertainments in connection with the exhibition, the Northern Military Band playing in the afternoon and evening, and the cinematograph displaying some of the achievements and wonders of science.

MESSRS. G. B. KENT AND SONS, the well-known brush manufacturers, of Farringdon Road and Victoria Park, have decided to form their business into a limited company, particulars of which will be published the end of next week. We understand subscriptions will be invited for 5½ per cent. preference shares, which will also be entitled to half profits after 10 per cent. has been paid on the ordinary shares, and that the trade will have a preferential allotment.

Marriages.

RYALL—SCANES.—On June 19, at the Wesleyan Chapel, High Street, Witney, by the Rev. G. Vipond Byles, assisted by the Rev. W. H. Walker, Frederick John Ryall, M.P.S., chemist, of Devonport, to Catherine Ann (Kitty), eldest daughter of the late John Scanes, of Witney, Oxon.

HILL—BENNETT.—On June 23, at St. James's, Kennington Park Road, by the Rev. S. Bache-Harris, M.P., P. R. Hill, pharmaceutical chemist, of Weymouth, to Elizabeth Maude, youngest daughter of Mr. B. W. Bennett, of Kennington, S.E.

WASS—BOWSER.—On June 26, at Frith Ville, by the Rev. S. Craven, assisted by the Rev. J. Holden, Charles Wass, of Holbeach, to Alice Amy Bowser, youngest daughter of Mr. Charles Bowser, of Frith Ville, Boston.

MARKET REPORT.

The articles quoted here have often to be sorted in order to suit the requirements of the retail pharmacist, and the quotations given are in all cases the lowest cash prices for bulk quantities. The cost of freightage from the chemical and drug works to the various distributing centres must also be considered. It is important that these conditions should be borne in mind in making any comparison between the prices quoted and those of the wholesale drug trade.

LIVERPOOL, WEDNESDAY, JUNE 27, 1900.

In both chemicals and drugs there has been rather a dull market as regards business done and inquiries, but the articles dealt in have been a little more varied than usual. Oils continue firm in tone, with advances in the case of Cottonseed Oil and Linseed Oil, but an easier market for Spirits of Turpentine. Chilian Beeswax and Honey have sold well in amount, and have realised fully late rates.

AMMONIUM SALTS.—Carbonate, 3½d. per lb. Sal Ammoniac, 37s. and 39s. per cwt. Sulphate, £11 1s. 3d. per ton.

BEESWAX.—Three sacks of Chilian made £7 5s. per cwt., 6 cases of Peruvian a like figure, and 13 sacks Chilian £7 10s. per cwt.

BLEACHING POWDER.—Is quiet at £6 10s. to £7 10s. per ton.

CANARY SEED.—Turkish is very dull at 31s. to 32s. per 464 lbs., with no sales reported.

COCHINEAL.—Continues quiet to grey and black Teneriffe at 8½d. to 9d. per lb.

COPPERAS.—Is firm at 39s. and 37s. per ton.

COPPER SULPHATE.—Is very quiet and dull at £24 15s. per ton.

GUINEA GRAINS.—5 bags found buyers at 180s. per cwt.

HONEY.—35 barrels of Chilian made the following figures:—Pile X, 30s. 6d. per cwt.; Pile 1, 24s. 6d. to 25s. 6d.; and Pile 2, 23s. 6d. per cwt.

LINSEED.—Is very firm in all positions; of Calcutta near at hand, 75 tons sold for 56s. per 416 lbs., and now 57s. is asked; for forward delivery 57s. 7½d. is wanted. American and River Plate are not being offered.

OILS (FIXED) AND SPIRITS.—Castor Oils are dull of inquiry, and sales are only of small amount. 400 cases of Calcutta "near at hand" sold at 3½d. per lb., spot price 3¾d. 1st French sells at 3¾d. per lb., with ton lots forward at £29 per ton f.o.b.; Marseilles, 2nd French, and Belgian, 3½d. per lb. Olive Oil is in limited inquiry with steady quotations for Spanish oil on the spot of £35 to £36 per ton. Linseed is held for the advanced price of 37s. to 37s. 6d. per cwt. for Liverpool pressed oil. Cottonseed Oil, Liverpool refined, has advanced to 24s. and 24s. 6d. per cwt., and has a steady sale at that price. Spirits of Turpentine are down to 37s. 6d. per cwt. for spot lots, 35s. 6d. for lots afloat, and 34s. for lots to be delivered between July and December.

POTASSIUM SALTS.—Bichromate, 4d. per lb. Chlorate is steady at 4½d. to 4¾d. per lb. Cream of Tartar is 76s. to 81s. per

cwt., with sales mostly of Portuguese. Pearlashes are slow at 32s. 6d. per cwt. and Potashes at 25s. 6d. Prussiate is firm at 8d. per lb. Saltpetre, 21s. per cwt.

SODIUM SALTS.—Bicarbonate, £6 5s. to £6 15s. per ton. Borax is firm at £16 10s. to £17 per ton. Caustic Soda, 76 to 77 per cent., £11 5s. to £11 10s. per ton; 70 per cent., £10 5s. per ton. Soda Crystals, £3 5s. per cwt. Nitrate is only in moderate inquiry at 8s. 1½d. to 8s. 4½d. per cwt.; 455 bags of loose collected sold at 7s. 3d. to 7s. 6d. per cwt.

LONDON, THURSDAY, JUNE 28, 1900.

Business in Drugs and Chemicals has not been very active during the past week. There is, however, nevertheless a firm undertone as regards values of many articles, while China produce, such as Cassia Oil and Star Aniseed Oil, has decidedly advanced in price. Ergot of Rye is also dearer. Quinine Sulphate is also somewhat higher as far as the speculative market is concerned. Iodides and Salicylates are unchanged, Bromides very firm. Cod Liver Oil continues weak. Menthol is the turn dearer. Glycerin higher, especially for the Crude. Sulphonal and Phenacetin steady. Acetanilide dull and weak, Cocaine steady, Borax and Acid Boracic, Bismuth, Quicksilver and Mercurials unchanged. The following are the prices ruling for some articles of principal interest:—

ACETANILIDE—Keeps weak at low prices hitherto ruling, say, 9½d. to 11d. per lb, according to make, quantity and packing.

ACID BORACIC—Steady, at 26s. per cwt. for crystals, and 28s. per cwt. for powder.

ACID CARBOLIC—Continues in good demand at 10½d. to 11d. per lb. for the 35°-36° ice crystal, according to quantity and make, in large bulk packing, 11¼d. to 11¾d. for the 39°-40° ice crystal, and 1s. 0¼d. to 1s. 0½d. per lb. for the B.P. quality, 39°-40°, in detached crystals. Crude, 60° F., 2s. 8d. to 2s. 9d. per gallon; ditto, 75° F., 3s. 6d. per gallon. Liquid, 95-98 per cent. of pale straw colour, 1s. 5d. to 1s. 6d. per gallon in 40-gallon casks; ditto, 25-30 per cent. of dark colour, 9d. to 11d. per gallon.

ACID CITRIC.—Unchanged at 1s. 4½d. to 1s. 5d. per lb. for crystals in 5-cwt. casks, the makers still declining to sell in quantity for forward delivery.

ACID OXALIC—Still obtainable at 3¼d. to 3½d. per lb., according to quantity, nett, free delivered in London.

ACID TARTARIC.—English is quoted on the spot 1s. 0¾d. to 1s. 1d. per lb., and foreign 1s. per lb.

ACONITE ROOT—Appears to be in demand, while offers are somewhat scarce, and 60s. per cwt. is asked in some quarters.

AMMONIUM COMPOUNDS.—Bromide, 2s. 3d. per lb. Carbonate, 3½d. to 4½d. per lb., according to make, quantity, and packing. Muriate, chemically pure, small cryst., 33s. to 36s. Sal Ammoniac, £37 to £39 per ton for firsts and seconds respectively, crushed for batteries 2s. per cwt. more. Iodide, 13s. 10d. per lb. Sulphate dull, grey, 24 per cent., London, prompt, £10 17s. 6d.; Hull, prompt, £10 15s.; Leith, prompt, £10 15s.; Beckton, nominal; Beckton, terms prompt, £10 15s. Sulphocyanide, 1s. 1d. to 1s. 2d. per lb.

ANTIMONY.—Regulus is quoted £38 to £39 per ton, and crude Japan (Black Sulphide) £22 to £22 10s. per ton.

ASHES.—Pots, 28s.; Pearls, 33s.

ATROPINE—Makers quote 15s. 6d. per oz. for the Sulphate B.P., and 17s. 10d. per oz. for the pure alkaloid.

BELLADONNA ROOT—Is firmer, 42s. 6d., nett, here, having been paid for good dry root.

BISMUTH—Unchanged at 5s. per lb. for the commercial quality of the metal, 5s. 8d. per lb. for the Subcarbonate, and 5s. 1d. per lb. for the Subnitrate.

BLEACHING POWDER (CHLORIDE OF LIME)—Is quoted £7 per ton for English.

BORAX.—Crystals are still quoted 17s. per cwt., and powder 18s.

BROMIDES AND BROMINE—Are very firm at unchanged prices, viz., 1s. 11½d. per lb. for Potassii bromid., 2s. 2½d. per lb. for Sodii bromid., 2s. 3d. per lb. for Ammon. bromid. Bromine also unchanged at 2s. to 2s. 2d. per lb., according to quantity, in cases of 60lbs. each.

CAMPHOR.—The market for crude remains quiet but steady, 100 piculs Japan having been sold for June-August shipment at 180s. per cwt. c.i.f. Refined is firm at 2s. 4d. per lb. for Bells and Flowers, tablets being quoted dearer in proportion, according to size.

CASSIA OIL—Is also very firm, with business reported to arrive in 75 to 80 per cent. at about 3s. 5d., c.f. and i.

CASTOR OIL—Steady. Belgian, first pressing, spot, £31 10s.; July-Dec., £30, f.o.b. Antwerp, second pressing, spot, £28 10s.

per ton; Hull manufactured, guaranteed cold-drawn pure Pharmaceutical, £34 per ton in barrels, 4¼d. per lb. in cases; pure firsts, £31 10s.; seconds; £29 10s. per ton in barrels; firsts 3¼d. per lb. in cases, seconds 3¼d., ex-wharf, London.

CLOVES.—At auction no Zanzibar were offered. 15 cases Penang were bought in, meeting little demand, good bright picked at 10d., rather small and dark at 7½d. Privately Zanzibar flat and lower, with more business passing at the decline, comprising June-August and August-October deliveries at 3 23-32d. to 3¼d. and sellers, and January-March at 3 17-32d.

COAL TAR DISTILLATION PRODUCTS.—Toluol: Commercial, 1s. 2d. to 1s. 3d. per gallon; pure, 2s. 3d. to 2s. 6d. Creosote, 2½d. to 4d. per gallon, according to quantity and packing. Crude Naphtha, 30 per cent. at 120° C., 5d. per gallon. Solvent Naphtha, 95 per cent. at 160° C., 1s. 3d. per gallon; ditto, 90 per cent. at 160° C., 1s. 1d.; ditto, 90 per cent. at 190° C., 1s. 2d. per gallon. Anthracene: A, 3½d. per unit; B, 2½d. per unit. Pitch, 37s. 6d. per ton, f.o.b. Tar: Refined, 12s. 6d. per barrel, 2½d. per gallon; crude, 12s. per barrel, 2d. per gallon.

COCAINE.—Makers still quote 16s. 3d. per oz. for the Hydrochlorate for 200-oz. lots in 25-oz. tins, none of the brands most in favour being obtainable from second-hand at anything below this figure.

CODEINE—Very firm at 13s. 6d. per oz. for the pure, the salts being now quoted 1s. to 2s. per oz. less than the pure.

COD LIVER OIL—Continues dull and in slow demand, nominally at 70s. to 75s. per barrel for best new non-congealing Norwegian oil, in tin-lined barrels of 25 gallons each.

COPPER SULPHATE—Is easier at £24 5s. to £25 per ton, according to make, etc., for spot delivery.

CREAM OF TARTAR—Steady at 77s. per cwt. for first white crystals on the spot, 79s. per cwt. for powder, and 78s. for the 95 per cent.

ERGOT OF RYE—Market is very firm at 2s. 3d. per lb for sound Russian, and 3s. 4d. to 3s. 6d. per lb. for Spanish, latter appearing to be in even more limited supply than the Russian, stocks of which are, however, also probably not large.

ESERINE (PHYSOSTIGMINE).—Makers quote 2s. 6d. per gramme for the Sulphate and Salicylate salts and 3s. 6d. per gramme for the pure.

GALLS—Remain very quiet and privately little business is passing; on the spot China quoted nominally 75s., with sellers of Japan at 65s. For arrival, the season being over, no quotations are forthcoming, but a parcel of China afloat still offers at 68s. 6d. c. f. and i.

GENTIAN ROOT.—Market is firmer, and 16s. 6d. to 17s. per cwt. is asked for good dry root on the spot.

GINGER.—The moderate supply of Cochin in auction went off slowly, only a few packages selling at rather easier rates. Of 500 bags and 163 cases offered 32 packages sold, fair bright at 31s., medium, some small, cut and scraped at 64s. 6d., the remainder bought in, medium, roughly cut and scraped at 70s. to 75s., small and medium ditto at 50s., small at 40s. Jamaica, in fair supply, met a fair demand at firmer rates for good qualities, common being difficult of sale and mostly bought in. Of 585 barrels 13 half-barrels and 1 cask offered, about 400 packages sold at and since sale, fine bright at 76s. to 79s., fair to good bright at 65s. to 72s., common 48s. to 50s., common dark 38s. to 41s. Japan: 163 bags new crop offered and bought in at 25s. to 26s.

GLYCERIN.—Crude has further advanced, and is now at a prohibitive price for refining purposes, unless Refined also responds, which has been the case to a comparatively limited extent so far. Best white odourless, double-distilled, chemically pure, 1,260 S.G., 60s. in tins and cases, being quoted 60s. to 64s. per cwt., according to make, for English, and 65s. to 77s. 6d. for German, the latter price being asked for fancy brands.

IODIDES AND IODINE—Remain in *statu quo*. The combined makers still quote Potassii Iodid., 10s. 6d. per lb.; Sodii Iodid., 11s. 10d. per lb.; Ammon. Iodid., 13s. 10d. per lb.; Iodoform, crystal, powder, or precipitated, 13s. 10d. per lb.; Iodine Resublimed, 12s. per lb. Commercial Iodine is also so far unchanged at 7½d. per oz. Buyers will for the present do well to continue to buy strictly from hand to mouth only.

JALAP—Has been rather quiet during past few days, price being nominally 7½d. to 8d. per lb. for good heavy tubers, according to holder.

MENTHOL—Market is decidedly firmer. Stocks of the favourite Kobayashi brand appear to be sold out; other brands of good dry white crystals are quoted 8s. 3d. to 8s. 6d. per lb.

MERCURIALS—Are firm at unchanged prices, viz., 3s. 2d. per lb. for Calomel and 2s. 10d. per lb. for Corrosive sublimate, the other preparations of mercury being quoted at proportionate prizes.

MORPHINE—Is quiet but steady at 5s. per oz. for the Hydrochlorate powder and 2d. more for the crystal salt.

OILS, FIXED, AND SPIRITS.—Linseed: Forward positions close fully 10s. dearer. On the spot pipes London ordinary, £34 10s. to £34 15s. (E.I. 5s. premium); barrels, £34 15s. Hull, spot, naked, £34 12s. 6d. Rape firm. Ordinary brown, on the spot, barrels £29. Refined, spot, £30 10s. Ravison, nominal, naked, spot, none. September-December, £25 10s. Cotton firm. London crude, spot, £22 5s. Refined, spot, £24 to £24 10s., according to make. Hull, naked, refined, spot, £22 5s. Olive, Mogador, £35. Spanish, £36 10s. Levant, £35. Coconut, Ceylon, on the spot, £24 10s. to £24 15s.; near, £23 5s., c.i.f. Cochin, spot, £27 10s. Palm Lagos, on the spot, £24 10s. Petroleum: Forward positions are in better request, and market closed decidedly firmer. Russian, spot, 6½d.; American, spot, 6½d. to 6¾d.; Water White, 7¾d. to 7¾d. Lubricating Pale: American, spot, 9s. to 10s.; Black, 5s. 9d. to 6s.; Russian Black, 6s. to 6s. 6d.; Pale, 8s. 9d. to 10s. Petroleum Spirit: American ordinary, 8½d. to 9¼d.; Deodorised, 9½d. Turpentine: American, spot, 36s. 9d.; June, 36s. 6d.

OPIUM.—The new crop is expected to be large. Meantime market remains quiet, but fairly steady at 9s. to 10s. 6d. per lb. for manufacturing and druggists' kinds and 10s. 3d. to 12s. 6d. per lb. for soft shipping. Persian remains very scarce, and 14s. to 14s. 6d. per lb. is asked for really fine, there being but very little obtainable even at this fancy price.

PARAFFIN WAX.—Crude is quoted 2¾d. to 3d. per lb., and refined 4d. to 4¾d. per lb.

PHENACETIN.—Makers are firm at 5s. 3d. per lb. for both crystals and powder in 5-cwt. lots, while second-hand still offers in limited quantity at 5s.

PILOCARPINE.—Makers quote the Hydrochlorate and Nitrate Salts 41s. 9d. per oz. for 8-oz. lots.

PITCH—8s. 6d. to 9s.

POTASSIUM COMPOUNDS.—Bicarbonate, 39s. 6d. to 42s. 6d. per cwt. Bichromate, 4d. per lb. Bromide, 1s. 11½d. per lb. Chlorate: Spot London, crystals, 4¾d. per lb. net; powder, 4¾d. per lb. Carbonate, 90 per cent., £19 10s. per ton, ex ship. Cyanide, 98 per cent., 1s. 2d. per lb. Hydrate (Caustic Potash), 90 per cent., £25 15s. per ton; ditto, 75 per cent. to 80 per cent., £22 per ton. Nitrate, refined, £21 5s. per ton. Permanganate small crystals quoted 50s. to 60s. per cwt., according to make; large crystals, 5s. per cwt. more. Prussiate: Yellow, English makes, 8d.; Beckton, 7½d.; red, 1s. 1d. to 1s. 2d. per lb., according to quantity. Sulphate, 90 per cent., £9 15s. per ton.

QUICKSILVER—Is firm at £9 10s. from the importer, second-hand still not offering.

QUININE.—At the late sales of Java-made Quinine, out of 300,000 oz., only part sold at decidedly lower prices than those which were obtained at last sale of Quinine in Java. Here the speculative market has become quiet again, some sales having, however, been effected at 1s. 4d. per oz. for spot, 1s. 4½d. per oz. for August delivery, and 1s. 4½d. per oz. for December delivery, for B&S and/or Brunswick Sulphate; makers of these brands maintain their price of 1s. 4½d. per oz. for 1,000-oz. lots in 100-oz. tins.

ROSIN.—Strained is quoted 4s. 9d. per cwt. ex wharf for spot delivery, 4s. 4½d. per cwt. afloat, and 4s. 7d. per cwt. ex ship terms for July-September shipment per sailing vessel.

SALICYLATES AND SALOL.—There is no change in price to report.

SANTONINE—Is firm at makers' price of 11s. 3d. per lb. for 2-cwt. lots, while second-hand appears to be quite cleared out.

SODIUM COMPOUNDS.—Crystals: Barrels quoted 60s.; bags, 57s. 6d. Acetate, £14 10s. per ton, ex ship. Arseniate, 45 per cent., £13 10s. per ton. Bicarbonate, landed, £7 5s. per ton. Bichromate, 3½d. per lb. Bromide, 2s. 2½d. per lb. Caustic, 70 per cent. white, £10 15s. to £11; 60 per cent., £1 less. Chlorate, 4¾d. per lb. Hyposulphate (Antichlor), 7s. to 9s. per cwt., according to make. Iodide, 11s. 10d. per lb. Manganate, 25 per cent., £15 10s. per ton. Nitrate: On the spot refined, £8 15s.; ordinary, £8 5s.; 98 per cent., £26 per ton. Phosphate, £10 10s. per ton. Prussiate, 5½d. per lb. Stannate, 40 per cent., £3 10s. Sulphate, £1 7s. 6d. per ton. Sulphide Crystals, £6 10s. Sulphite, £5 15s. per ton.

SPICES (VARIOUS).—Pepper: At auction no Singapore was catalogued. 12 packages Wynaad offered and sold, good heavy at 6¼d.; 93 bags Penang bought in at 5¾d. White Pepper con-

tinues in slow demand. 80 bags and 42 cases Singapore bought in, fine bold at 1s., good to fine bold Coriander kind at 10¾d. to 11d. Also 168 bags Penang fair at 8¾d. Chillies quiet, and 30 bags Japan in auction were bought in, fine bright at 50s. Capsicums also quiet. 2 bales Natal offered and bought in; good bright long off stalk at 90s.; darker ditto at 70s. Pimento dull of sale, and 217 bags in auction all bought in. Cinnamon: In auction 4 bales Ceylon sold without reserve, fourths at 5d. to 8d. Nutmegs dull of sale; 30 packages Penang offered, 14 bags sold, defective at 5½d., broken and shelly at 2½d. West Indian: 38 packages sold, 69's at 1s. 5d., 85's at 1s. 1d. Mace quiet; of 12 packages Penang in auction only 3 sold; bold pale and reddish, 1s. 11d.; dust, 10d. West Indian, 4 packages sold, fair to good pale, 1s. 5d. to 1s. 7d.; broken, 1s. 3d.

SULPHONAL.—Makers' price remains at 20s. 6d. per lb. for both Crystals and Powder, with a certain reduction for large quantity in bulk packing. Second-hand is practically sold out.

TAR.—Stockholm, 26s.; Archangel, 17s. 6d.

THYMOL.—There are sellers at 9s. 3d. to 9s. 6d. per lb., according to quantity.

TURMERIC.—At auction 251 bags Madras offered, but withdrawn, meeting no demand. Privately sales are quite retail at the recent concession. Madras finger quoted 30s. to 32s. 6d. for fair to good bright, and Cochin split bulbs 7s. 6d. to 8s. for ordinary to fair.

VANILLA.—The total brought forward at the auctions to-day comprised 363 tins, and practically all sold at fully previous rates. Seychelles: 337 tins offered and sold; fair to good colour and flavour, 8 to 8½ inch at 23s. to 23s. 6d., 7½ to 8 inch at 22s. to 23s., 7 to 7½ inch at 20s. 6d. to 22s., 6½ to 7 inch at 18s. to 20s. 6d., 6 to 6½ inch at 17s. to 19s. 6d., 3½ to 5½ inch at 15s. to 18s.; brown common and rough 4 to 8½ inch at 12s. to 16s. Ceylon: 1 box loose brown sold at 9s. Mauritius: 4 tins sold, subject, fair colour, 7½ to 8½ inch at 22s.; slightly brown, 4 to 7 inch at 12s. to 17s. 6d.

EXCHANGE COLUMN.

PREPAID NOTICES not exceeding TWELVE WORDS are inserted in this column at a fee of Sixpence each, if they do not partake of the nature of ordinary advertisements. For every twelve words (or less) extra, the charge is Sixpence. A price, or two initials, will count as one word. Notices for the Exchange Column should reach the Pharmaceutical Journal Office, 5, Serle Street, Lincoln's Inn, W.C., before 5 p.m. on Thursdays.

OFFERED.

Moulds.—Suppository, Pessary, Bougie, Capsule.—Warnes, 333, Gray's Inn Road, W.C.

Photographic Stock-taking Lis!, now ready, cameras, lenses, mounts.—Edward Peck, East Dereham, Norfolk.

Dental Engine, No. 4 handpiece, 18 bits, cost £5, for £4 (new) Napier's upright stand, with 2/50 bottles, cost £4, offered at £2 s.—L. D. S., 33, The Triangle, Clifton, Bristol.

For Disposal, Plate-glass Show Stand, with 4 shelves, 34 by 12, 33½ by 10½, 33½ by 9, 30½ by 5¼, height 36 in., as good as new, £2 2s.; also small Oval Dental Case, 10s. 6d.—Edwards, 41, Quernmore Road, Stroud Green, N.

Quarter-plate Hand Camera, Lancaster's Perfect Omni-graph; equal to new; carries six plates, time and instantaneous see-saw shutter, 27/6, cost 42/-; or with extra changing box, carrying six more plates, 32/6. Specimen print sent.—Taylor, 13, Pier Street, Ryde.

Magic Lanterns (second-hand) and effects; bargains. Marvellous pamphengos oil lantern pictures, like limelight; £4 4s., reduced to £3 10s. Illustrated lists, 3d. The Universal Lantern, 4-in. 4-wick, 18s. 6d. Cinematographs, Hughes' Patent Photo Rotoscope Peep Show or Outdoor Theatre; 20 can see at once; £21 10s. Greatest money-taker of the 19th century; pays for itself in a week. Animated pictures, like limelight. Illustrated particulars, 2d.—Hughes, specialist, Brewster House, 82, Mortimer Road, Kingsland, London, N.

WANTED.

Frog in Throat, Keen's Corn Cure.—Eastman, Forest Lane, Stratford.

Camwal ordinary and preference. State number and price required.—M., 42, Lee Park, Lee, Kent.

Old Electric Lamps and Scrap Platinum, for cash.—P. Rowsell, 9, Derwent Grove, East Dulwich, London, S.E.

BRITISH PHARMACEUTICAL CONFERENCE, 1900.

LONDON ENTERTAINMENT FUND.

Second List of Subscriptions.*

	£	s.	d.		£	s.	d.
A Friend	0	10	6	Meggesson and Co.	5	5	0
Amoore, A. S.	2	2	0	Morris, E. W.	1	1	0
Apollinaris Company	5	5	0	Norton, F.	0	10	6
Atkinson, L. G.	0	10	6	Oppenheimer and Co.	5	5	0
Baker, A. P.	0	10	6	Parker, T. P.	1	1	0
Bateman, T. H. and Co.	2	2	0	Parsons, W.	2	2	0
Bird, F. C. J.	1	1	0	Paul, Dr.	2	0	0
Bridges, C.	1	1	0	Pettinger, E.	0	10	6
<i>British and Colonial Druggist</i>	5	5	0	Potter and Clarke	5	5	0
Bullock, J. Lloyd	2	2	0	Pretty, C.	1	1	0
Burgoyne Burbidges and Co.	5	5	0	Roach, H.	2	2	0
Colchester, W. M.	0	10	6	Roberts, S.	2	2	0
Constance, E.	1	1	0	Roberts and Co.	2	2	0
Corbyn, Stacey and Co.	5	5	0	Sadler, W.	1	1	0
Cresswell	1	1	0	Sage, C. E.	1	1	0
Cresswell, F.	1	1	0	Sangster, A.	2	2	0
Davis, D. S.	0	10	6	Saunders, A.	0	10	6
Davy, Hill and Co.	5	5	0	Shaw, J.	1	1	0
Evans, J. A.	1	1	0	Solomon, A. H.	1	1	0
Fassett and Johnson	5	5	0	Squire, Peter	2	2	0
Frost, W. Toogood	2	2	0	Stickland, W. H.	2	2	0
Gosnell, John	2	2	0	Storey, E. H.	1	1	0
Harrington Bros.	2	2	0	Taplin, J. W.	1	1	0
Harrison, A. W.	2	2	0	Umney, J.	2	2	0
Hatfield, G. B.	1	1	0	Warner, J.	1	1	0
Howie, W.	1	1	0	Whinfield, Hora and Co.	5	5	0
Huskisson, H. O. and Co.	5	5	0	Will, W. Watson	2	2	0
Ingram and Royle	2	2	0	Williams, John	0	10	6
Jones, R. H.	1	1	0	Willows, Francis and Butler	5	5	0
Lansdown, G. A.	1	1	0	Wilson, J.	1	1	0
Lorimer and Co.	5	5	0	Wilson, Harold	1	1	0
Macdonald, Alex.	1	1	0	Wink, J. A.	2	2	0
Macfarlan and Co.	5	5	0	Woollons, C. H. F.	1	1	0
Matthey, G.	2	2	0	Wootton, A. C.	2	2	0

* The first list of subscriptions appeared in the *Pharmaceutical Journal* for March 3 last, page 236. Further subscriptions should be promptly notified to Mr. William Warren, 24, Russell Street, Covent Garden, W.C.

Calendar for the Week.

Sunday, July 1.	Third after Trinity.	Sun rises 3.49; sets 8.19.
Monday, July 2.		Sun rises 3.49; sets 8.19.
EDINBURGH PHARMACY ATHLETIC CLUB.—Swimming Race.		
ROYAL INSTITUTION, Albemarle Street, Piccadilly, W., at 5 p.m.—General Monthly Meeting.		
Tuesday, July 3.		Sun rises 3.50; sets 8.18.
Wednesday, July 4.	0.14M.	Sun rises 3.51; sets 8.17.
PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C., at 11 a.m.—Meeting of the Council.		
Thursday, July 5.		Sun rises 3.51; sets 8.17.
CHEMICAL SOCIETY, Burlington House, Piccadilly, W., at 8.30 p.m.—The Nilsson Memorial Lecture, by Professor Otto Pettersson, of Stockholm.		
Friday, July 6.		Sun rises 3.52; sets 8.16.
Saturday, July 7.		Sun rises 3.53; sets 8.16.
CRICKET.—Riddlesdown.—Allen C.C. Captain v. Vice-Captain.		

LONDON GAZETTE NOTICES.

PARTNERSHIPS DISSOLVED.

Charles Francis Townsend and Edward Frederick Teschemacher, analytical chemists, Outer Temple, Strand, London, E.C.

William Houseman and John Williams, photographers, 255A, Hyde Road, Gorton (Lancs.). Debts will be received and paid by William Houseman.

Frederick Atkinson and James Kearney, dealers in photographic materials, 66, Victoria Street, Liverpool. Debts will be received and paid by F. Atkinson.

RECEIVING ORDER IN BANKRUPTCY.

George Herbert Matthews, trading as Matthews Brothers, mineral water manufacturers, Wollaston, Stourbridge.

LETTERS, NEWSPAPERS, QUERIES, and OTHER COMMUNICATIONS have been received from Messrs. Bascombe, Boyce, Browning, Bührer, Burgin, Carrington, Coombe, Cope, Cummings, Dudderidge, Dunstan, Gifford, Hass, Hill, Hudson, Jackson, Kearns, Latreille, Marchant, Millard, Nash, Nicholson, Park, Penny, Pickard, Pickering, Pollard, Rogerson, Sadler, Scott, Spence, Sykes, Thomson, Turner, Walden, Walker, Wamsley.

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AMESBURY, SALISBURY, WILTS.
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I remain,

(Signed) Yours faithfully,

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Notices to Correspondents.

ALL COMMUNICATIONS FOR THE 'PHARMACEUTICAL JOURNAL' must be addressed to the Editor, 17, Bloomsbury Square, London, W.C., and, if intended for publication in the current week's issue, should reach the Office not later than Wednesday, though news can be received as late as Thursday, if specially arranged for. Instructions from Members of the Pharmaceutical Society, with reference to the transmission of the Journal, must be sent to the Secretary, 17, Bloomsbury Square, London, W.C. Advertisements and Orders for copies of the Journal must be addressed to the Publishers, 'Pharmaceutical Journal' Office, 5, Serle Street, Lincoln's Inn, London. ARTICLES and REPORTS sent for the Editor's approval should be accompanied by stamped directed envelopes, otherwise no guarantee can be given that they will be returned if not found suitable.

